

## **APPENDIX A – RESOLUTION OF ADOPTION BY LEAD AGENCY**

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This resolution will be added upon adoption of the 2019 IRWM Plan by the Board of Supervisors of the San Luis Obispo County Flood Control and Water Conservation District.

**APPENDIX B – SAN LUIS OBISPO COUNTY REGION IRWM  
PROGRAM PARTICIPANTS MEMORANDUM OF  
UNDERSTANDING AND SIGNATORIES**

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# ATTACHMENT 1

## **San Luis Obispo County Region Integrated Regional Water Management Program Participants Memorandum of Understanding**

The undersigned agencies and organizations hereby agree as follows:

### **1. BACKGROUND**

The State of California has established an Integrated Regional Water Management (IRWM) planning and grant program pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code (PRC) Section 75001 et seq., also known as Proposition 84). This program is anticipated to be perpetuated and/or modified by future Bond acts. The IRWM program provides guidance for collaborative efforts to manage all aspects of water resources in a region by crossing jurisdictional, watershed, and political boundaries to involve multiple agencies, stakeholders, individuals, and groups in order to address issues and differing perspectives of all entities involved through mutually beneficial solutions. Regions that develop IRWM plans in accordance with the guidelines are eligible for certain water resources grant funding opportunities.

In accordance with PRC Section 75001 (et seq.) and State IRWM Program guidelines, a Memorandum of Understanding (MOU) (dated 2009), signed by eleven agencies within San Luis Obispo County, established a Regional Water Management Group (RWMG) for the San Luis Obispo County IRWM Region, and the San Luis Obispo County IRWM Region was officially accepted by the State in May 2009.

The San Luis Obispo County IRWM Region water resources stakeholders have determined the need to update the IRWM MOU in order to meet new State IRWM guidelines, to clarify the governance structure for IRWM planning in the San Luis Obispo County IRWM Region, and encourage broader participation. This MOU, in conjunction with the current IRWM Plan, sets forth the San Luis Obispo County IRWM Region's governance structure thereby allowing members and other stakeholders to understand how to participate in the IRWM Plan development and implementation.

### **2. PURPOSE, GOALS, AND APPROACH**

**2.1 Purpose.** The purpose of this MEMORANDUM OF UNDERSTANDING (MOU) is to establish the mutual understandings among the San Luis Obispo County Region participants with respect to their joint efforts to develop and implement an Integrated Regional Water Management (IRWM) Plan for the San Luis Obispo County Region, including the definition of common IRWM terms, roles and responsibilities of IRWM Program Participants, and decision-making processes.

**2.2 Goals.** The goal of the IRWM program is to provide a reliable, long-term, and high-quality water supply, and to establish a unified vision among the participants' goals for water quality improvement, ecosystem preservation, water supply protection and enhancement, ground water management and flood management, in the context of social justice and climate change adaptation, while protecting the environment. The adopted IRWM plan will identify major water-related goals, objectives and conflicts within the region, consider a broad variety of water management strategies, identify the appropriate mix of water demand and supply management alternatives, water quality protections, flood management strategies, and environmental stewardship actions.

**2.3 Approach.** The San Luis Obispo County Region participants are specifying their shared intent to coordinate and collaborate on water management issues, giving consideration to disadvantaged communities and Native American tribes and their water related needs. In order to

enhance participation of stakeholders, it will be necessary to work at a sub-regional level to better understand the water resources needs and priorities throughout the region. When applying for grants, the San Luis Obispo County Region will strive to distribute the grant funding request fairly across the geographic region. The goal is to distribute awarded funding from each grant cycle equally across the sub-regions (i.e. one quarter of the overall funding to benefit each of the three sub-regions' projects/programs and one quarter of the overall funding to benefit regional projects/programs), to the extent feasible.

### 3. DEFINITIONS

**3.1 Integrated Regional Water Management Plan (Plan).** A comprehensive plan for a defined geographic area which shall satisfy the requirements of California's IRWM Program.

**3.2 San Luis Obispo County Region (Region).** The geographic area of San Luis Obispo County, which is coterminous with the San Luis Obispo County Flood Control and Water Conservation District (District) boundary.

**3.3 Local Agency.** Any city, county, city and county, special district, joint powers authority, or other political subdivision of the state, a public utility as defined in Section 216 of the Public Utilities Code, or a mutual water company as defined in Section 2725 of the Public Utilities Code.

**3.4 Program Participants.** Development and implementation of the Region's Plan is a collaborative effort undertaken by the Region's participants, as further discussed in Section 4. The effort is being led by the District, in partnership with the Regional Water Management Group, Water Resources Advisory Committee, Implementation Affiliates, and Interested Stakeholders. Only regional projects and programs to be implemented by those agencies which have adopted the Plan will be eligible for grant applications. The Region categorizes IRWM Program Participants into the following:

**3.4.1 Regional Water Management Group (RWMG).** A group in which three or more local agencies, at least two of which have statutory authority over water supply or water management, as well as those other persons who may be necessary for the development and implementation of the Plan, participate by means of this memorandum of understanding, in accordance with requirements of the California Water Code (CWC § 10539). The Region's RWMG members are signatories to this MOU, have adopted the current Plan, and may designate a representative to participate in RWMG activities and its Working Group. The entities must be either a Local Agency or an IRS 501(c)(3) nonprofit organization. The RWMG has the capacity to carry out projects (i.e. financial resources, management structure, adequate staffing). The agencies/organizations that form the RWMG may have planning or implementation projects eligible for State IRWM grants.

**3.4.2 Water Resources Advisory Committee (WRAC).** This is the committee comprised of water purveyor, resource conservation district, environmental and agricultural, and other water resources representatives that was originally established in the 1940s to advise the District Board of Supervisors on water resource issues. The WRAC is a Brown Act committee that meets monthly, with the exception of July and August. Many participants are actively engaged in issues relevant to Plan development and implementation, and will represent important stakeholder groups throughout the program.

**3.4.3 RWMG Working Group (Working Group).** The Working Group will involve representatives from the RWMG who have technical expertise and are able to work on the details associated with IRWM efforts. The Working Group will engage stakeholders at a sub-regional level in order to better understand the specific water resources needs and priorities of that sub-region.

3.4.4 **Implementation Affiliates.** These entities will adopt the Plan by resolution, but would not be signatories of the MOU. The entities must be either a Local Agency or an IRS 501(c)(3) nonprofit organization. The Implementation Affiliates have the capacity to carry out projects (i.e. financial resources, management structure, adequate staffing). In order to have a planning or implementation project eligible for State IRWM grants, agencies must be an Implementation Affiliate if they are not a part of the RWMG.

3.4.5 **Interested Stakeholders.** These individuals, organizations, and nonprofits (including those that are not IRS 501(c)(3) nonprofit organizations) who are interested in the IRWM program. The Interested Stakeholders may sign a letter of support for the Plan, or otherwise provide input to the RWMG, but would not be eligible for directly receiving State IRWM grant funds.

**3.5 Sub-regions.** The Region's IRWM program seeks to engage stakeholders and understand the water resources needs of the Region. To adequately ensure this balanced access and opportunity for participation in the IRWM program, the RWMG will utilize a sub-regional geographic structure, allowing more focused planning and local outreach efforts that are later brought into the context of the overall IRWM Region. These sub-regions have been deliberately defined in terms of logical planning and watershed/ hydrogeologic unit boundaries. These "sub-regions" include the North Coast, North County, and South County (see Attachment 1).

**3.6 Regional Projects or Programs.** Projects or programs to be implemented by the RWMG and/or Implementation Affiliates are identified in the Plan and are based upon the State's IRWM Guidelines under which the current Plan was adopted, which includes but is not limited to: reducing water demand through agricultural and urban water use efficiency, increasing water supplies for any beneficial use, improving operational efficiency and water supply reliability, improving water quality, improving resource stewardship, and improving flood management.

**3.7 Integration.** Assembling into one document the water-related management strategies, projects, programs, and plans of the Region. The development and implementation of the Plan should demonstrate the RWMG is forming, coordinating and integrating separate efforts in order to function as a unified effort in a collaborative manner that balances interests and engages a variety of stakeholders and seeks to efficiently integrate regional resources. The Plan development will identify water management strategies for the Region and the priority projects and programs that demonstrate how these strategies work together to meet goals identified in Section 2. It will also identify regional benefits of linkages between projects and plans that address different primary water-related objectives (for example, identifying regional benefits of linkages between a water supply project and a flood management project in the same watershed).

#### **4. IRWM PROGRAM PARTICIPANTS**

**4.1 Program Participant Structure.** Elements of the Plan will be developed and implemented by the Program Participants. The RWMG, including the District as the Lead Agency, and the Implementation Affiliates are responsible for Plan development and implementation.

**4.2 Plan Development and Implementation.** The Region's Plan that was adopted by the District, developed in coordination with and approved by stakeholders in 2005, and updated in 2007, will be the basis for subsequent adopted Plans for the Region. The Working Group will propose changes to the previous versions of the Plan to comply with new State guidelines and incorporate new information and projects. Since a key element of the IRWM Program is integration, the RWMG will work with Program Participants to identify water management strategies for the Region and sub-regions and the priority projects that demonstrate how these strategies work together to meet the purpose and goals in Section 2. How each Program

Participant contributes and participates in Plan development and implementation is described below:

4.2.1 Lead Agency. The District will act as the lead agency for Plan development, will execute this MOU, and will adopt the Plan in accordance with 4.3 and 4.4 below. The District will ultimately be responsible for the final production of the Region's Plan, hiring consultant(s) to develop the Plan, and presentations to stakeholders, submittal of IRWM grant applications, and execution and administration of grant agreements with the State. As the Lead Agency, the District will execute and administer agreements with RWMG members and Implementation Affiliates responsible for the implementation of projects that are awarded grants, including data collection relevant to grant agreements, project reporting, etc. Efforts described in Section 4.2.1 are subject to the availability of funding.

4.2.2 RWMG. Members will execute this MOU and adopt the Plan in accordance with 4.3 and 4.4 below. RWMG members will designate a representative with clear authority to represent the agency or organization, provide expertise, provide information in a timely manner, participate in meetings, review and approve technical documents as needed, and will provide the District with their designated representative's contact information. This representative will be eligible to participate on the Working Group. All RWMG members, whether or not their representative is participating in the Working Group, hereby agree to provide information sufficient to meet State guidelines for their regional projects and programs to be included in the Plan and participate in the review of the Plan. RWMG members will consider integrating projects and programs with other agencies when possible, especially with disadvantaged communities and Native American tribes, in accordance with State IRWM Guidelines. RWMG members responsible for the implementation of regional projects and programs awarded grant funding will be responsible, through contract with the District, for complying with the provisions of the District's grant agreement with the State. The RWMG will provide updates to the WRAC and seek WRAC support of recommendations at key decision points.

4.2.3 WRAC. The WRAC will provide a forum for public meetings/ workshops related to Plan development and implementation at key decision points. The WRAC will review and comment on the RWMG recommendations to the District's Board of Supervisors at key decision points.

4.2.4 Working Group. Representatives of the Working Group will be designated by the RWMG member and will have clear authority to represent the agency or organization, provide expertise, provide information in a timely manner, participate in meetings, review and approve technical documents as needed, and will provide the District with their designated representative's contact information. The District will provide materials with sufficient lead time for RWMG member and Working Group engagement. The Working Group will develop information, draft documents and recommendations pertaining to the Plan update consistent with current State IRWM Guidelines during Plan development. Efforts are anticipated to include stakeholder outreach, collection and incorporation of updated data, etc. The Working Group will develop information and recommendations for IRWM program planning and implementation, stakeholder outreach, and pursuit of funding opportunities. All RWMG members will participate in the process to select the Region's IRWM projects and programs for grant applications by way of the Working Group, who will conduct project/program solicitations and evaluations, and will make recommendations on grant funding allocations. The Working Group will need to conduct sub-regional public meetings during Plan development and implementation to facilitate stakeholder participation.

4.2.5 Implementation Affiliates. Implementation Affiliates shall adopt the Plan in accordance with Section 4.3. Implementation Affiliates will designate a representative with clear authority to represent the agency or organization, provide expertise, provide information in a timely manner, participate in meetings, review and approve technical documents as needed, and will provide the District with their designated representative's contact information. All

Implementation Affiliates will provide information sufficient to meet State guidelines for their regional projects and programs to be included in the Plan and participate in the review of the Plan and for implementation activities, such as project status updates, project reporting, data collection, etc. Implementation Affiliates will consider integrating projects and programs with neighboring agencies when possible, especially with disadvantaged communities and Native American tribes, in accordance with State IRWM Guidelines. Implementation Affiliates responsible for the implementation of regional projects and programs awarded grant funding will be responsible, through contract with the District, for complying with the provisions of the District's grant agreement with the State.

4.2.6 **Interested Stakeholders.** Interested Stakeholders may participate in the Plan development and implementation process by way of participation at WRAC and/or RWMG meetings. Interested Stakeholders that are not WRAC members will be notified when an IRWM program item will be reviewed by the WRAC if they request inclusion on the IRWM contact list (Section 5.6). Sub-regional meetings will be required to ensure Interested Stakeholders, including disadvantaged communities, who may not necessarily be able to attend WRAC meetings, can participate in Plan development and implementation.

4.3 **IRWM Plan Adoption.** Plan approval and adoption will be required of the governing bodies of RWMG members and Implementation Affiliates. Plan updates to meet new State guidelines, add new RWMG Members, add or remove and evaluate regional projects and programs, or other updates to information do not require Plan re-adoption. Significant changes to the Plan, including revised goals and objectives, revised methodologies (such as methodology for evaluating, ranking, and prioritizing projects and programs), revised regional boundaries, or other changes deemed significant by the RWMG and the Lead Agency, will require Plan re-adoption via the decision-making process described in Section 4.5.

4.4 **Personnel and Financial Resources.** It is expected that Program Participants will contribute the resources necessary to fulfill the responsibilities listed within Section 4 of this MOU. Program Participants that receive implementation grant funding, shall contribute a proportionate share of non-project costs associated with the grant agreement, based on awarded implementation funding (for example, contributing toward the cost of updating the Plan, should that be a condition of grant award)..

4.5 **Decision Making.** The RWMG shall develop IRWM program materials and will make recommendations to the Lead Agency at key decision points of the IRWM program. Written input will be sought between the representatives of RWMG members in the event the need for a decision arises that cannot be brought forth to the RWMG before a decision needs to be made. The District, by way of its Public Works Department, shall notify the RWMG agencies of recommendations being taken to the District's Board of Supervisors for action. The District's Board of Supervisors may approve, alter, or return any said recommendation of the RWMG. Furthermore, if the District's Board of Supervisors intends to alter an item or proposition approved by the RWMG, the District's Board of Supervisors shall set forth in writing its findings, after which the Board will hold a public hearing. The RWMG agencies shall have the right to appear and address the District's Board of Supervisors.

## 5. MUTUAL UNDERSTANDINGS

### 5.1 **Need for the Region's IRWM Plan**

5.1.1 To improve communication and cooperation between public and private agencies and minimize conflict-generated solutions.

5.1.2 To enhance our existing water management efforts by increasing stakeholder awareness of important issues, providing more opportunities for collaborative efforts and improving efficiencies in government and water management.

5.1.3 To qualify for state grants and other funding opportunities only available to those regions which have developed IRWM plans.

**5.2 Subject matter scope of the IRWM Plan.** The Plan focuses on water supply, water quality protection and improvement, ecosystem preservation and restoration, groundwater monitoring and management, and flood management as these are the most prevalent water resource issues facing the Region.

**5.3 Geographical scope of the IRWM Program.** The Region for this memorandum is coterminous with the boundary of San Luis Obispo County. This is an appropriate geographic region for integrated regional water management planning because it encompasses all aspects of water management generally within the same physical, political, environmental, social, and economic boundaries. The Region may engage stakeholders within the three sub-regions in order to better understand the specific water resources needs and priorities of that sub-region, which would then be incorporated into the context of the greater IRWM Region planning and implementation.

The Region is bordered by the Greater Monterey County IRWM region to the north, the Santa Barbara County and Watersheds Coalition of Ventura County IRWM regions to the south, and the Kern County IRWM region to the east.

Water resources issues that overlap neighboring regional boundaries are either covered by existing cooperative water management plans (i.e. Nacitone Watershed Management Plan), adjudication (i.e. Santa Maria Groundwater Basin), and operational agreements (i.e. Nacimiento Reservoir), or have no defining water resource management issue. All of these items are to be included in the Region's Plan consistent with the plans of neighboring regions. The RWMG will continue to coordinate with neighboring regions to address additional water resources issues and possible integrated water management strategies in our respective IRWM plans.

**5.4 Non-binding nature.** This document and participation in the IRWM program efforts are nonbinding, and in no way suggest that a RWMG member or Implementation Affiliate may not continue its own planning and undertake efforts to secure project funding from any source. An agency/ organization may withdraw from participation in accordance with Section 5.7.

**5.5 Other on-going regional efforts.** Development of the Plan is separate from efforts of other organizations to develop water-related plans on a regional basis. As the Plan is developed, work products can be shared with these separate efforts to provide them with current information.

**5.6 Reports and communications.** The WRAC, an IRWM contact list, and the District's website will serve as the forum for updates and correspondence relating to the IRWM program and Plan development.

**5.7 Termination.** Because the Plan will require periodic review and updating for use into the future, it is envisioned that the joint efforts of those involved will be ongoing in maintaining a living document. Thus this MOU will remain as a reflection of the understandings of the RWMG Members. As indicated, parties to this MOU may terminate their involvement at any time, but must provide all RWMG agencies with 30 days' advance notice of intent to terminate.

**5.8 Superseded Prior MOU.** This MOU supersedes the MOU dated April 21, 2009 (2009 MOU).

**5.9 Counterparts.** This MOU may be executed in counterparts and has the same force and effect as if all the signatures were obtained in one document.



**6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING**

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

**COUNTY OF SAN LUIS OBISPO  
FLOOD CONTROL AND  
WATER CONSERVATION DISTRICT**

By: JAMES R. PATTERSON  
Chairman,  
Board of San Luis Obispo County  
Flood Control and  
Water Conservation District

ATTEST:

JULIE L. RODEWALD  
Clerk of the Board of Supervisors

By: Sandy Currens  
Deputy Clerk

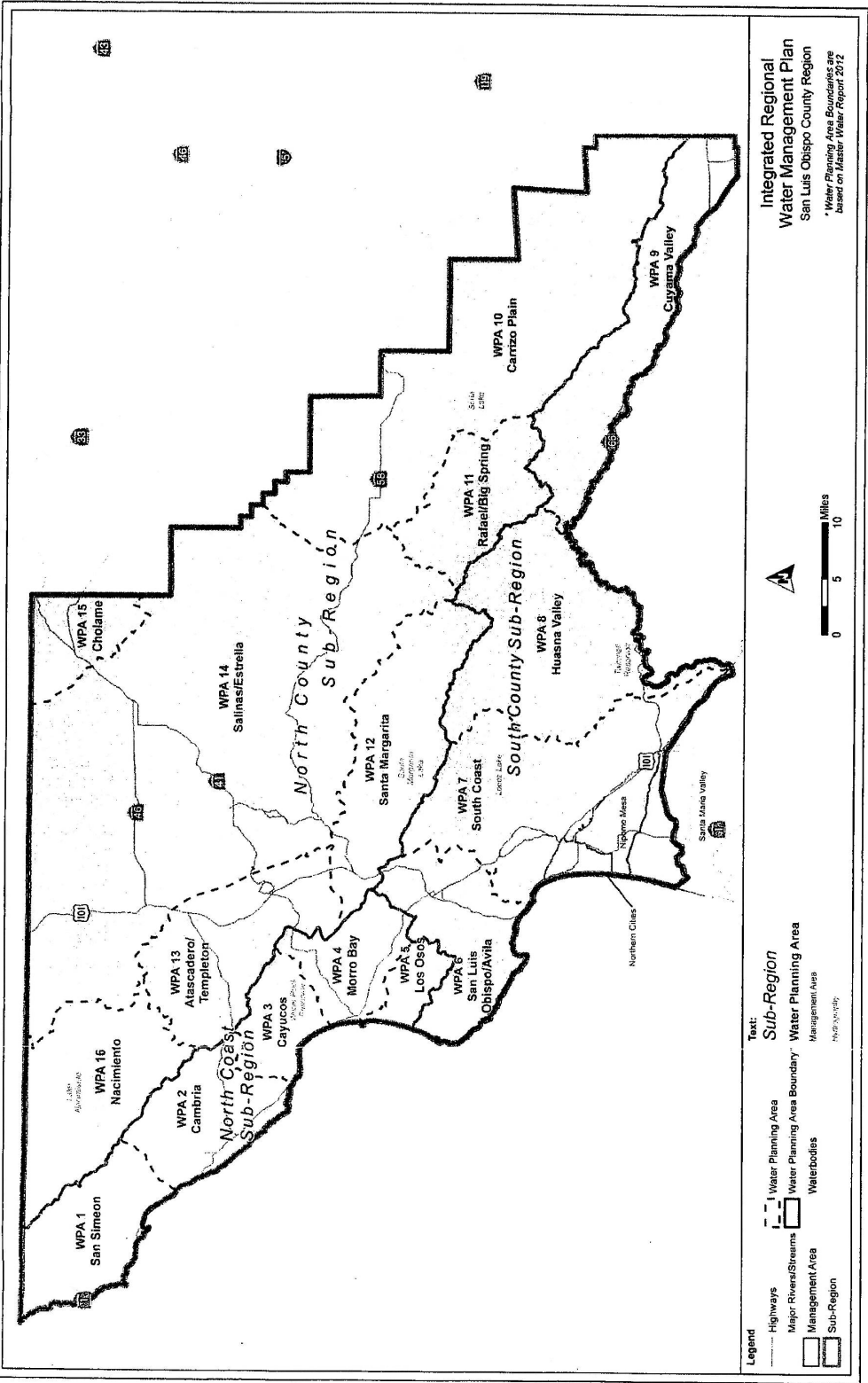
APPROVED AS TO FORM AND LEGAL EFFECT:

WARREN R. JENSEN  
County Counsel

By:   
Deputy County Counsel

Date: 9/24/12

Attachment 1 – San Luis Obispo County IRWM Region and Sub-Regions Map



**Memorandum of Understanding Signatories for  
San Luis Obispo County Region IRWM Participants**

<b>Agency or Organization</b>
San Luis Obispo County Flood Control and Water Conservation District
County of San Luis Obispo
Avila Beach Community Services District
California Men's Colony
Cambria Community Services District
Cayucos Sanitary District
Central Coast Salmon Enhancement
City of Arroyo Grande
City of Grover Beach
City of Morro Bay
City of Paso Robles
City of Pismo Beach
City of San Luis Obispo
Coastal San Luis Resource Conservation District
Estrella-El Pomar-Creston Water District
Heritage Ranch Community Services District
The Land Conservancy of San Luis Obispo County
Los Osos Community Services District
Morro Bay National Estuary Program
Nipomo Community Services District
Oceano Community Services District
Templeton Community Services District
San Miguel Community Services District
San Miguelito Mutual Water Company
San Simeon Community Services District
Shandon-San Juan Water District
South San Luis Obispo County Sanitation District
S&T Mutual Water Company
Upper Salinas - Las Tablas Resource Conservation District

# **APPENDIX C – PUBLIC WORKSHOPS AND RWMG MEETINGS**

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## **C.1 PUBLIC WORKSHOPS**

C.1.1 Sub-Regional Workshops

C.1.2 Public Stakeholder Workshops

C.1.3 Climate Change Workshop

## **C.2 RWMG MEETINGS**

# **APPENDIX C.1 – PUBLIC WORKSHOPS**

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## **C.1.1 Sub-Regional Workshops**

Attached to attachment C-1-1 are all agenda packets for the Sub-Regional Workshops.

Meeting list includes:

1. North County - November 17, 2015, 2:00 pm to 4:00 pm
2. North Coast - November 19, 2015, 10:00 am to 12:00 pm
3. South County - November 19, 2015, 2:00 pm to 4:00 pm

## **C.1.2 Public Stakeholder Workshops**

Attached to attachment C-1-2 are all agendas for the Public Stakeholder Workshops.

Meeting list includes:

1. July 10, 2017, 10:00 am to 12:00 pm
2. July 10, 2017, 2:00 pm to 4:00 pm
3. July 10, 2017, 6:00 pm to 8:00 pm
4. July 12, 2017, 10:00 am to 12:00 pm
5. July 12, 2017, 2:00 pm to 4:00 pm
6. July 13, 2017, 10:00 am to 12:00 pm
7. July 13, 2017, 6:00 pm to 8:00 pm
8. July 15, 2017, 1:00pm to 3:00 pm

## **C.1.3 Climate Change Workshop**

Attached to C.1.3 is the workshop agenda and vulnerability assessment booklet for the workshop on the climate change section update of the 2018 IRWM Plan. The meeting was held on January 31, 2018.

## **C.1.1 – SUB-REGIONAL WORKSHOPS**

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Attached are all agenda packets for the Sub-Regional Workshops.

Meeting list includes:

1. North County - November 17, 2015, 2:00 pm to 4:00 pm
2. North Coast - November 19, 2015, 10:00 am to 12:00 pm
3. South County - November 19, 2015, 2:00 pm to 4:00 pm



# San Luis Obispo County Integrated Regional Water Management (IRWM) Program Sub-Regional Workshops

## North County Sub-Region

Tuesday November 17, 2015  
2:00 pm – 4:00 pm  
Templeton Community Center  
601 S. Main Street, Templeton

## North Coast Sub-Region

Thursday November 19, 2015  
10:00 am – 12:00 pm  
Morro Bay Vets Hall  
209 Surf Street, Morro Bay

## South County Sub-Region (incl. SLO)

Thursday November 19, 2015  
2:00 pm – 4:00 pm  
Oceano Community Services District  
1655 Front Street, Oceano

This agenda packet contains worksheets to assist in identifying Sub-Regional Priorities for each of the IRWM Sub-Regions. For more details, please read **Section E of the 2014 IRWM plan** available at [slocountywater.org/irwm](http://slocountywater.org/irwm)

A **Sub-Regional Priority** reflects the needs of the Sub-Region related to each of the adopted Regional Goals and Objectives: *Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication.*

Please add or delete any Sub-Regional Priorities needed to meet the Goals and Objectives. Please rank each Sub-Regional Priority. The highest ranking priorities will be used as criteria for upcoming IRWM projects and programs.

Please submit your worksheets by **November 25, 2015** via email to [mbandov@co.slo.ca.us](mailto:mbandov@co.slo.ca.us) or via mail to:

Mladen Bandov, Public Works Dept.  
1050 Monterey Street, Room 207  
San Luis Obispo, CA 93408

## WORKSHOP AGENDA

- |   |            |
|---|------------|
| 1. Introductions / welcome                                | 5 minutes  |
| 2. 2014 IRWM Plan overview                                | 15 minutes |
| 3. Sub-Regional goals, objectives and priorities overview | 10 minutes |
| 4. Re-evaluating current Sub-Regional priorities activity | 45 minutes |
| 5. Discuss project/program integration & partnerships     | 30 minutes |
| 6. Wrap-up, Prop 1 Grant, and Next Sub-Regional Workshops | 15 minutes |





# San Luis Obispo County Integrated Regional Water Management (IRWM) Program Draft Stakeholders List *(as of November 16, 2015)*

## REGIONAL

- SLO County Flood Control & Water Conservation District
- County of San Luis Obispo
- The Land Conservancy
- Central Coast Salmon Enhancement
- Upper Salinas Las Tablas RCD
- Coastal San Luis RCD
- Regional Water Management Group (RWMG)
- Water Resources Advisory Committee (WRAC)
- County Planning Commission
- SLO Council of Governments (SLOCOG)
- Agricultural Liaison Advisory Board (ALAB)
- Partners in Water Conservation (PiWC) Coastal

## NORTH COAST SUB-REGION

- City of Morro Bay
- Cambria CSD
- San Simeon CSD
- Los Osos CSD
- Morro Bay National Estuary Program
- S&T Mutual Water Co
- Various water purveyors
- California Men's Colony
- CSA 10/10A Cayucos
- Camp San Luis Obispo
- Cayucos CSD
- State Parks
- NRCS
- County Parks
- Harmony
- Interlocutory Stipulated Judgment (ISJ) Group
- Estero Bay collaborative group
- Various Advisory Bodies to Board of Supervisors (Cayucos, Los Osos, North Coast)
- NOAA
- North Coast Farm Center
- Ag Waiver Monitoring group
- Greenspace
- Monterey Marine Sanctuary
- Hearst Corp
- Future Groundwater Sustainability Agency(s)

## NORTH COUNTY SUB-REGION

- City of Paso Robles
- City of Atascadero
- Templeton CSD
- San Miguel CSD
- Heritage Ranch CSD
- Independence Ranch CSD
- California Valley CSD
- CSA 7/7A Oak Shores
- CSA 16 Shandon
- CSA 23 Santa Margarita
- Camp Roberts
- Various water purveyors
- Pozo
- Creston
- Whitley Gardens
- Cholame
- Garden Farms
- Nacimiento Water Project Commission & TSG
- Paso Basin Advisory Committee (PBAC)
- Various Advisory Bodies to Board of Supervisors (Santa Margarita, Templeton, Creston, Shandon, San Miguel)
- Future Groundwater Sustainability Agency(s)

## SOUTH COUNTY SUB-REGION

- City of Arroyo Grande
- City of Grover Beach
- City of Pismo Beach
- City of San Luis Obispo
- Oceano CSD
- Nipomo CSD
- Cuyama CSD
- South SLO County Sanitation District (SSLOCSD)
- CSA 12 Avila Beach
- Diablo Canyon Power Plant
- Cal Poly University
- Cuesta College
- Various water purveyors
- Management Areas: NMMA, NCMA, SMVMA
- Zone 1/1A (Arroyo Grande Levee) Advisory Group
- Zone 3 (Lopez) Advisory Committee & TAC
- Arroyo Grande MOU Group (AGMOU)
- Various Advisory Bodies to Board of Supervisors (Avila Valley, Oceano, South County)
- Cuyama Valley Community Association
- Future Groundwater Sustainability Agency(s)





# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **NORTH COUNTY SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: WATER SUPPLY**

The intent of the Water Supply Goal is to maintain or improve water supply quantity and quality for potable water, fire protection, ecosystem health, and agricultural production needs; as well as to cooperatively address limitations, vulnerabilities, conjunctive-use, and water-use efficiency.

**REGIONAL OBJECTIVES:**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.</li> <li>2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.</li> <li>3. Support sustainable potable water supply programs for rural residents.</li> <li>4. Support sustainable water quality and supply programs for agriculture.</li> <li>5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.</li> </ol> | <ol style="list-style-type: none"> <li>6. Develop and implement water management Plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.</li> <li>7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.</li> <li>8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.</li> <li>9. Diversify water supply sources, including the use of recycled and desalinated water.</li> <li>10. Support watershed enhancement projects and programs to increase available water supplies to the Region.</li> </ol> |
|--|--|

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
Highest = 1  
Next Highest = 2  
etc.

1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater.	



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**NORTH COUNTY SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	
5. Ensure potable water is available for rural residents.	
6. Seek funding for supplemental water supply.	
7.	
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13.	
14.	
15.	



# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **NORTH COUNTY SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: ECOSYSTEM AND WATERSHED**  
 Maintain or improve the health of the Region’s watersheds, ecosystems, and natural resources through collaborative and cooperative actions; with a focus on assessment, protection, and restoration/enhancement of ecosystem and resource needs and vulnerabilities.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area</li> <li>2. Preserve, enhance, restore, and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms</li> <li>3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional Total Maximum Daily Loads (TMDLs)</li> </ol> | <ol style="list-style-type: none"> <li>4. Develop public involvement and stewardship programs for public lands and ecosystems</li> <li>5. Protect and recover threatened, endangered, and sensitive species through habitat restoration, stream flow management, and fish passage restoration</li> <li>6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems</li> <li>7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the Region’s watersheds and ecosystems</li> </ol> |
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**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	
2. Understand watershed functionality and identify specific priorities for ensuring watershed health.	
3. Protect the Salinas River corridor.	
4. Pursue land conservation projects that protect watersheds.	



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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program NORTH COUNTY SUB-REGION

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: GROUNDWATER MONITORING AND MANAGEMENT**  
Achieve sustainable use of the Region’s water supply within groundwater basins through collaborative and cooperative actions.

**REGIONAL OBJECTIVES:**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions</li> <li>2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects</li> <li>3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions</li> </ol> | <ol style="list-style-type: none"> <li>4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the Region where plausible</li> <li>5. Evaluate and implement groundwater recharge and/or banking programs or efforts to increase the conjunctive-use opportunities within the Region, where technically feasible and cost-effective.</li> <li>6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion</li> </ol> |
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etc.

1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	
3. Seek funding for supplemental water, conjunctive use and/or groundwater banking programs to provide greater operational flexibility.	
4. Work to balance groundwater basin through demand management and supply options.	
5.	



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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program NORTH COUNTY SUB-REGION

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: FLOOD MANAGEMENT**

Foster an integrated, watershed approach to flood management and improved storm water quality through collaborative community supported processes in order to ensure community health, safety, and to enhance quality of life.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Understand flood management needs per watershed or water planning area</li> <li>2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage</li> <li>3. Integrate storm water controls, drainage, and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge</li> <li>4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding; improve water quality, and reduce upstream erosion and downstream sediment accumulation</li> </ol> | <ol style="list-style-type: none"> <li>5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development</li> <li>6. Develop and implement flood control projects that ensure health and safety and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains</li> <li>7. Support the adequate protection of DACs from flooding without unfairly burdening communities, neighborhoods, or individuals</li> </ol> |
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**SUB-REGIONAL PRIORITIES:**

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etc.

1. Identify, protect, and enhance aquifer recharge areas.	
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3.	
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San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**NORTH COUNTY SUB-REGION**

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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program NORTH COUNTY SUB-REGION

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: WATER RESOURCES MANAGEMENT AND COMMUNICATIONS**  
 Promote open communications and regional cooperation in the protection and management of water resources, including education and outreach related to water resources conditions, conservation/water use efficiency, water rights, water allocations, and other regional water resource management efforts.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Provide consistent, consolidated, and informative public outreach on the coordination of IRWM implementation projects and water resources programs</li> <li>2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods, or individuals</li> <li>3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and with cities, community services districts, and other water purveyors when possible</li> <li>4. Consider property owner rights, existing water supplies, and cultural values in the Planning and implementation of IRWM projects and programs</li> </ol> | <ol style="list-style-type: none"> <li>5. Support efforts by the state, local agencies, water purveyors, and local groundwater governance bodies to align efforts to protect and manage water resources</li> <li>6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests</li> <li>7. Provide support and promote education for the participation of DACs in the development, implementation, monitoring, and long-term maintenance of water resource management projects</li> <li>8. Promote public education programs for water resources management (e.g., groundwater management, watershed protection, conservation, flood management, and water quality)</li> </ol> |
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 etc.

1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	
2. Develop an IRWM Plan Project for Round 3.	
3. Develop methods to reach out to community on local water-related information and dates for Sub-Region meetings and workshops.	



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 etc.

<b>SUB-REGIONAL PRIORITIES:</b>	<b>RANKING</b> Highest = 1 Next Highest = 2 etc.
4. Maintain collaborative efforts with groundwater basin and watershed stakeholders.	
5. Evaluate zones of benefit and other groundwater governance structures.	
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# IRWM Plan Full Project List Updates & Integration Concepts

## DRAFT SUMMARY NOTES: RWMG Meeting 5/6/2015

### Overview of RWMG Workshop on IRWM Project Integration:

On May 6, 2015, the *Regional Water Management Group (RWMG)* held a workshop to consider the IRWM Plan Full Project List, potential project/ concept integration, and long-term implementation. The *RWMG* members and Interested Stakeholders split into subregional discussion groups (North County, North Coast and South County subregions). Each group reviewed the project list to consider potential opportunities for concept/project integration. The results of the workshop area compiled in this document.

- **South County Subregion** participants grouped projects by project categories, looking for opportunities in the South County as well as across all subregions and regional project lists.
- **North County Subregion** participants focused on projects in the North County subregion, and grouped projects by type, location and water systems. Then identified potential integration concepts in those categorizations.
- **North Coast Subregion** participants looked at both North Coast Subregion and Regional projects, and grouped projects by location.

Participants also provided initial input on projects that have been completed or are no longer being pursued, and can therefore be removed from the IRWMP Full Project List. The *RWMG* asked that District Staff seek input from submitting agencies/ individuals to determine the status of projects listed.

### RWMG's Concepts for Project Integration:

The following is a list of integration concepts discussed in the various subregional discussion groups. A table follows that looks at potential for integrating projects by subregions based on these integration concepts (see "Notes on Integration" column of table for projects related to these integration concepts).

- Integration Concept 1.** Consider integrating among the general regional efforts and projects.
- Integration Concept 2.** Consider integrating South County Subregion (and other Subregion/ Regional) projects related to the following project categories:
- a. **Groundwater**
  - b. **Low Impact Development (LID)/ Stormwater Runoff**
  - c. **Reclaimed Water**
  - d. **Desalination**
- Integration Concept 3.** Integrate efforts related to Atascadero Creek Watershed Management Plan (with the model as an element). Suggest coordination among Upper Salinas Las Tablas Resource Conservation District and City of Atascadero.
- Integration Concept 4.** Coordinate support among agencies interested in Lake Nacimiento Watershed protection. Suggest coordination among Land Conservancy, Heritage Ranch Community Services District (CSD), City of Paso Robles, County of San Luis Obispo, Nacimiento Regional Water Management Advisory Committee and potentially: Nacimiento Water Project Participants, County of Monterey.
- Integration Concept 5.** Many concepts, projects and programs have been identified in the Paso Robles Groundwater Basin. North County Subregion participants identified three major categories of project types:
- a. **Modeling/ Planning.** Suggest coordination among County of San Luis Obispo, City of Paso Robles, Paso Basin Advisory Committee.

- b. **Groundwater Basin Recharge.** Suggest coordination among USLTRCD, County of San Luis Obispo, Paso Basin Advisory Committee.
- c. **Water Supply Reliability.** Suggest coordination among County of San Luis Obispo, City of Paso Robles, Paso Basin Advisory Committee.

**Integration Concept 6.** Encourage agencies/ stakeholders to look at overlap between water supply, flood management and recharge projects in Templeton. Suggest coordination among USLTRCD and Templeton CSD.

**Integration Concept 7.** Consider integrating North Coast Subregion efforts by location in the following areas:

- a. **Morro Bay/ Morro Creek/ Chorro Creek**
- b. **Los Osos**
- c. **Santa Rosa Creek**

**RWMG Working Group & Next Steps:**

On May 6, 2015, the RWMG formed an RWMG Working Group to further consider opportunities for project integration, and to look at IRWM Plan Full Project List long-term implementation, and potential opportunities in Prop 1 Water Bond funding programs. The RWMG Working Group includes: Paavo Ogren/ Jennifer Blackburn (Oceano CSD), Steph Wald (Central Coast Salmon Enhancement), Linda Chipping (Coastal San Luis RCD), Devin Best (Upper Salinas Las Tablas RCD), and Rick Sauerwein (City of Morro Bay).

**Regional and Subregional Concepts for Project Integration:**

The following tables identify the projects that relate to Integration Concepts described above (see far right column for Integration Concept #). The tables are separated by: Regional, South County, North County, and North Coast Integration Concepts.

**Regional Integration**

Project Category	Related Projects in Regional	Notes on Integration (as described above)
<b>General Regional Efforts or Plans</b>	Agricultural Water Management (2015), USLTRCD	Integration Concept 1
	Agricultural Water Management and Conservation Program (2013), CSLRCD	Integration Concept 1
	Countywide Watershed and Creek Signage (2013), USLTRCD	Integration Concept 1
	Countywide Watershed Planning Phase II (2013), CSLRCD	Integration Concept 1
	Invasive Species Program (2007), County of San Luis Obispo	Integration Concept 1
	Rancher 2 Rancher Program (2013), CSLRCD	Integration Concept 1
	Waterways Vegetation Management Program (2007), SLOCFCWC District	Integration Concept 1
	Wetland and Vernal Pool Mapping (2007), County of San Luis Obispo	Integration Concept 1
	North Coast Watershed Plans (2013), USLTRCD	Integration Concept 1
	Rehabilitation & Installation of Retention Ponds in North Coast (store & release) (2013), USLTRCD	Integration Concept 1
<b>Low Impact Development (LID)/ Stormwater Runoff</b>	LID Pilot Program* (2013), USLTRCD – Identified as Regional*	Integration Concept 2.b
	Stormwater Rewards Rebate Program* (2013), CSLRCD – Identified as Regional*	Integration Concept 2.b
	Urban Landscape Water Management and Conservation Program* (2013), CSLRCD – Identified as Regional*	Integration Concept 2.b
	Water Conservation Corps* (2013), California Conservation Corps – Identified as Regional*	Integration Concept 2.b
	Los Padres CCC Center – Stormwater LID Treatment Project* (2013), Morro Bay National Estuary Program – Identified as North Coast Subregion*	Integration Concept 2.b
	Prepare a Groundwater Recharge Plan for the Community of Oceano (2015), Oceano CSD	Integration Concept 2.b

### North County Sub-Region

Type	Related Projects in North County	Notes on Integration (as described above)
<b>Atascadero Watershed/ Groundwater Modeling</b>	Atascadero Creek Watershed Management Plan (2013), City of Atascadero	Integration Concept 3.
	Atascadero Creek Hydrologic Model (2015), USLTRCD	Integration Concept 3.
<b>Recycled Water</b>	Recycled Water Treatment and Distribution System – Phase 1 (2013), City of Paso Robles	No specific integration concept suggested.
	Recycled Water Treatment and Distribution System – Phases 2_3 (2013), City of Paso Robles	No specific integration concept suggested.
Location	Related Projects in North County	Notes on Integration (as described above)
<b>Lake Nacimiento</b>	Attiyeh Ranch Conservation Easement (2013), Land Conservancy of SLO	Integration Concept 4
	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction (2013), City of Paso Robles	Integration Concept 4
	County Service Area 7A – Oak Shores – Interception Sewer System Replacement (2013), County	Integration Concept 4
	Interlake Tunnel Project (2007), Nacimiento Regional Watershed Management Advisory Committee	Integration Concept 4
	Phase 2 – Lake Nacimiento Potable Water Treatment Plant (2013), City of Paso Robles	Integration Concept 4
	Templeton CSD Water System Improvements (2007), Templeton CSD	Integration Concept 4
	Vertical Well Project for HRCSD (2013), Heritage Ranch CSD	Integration Concept 4
<b>Paso Robles Groundwater Basin</b>	Evaluating Land-Surface Subsidence and Potential Groundwater Storage Losses as Part of Assessing Proposed Water Banking Sites in Paso Robles Groundwater Basin (2013), USGS	Integration Concept 5.a. Modeling/ Planning
	Groundwater Monitoring Program and Modeling Program for the Paso Robles Groundwater Basin (2013), PRAAGS	Integration Concept 5.a. Modeling/ Planning
	Paso Robles Creek Sediment Sampling & Assessment (2015), USLTRCD	Integration Concept 5.a. Modeling/ Planning
	Off Stream Storage within the North County (2013), PRAAGS	Integration Concept 5.a. Modeling/ Planning
	Pilot Project Impact of Santa Margarita Lake Discharges on Groundwater Basin (2007), Unknown	Integration Concept 5.b. Groundwater Basin Recharge
	Paso Robles Groundwater Recharge Basin (2015), USLTRCD	Integration Concept 5.b. Groundwater Basin Recharge
	Supplemental Water Supplies for Paso Robles Groundwater Basin ( <i>integrates 5 submittals: Community Water Systems for Subdivided Regions Overlying the Paso Robles Groundwater Basin; Irrigation Distribution System at Paso Robles Airport Area; Paso Robles Groundwater Basin Restoration and Basin Recharge; Paso Robles Groundwater Basin In-Lieu Recharge Study and Preliminary Layout</i> ) (2013), Various	Integration Concept 5.b. Groundwater Basin Recharge (**Partial)  Integration Concept 5.c. Water Supply Reliability (**Partial)
	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction (2013), City of Paso Robles	Integration Concept 5.c. Water Supply Reliability
	Phase 2 – Lake Nacimiento Potable Water Treatment Plant (2013), City of Paso Robles	Integration Concept 5.c. Water Supply Reliability
	Recycled Water Treatment and Distribution System – Phase 1 (2013), City of Paso Robles	Integration Concept 5.c. Water Supply Reliability

	Recycled Water Treatment and Distribution System – Phases 2_3 (2013), City of Paso Robles	Integration Concept 5.c. Water Supply Reliability
<b>Templeton</b>	Templeton CSD Water System Improvements (2007), Templeton CSD	Integration Concept 6 Overlap between Templeton projects
	Toad Creek flood control, restoration and basin re-charge (2013), USLTRCD	Integration Concept 6 Overlap between Templeton projects
	Toad Creek Waterway Management Program (2013), SLOCFWC District	Integration Concept 6 Overlap between Templeton projects
	Upper Salinas River Basin Water Conservation/Conjunctive Use Project (2013), Templeton CSD	Integration Concept 6 Overlap between Templeton projects
<b>Water Systems</b>	<b>Related Projects in North County</b>	<b>Notes on Integration</b>
<b>San Miguel</b>	New Well Water Supply (2014), San Miguel CSD	No specific integration concept suggested.
	San Miguel CSD Water System Improvements (2007), San Miguel CSD	No specific integration concept suggested.
	San Miguel Flood Control Program (2013), SLOCFWC District	No specific integration concept suggested.
	Toilet Retrofit Incentive Program (2014), San Miguel CSD	No specific integration concept suggested.
<b>Paso Robles</b>	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction (2013), City of Paso Robles	No specific integration concept suggested. See Integration Concepts 4 and 5 a-c.
	Phase 2 – Lake Nacimiento Potable Water Treatment Plant (2013), City of Paso Robles	No specific integration concept suggested. See Integration Concepts 4 and 5 a-c.
	Recycled Water Treatment and Distribution System – Phase 1 (2013), City of Paso Robles	No specific integration concept suggested. See Integration Concepts 5 a-c.
	Recycled Water Treatment and Distribution System – Phases 2_3 (2013), City of Paso Robles	No specific integration concept suggested. See Integration Concepts 5 a-c.
<b>Templeton</b>	Templeton CSD Water System Improvements (2007), Templeton CSD	No specific integration concept suggested. See Integration Concept 6.
	Upper Salinas River Basin Water Conservation/Conjunctive Use Project (2013), Templeton CSD	No specific integration concept suggested. See Integration Concept 6.



# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **NORTH COAST SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: WATER SUPPLY**

The intent of the Water Supply Goal is to maintain or improve water supply quantity and quality for potable water, fire protection, ecosystem health, and agricultural production needs; as well as to cooperatively address limitations, vulnerabilities, conjunctive-use, and water-use efficiency.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.</li> <li>2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.</li> <li>3. Support sustainable potable water supply programs for rural residents.</li> <li>4. Support sustainable water quality and supply programs for agriculture.</li> <li>5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.</li> </ol> | <ol style="list-style-type: none"> <li>6. Develop and implement water management Plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.</li> <li>7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.</li> <li>8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.</li> <li>9. Diversify water supply sources, including the use of recycled and desalinated water.</li> <li>10. Support watershed enhancement projects and programs to increase available water supplies to the Region.</li> </ol> |
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1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	
2. Conduct Sub-Region study on maximum use of recycled water.	
3. Study the impacts of climate change on coastal community water supplies.	



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<b>SUB-REGIONAL PRIORITIES:</b>	<b>RANKING</b> Highest = 1 Next Highest = 2 etc.
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	
5. Implement water conservation programs and measures.	
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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **NORTH COAST SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: ECOSYSTEM AND WATERSHED**

Maintain or improve the health of the Region’s watersheds, ecosystems, and natural resources through collaborative and cooperative actions; with a focus on assessment, protection, and restoration/enhancement of ecosystem and resource needs and vulnerabilities.

**REGIONAL OBJECTIVES:**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area</li> <li>2. Preserve, enhance, restore, and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms</li> <li>3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional Total Maximum Daily Loads (TMDLs)</li> </ol> | <ol style="list-style-type: none"> <li>4. Develop public involvement and stewardship programs for public lands and ecosystems</li> <li>5. Protect and recover threatened, endangered, and sensitive species through habitat restoration, stream flow management, and fish passage restoration</li> <li>6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems</li> <li>7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the Region’s watersheds and ecosystems</li> </ol> |
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etc.

1. Conduct a study on cost-effective methods of improving wastewater discharge quality including improving source quality (i.e., reduced natural contaminants in groundwater) of potable water.	
2. Understand flow needs and watershed functionality and identify priority areas for water supply enhancement and conservation projects to ensure watershed health.	
3. Conserve the balance of ecosystem functions/services.	
4.	



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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program NORTH COAST SUB-REGION

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: GROUNDWATER MONITORING AND MANAGEMENT**  
 Achieve sustainable use of the Region’s water supply within groundwater basins through collaborative and cooperative actions.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions</li> <li>2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects</li> <li>3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions</li> </ol> | <ol style="list-style-type: none"> <li>4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the Region where plausible</li> <li>5. Evaluate and implement groundwater recharge and/or banking programs or efforts to increase the conjunctive-use opportunities within the Region, where technically feasible and cost-effective.</li> <li>6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion</li> </ol> |
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 etc.

1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	
2. Create a state-approved groundwater monitoring program at community or Sub-Region level.	
3. Determine the safe yield of coastal aquifers.	
4.	
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San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**NORTH COAST SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **NORTH COAST SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: FLOOD MANAGEMENT**

Foster an integrated, watershed approach to flood management and improved storm water quality through collaborative community supported processes in order to ensure community health, safety, and to enhance quality of life.

**REGIONAL OBJECTIVES:**

- |  |  |
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| <ol style="list-style-type: none"> <li>1. Understand flood management needs per watershed or water planning area</li> <li>2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage</li> <li>3. Integrate storm water controls, drainage, and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge</li> <li>4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding; improve water quality, and reduce upstream erosion and downstream sediment accumulation</li> </ol> | <ol style="list-style-type: none"> <li>5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development</li> <li>6. Develop and implement flood control projects that ensure health and safety and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains</li> <li>7. Support the adequate protection of DACs from flooding without unfairly burdening communities, neighborhoods, or individuals</li> </ol> |
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**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
Highest = 1  
Next Highest = 2  
etc.

1. Identify, protect, and enhance aquifer recharge areas.	
2. Distinguish the root cause of flooding problems.	
3. Restore floodplains, streams, and rivers.	
4. Promote low impact development projects.	



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**NORTH COAST SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

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- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

5. Develop financial programs for drainage and flood management projects.	
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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **NORTH COAST SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: WATER RESOURCES MANAGEMENT AND COMMUNICATIONS**  
 Promote open communications and regional cooperation in the protection and management of water resources, including education and outreach related to water resources conditions, conservation/water use efficiency, water rights, water allocations, and other regional water resource management efforts.

**REGIONAL OBJECTIVES:**

- |  |  |
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| <ol style="list-style-type: none"> <li>1. Provide consistent, consolidated, and informative public outreach on the coordination of IRWM implementation projects and water resources programs</li> <li>2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods, or individuals</li> <li>3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and with cities, community services districts, and other water purveyors when possible</li> <li>4. Consider property owner rights, existing water supplies, and cultural values in the Planning and implementation of IRWM projects and programs</li> </ol> | <ol style="list-style-type: none"> <li>5. Support efforts by the state, local agencies, water purveyors, and local groundwater governance bodies to align efforts to protect and manage water resources</li> <li>6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests</li> <li>7. Provide support and promote education for the participation of DACs in the development, implementation, monitoring, and long-term maintenance of water resource management projects</li> <li>8. Promote public education programs for water resources management (e.g., groundwater management, watershed protection, conservation, flood management, and water quality)</li> </ol> |
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**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

1. Develop methods to reach out to community on local water-related information and dates for Sub-Region meetings and workshops.	
2. Develop an IRWM Plan Project for Round 3.	
3. Initiate inner- and inter-watershed discussions on conservation and reuse options.	



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**NORTH COAST SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
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### North Coast Sub-Region

Location	Related Projects in North Coast	Notes on Integration
<b>Morro Bay/ Morro Creek/ Chorro Creek</b>	Chorro and Morro Groundwater Basin Management Plans (2007), Morro Bay National Estuary Program	Integration Concept 7.a.
	Morro Bay-Cayucos Sanitation District Salt and Nutrient Management Plan (2013), City of Morro Bay	Integration Concept 7.a.
	Morro Bay Wastewater Treatment Facility Upgrade (2007), City of Morro Bay	Integration Concept 7.a.
	Water Conservation Partnerships in Chorro Valley (2013), Morro Bay National Estuary Program	Integration Concept 7.a.
<b>Los Osos</b>	8th Street Upper Aquifer Well and Nitrate Removal Facility (2013), Los Osos CSD	Integration Concept 7.b.
	Los Osos Community Stormwater Master Plan (2007), Los Osos CSD	Notified after by LOCSO – Plan completed.
	Los Osos Water System Improvements (2007), Los Osos CSD	Integration Concept 7.b.
	Water Conservation Partnerships in Chorro Valley (2013), Morro Bay National Estuary Program	Integration Concept 7.b.
<b>Santa Rosa Creek</b>	Santa Rosa Creek Floodplain/ Wetland Restoration (2015), USLTRCD	Integration Concept 7.c.
	Santa Rosa Groundwater Recharge Basin (2015), USLTRCD	Integration Concept 7.c.
	Streambank Stabilization & Restoration in Santa Rosa Creek (2013), USLTRCD	Integration Concept 7.c.

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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **SOUTH COUNTY SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: WATER SUPPLY**

The intent of the Water Supply Goal is to maintain or improve water supply quantity and quality for potable water, fire protection, ecosystem health, and agricultural production needs; as well as to cooperatively address limitations, vulnerabilities, conjunctive-use, and water-use efficiency.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.</li> <li>2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.</li> <li>3. Support sustainable potable water supply programs for rural residents.</li> <li>4. Support sustainable water quality and supply programs for agriculture.</li> <li>5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.</li> </ol> | <ol style="list-style-type: none"> <li>6. Develop and implement water management Plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.</li> <li>7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.</li> <li>8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.</li> <li>9. Diversify water supply sources, including the use of recycled and desalinated water.</li> <li>10. Support watershed enhancement projects and programs to increase available water supplies to the Region.</li> </ol> |
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**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
Highest = 1  
Next Highest = 2  
etc.

1. Seek agricultural and urban supplemental water supplies.	
2. Study the impacts of sea level rise on coastal community water supplies.	
3. Develop supplemental water supplies.	



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**SOUTH COUNTY SUB-REGION**

<b>SUB-REGIONAL PRIORITIES:</b>	<b>RANKING</b> Highest = 1 Next Highest = 2 etc.
<ul style="list-style-type: none"> <li>• <i>Add any new priorities needs to address the Objectives</i></li> <li>• <i>Cross-out any priorities that are no longer relevant</i></li> <li>• <i>Rank in order which sub-regional priorities should be implemented</i></li> </ul>	
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within State Water Project system).	
5. Investigate options for optimizing use of local surface water storage.	
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g., capacity improvements to Lopez WTP, pipeline pigging, etc.).	
7. Evaluate potential for enhanced rainfall.	
8. Improved diversification of water supply resources for the South County agencies.	
9. Implementation of coordinated regional conservation programs.	
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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **SOUTH COUNTY SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: ECOSYSTEM AND WATERSHED**

Maintain or improve the health of the Region’s watersheds, ecosystems, and natural resources through collaborative and cooperative actions; with a focus on assessment, protection, and restoration/enhancement of ecosystem and resource needs and vulnerabilities.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area</li> <li>2. Preserve, enhance, restore, and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms</li> <li>3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional Total Maximum Daily Loads (TMDLs)</li> </ol> | <ol style="list-style-type: none"> <li>4. Develop public involvement and stewardship programs for public lands and ecosystems</li> <li>5. Protect and recover threatened, endangered, and sensitive species through habitat restoration, stream flow management, and fish passage restoration</li> <li>6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems</li> <li>7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the Region’s watersheds and ecosystems</li> </ol> |
|---|--|

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
Highest = 1  
Next Highest = 2  
etc.

1. Finalize/Implement AG Creek Habitat Conservation Plan.	
2. Develop an inventory of diversions from surface water bodies.	
3. Install stream gauges on key regional creeks.	
4. Develop groundwater facilities or projects that increase operational and management flexibility.	



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**SOUTH COUNTY SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

<b>SUB-REGIONAL PRIORITIES:</b>	<b>RANKING</b> Highest = 1 Next Highest = 2 etc.
5. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response).	
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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **SOUTH COUNTY SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: GROUNDWATER MONITORING AND MANAGEMENT**  
 Achieve sustainable use of the Region’s water supply within groundwater basins through collaborative and cooperative actions.

**REGIONAL OBJECTIVES:**

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| <ol style="list-style-type: none"> <li>1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions</li> <li>2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects</li> <li>3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions</li> </ol> | <ol style="list-style-type: none"> <li>4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the Region where plausible</li> <li>5. Evaluate and implement groundwater recharge and/or banking programs or efforts to increase the conjunctive-use opportunities within the Region, where technically feasible and cost-effective.</li> <li>6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion</li> </ol> |
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**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

1. Develop management tools (conceptual and groundwater flow models).	
2. Uniform groundwater monitoring program for the South County groundwater basins.	
3. Uniform metering and reporting for all groundwater pumping in the South County.	
4. Increased groundwater monitoring (focused on storage).	
5. Install additional dedicated monitoring wells including down hole transducers in high priority areas.	



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**SOUTH COUNTY SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

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- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

<b>SUB-REGIONAL PRIORITIES:</b>	<b>RANKING</b> Highest = 1 Next Highest = 2 etc.
6. Investigate and quantify subsurface flows between the SMGB management areas.	
7. Investigate and quantify available storage and reliable yield.	
8. Policies to maintain health of the South County's groundwater basins.	
9. Prepare Salt and Nutrient Management Plan(s) to cover the Sub-Region.	
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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **SOUTH COUNTY SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: FLOOD MANAGEMENT**

Foster an integrated, watershed approach to flood management and improved storm water quality through collaborative community supported processes in order to ensure community health, safety, and to enhance quality of life.

**REGIONAL OBJECTIVES:**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Understand flood management needs per watershed or water planning area</li> <li>2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage</li> <li>3. Integrate storm water controls, drainage, and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge</li> <li>4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding; improve water quality, and reduce upstream erosion and downstream sediment accumulation</li> </ol> | <ol style="list-style-type: none"> <li>5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development</li> <li>6. Develop and implement flood control projects that ensure health and safety and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains</li> <li>7. Support the adequate protection of DACs from flooding without unfairly burdening communities, neighborhoods, or individuals</li> </ol> |
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**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
Highest = 1  
Next Highest = 2  
etc.

1. Develop projects to improve the levels of flood protection in urbanized areas.	
2. Increase storm water retention and percolation.	
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San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**SOUTH COUNTY SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

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- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

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# San Luis Obispo County Integrated Regional Water Management (IRWM) Program **SOUTH COUNTY SUB-REGION**

NAME: \_\_\_\_\_ COMMUNITY/AGENCY: \_\_\_\_\_

**GOAL: WATER RESOURCES MANAGEMENT AND COMMUNICATIONS**  
 Promote open communications and regional cooperation in the protection and management of water resources, including education and outreach related to water resources conditions, conservation/water use efficiency, water rights, water allocations, and other regional water resource management efforts.

**REGIONAL OBJECTIVES:**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Provide consistent, consolidated, and informative public outreach on the coordination of IRWM implementation projects and water resources programs</li> <li>2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods, or individuals</li> <li>3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and with cities, community services districts, and other water purveyors when possible</li> <li>4. Consider property owner rights, existing water supplies, and cultural values in the Planning and implementation of IRWM projects and programs</li> </ol> | <ol style="list-style-type: none"> <li>5. Support efforts by the state, local agencies, water purveyors, and local groundwater governance bodies to align efforts to protect and manage water resources</li> <li>6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests</li> <li>7. Provide support and promote education for the participation of DACs in the development, implementation, monitoring, and long-term maintenance of water resource management projects</li> <li>8. Promote public education programs for water resources management (e.g., groundwater management, watershed protection, conservation, flood management, and water quality)</li> </ol> |
|--|--|

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
- *Cross-out any priorities that are no longer relevant*
- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

1. Develop methods to reach out to community on local water-related information and dates for Sub-Region meetings and workshops.	
2. Develop an IRWM Plan Project for Round 3.	
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers.	



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**SOUTH COUNTY SUB-REGION**

**SUB-REGIONAL PRIORITIES:**

- *Add any new priorities needs to address the Objectives*
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- *Rank in order which sub-regional priorities should be implemented*

**RANKING**  
 Highest = 1  
 Next Highest = 2  
 etc.

4. Maintain collaborative efforts between basin and watershed management groups.	
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### South County Sub-Region

Project Category	Related Projects in South County (** if other subregion)	Notes on Integration (as described above)
<b>Groundwater</b>	Conjunctive Use and Groundwater Banking Evaluation (2013), Oceano CSD	Integration Concept 2.a
	Edna Valley Groundwater Basin Recharge and Steelhead Trout Habitat Enhancement (2014), CSLRCS	Integration Concept 2.a
	Edna Valley Groundwater Basin Study (2007), Various	Integration Concept 2.a
	Flood Control Zone 1/1A Waterway Management Program (2007), SLOCFWC District	Integration Concept 2.a
	Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek (2013), CSLRCD	Integration Concept 2.a
	Pismo Beach Recycled Water Treatment Plant (2013), City of Pismo Beach <b>AND/ OR</b> Regional Recycled Water System (2013), City of Pismo Beach & SSLOCS	Integration Concept 2.a  Determine if these are separate projects or simply duplicative project submittals.
	Prepare a Groundwater Recharge Plan for the Community of Oceano (2015), Oceano CSD	Integration Concept 2.a
	Santa Maria Groundwater Basin Model (2013), NCMA Agencies (Oceano Community Services District, Cities of Arroyo Grande, Grover Beach and Pismo Beach), Nipomo CSD	Integration Concept 2.a
<b>Reclaimed Water</b>	Development of Basic Salt & Nutrient Management Plans* (2007), Various – Identified as Regional*	Integration Concept 2.c
	Morro Bay-Cayucos Sanitation District Salt and Nutrient Management Plan* (2013), City of Morro Bay – Identified as North Coast Subregion*	Integration Concept 2.c
	Feasibility Study for Recycled Water for Agricultural Use* (2013), CSLRCD – Identified as Regional*	Integration Concept 2.c
	Nipomo Area Water Reuse Plan (2007), Nipomo CSD	Integration Concept 2.c
	Pismo Beach Recycled Water Treatment Plant (2013), City of Pismo Beach	Integration Concept 2.c
	Prepare a Groundwater Recharge Plan for the Community of Oceano (2015), Oceano CSD	Integration Concept 2.c
	Recycled Water Distribution System Expansion (2013), City of San Luis Obispo	Integration Concept 2.c
	Recycled Water Master Plan Update (2007), City of San Luis Obispo	Integration Concept 2.c
	Pismo Beach Recycled Water Treatment Plant (2013), City of Pismo Beach <b>AND/ OR</b> Regional Recycled Water System (2013), City of Pismo Beach & SSLOCS	Integration Concept 2.c  Determine if these are separate projects or simply duplicative project submittals.
	San Miguelito Wastewater System Upgrade (2007), San Miguelito MWC	Integration Concept 2.c - - Uncertain if applicable.
<b>Desalination</b>	Desalination Study (2013), Various	Integration Concept 2.d
	<b>NEW CONCEPT – NO ASSOCIATED PROJECT SUBMITAL.</b> South County Desalination Treatment Facility (no date), TBD.	Integration Concept 2.d - New concept discussed at workshop. No project submittal provided to-date.

## **C.1.2 – PUBLIC STAKEHOLDER WORKSHOPS**

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Attached are all agendas for the Public Stakeholder Workshops.

Meeting list includes:

1. July 10, 2017, 10:00 am to 12:00 pm
2. July 10, 2017, 2:00 pm to 4:00 pm
3. July 10, 2017, 6:00 pm to 8:00 pm
4. July 12, 2017, 10:00 am to 12:00 pm
5. July 12, 2017, 2:00 pm to 4:00 pm
6. July 13, 2017, 10:00 am to 12:00 pm
7. July 13, 2017, 6:00 pm to 8:00 pm
8. July 15, 2017, 1:00pm to 3:00 pm



COUNTY OF SAN LUIS OBISPO  
DEPARTMENT OF PUBLIC WORKS

**FOR IMMEDIATE RELEASE**

**Date:** June 23, 2017

**Contact:** Mladen Bandov (805) 781-5116, [mbandov@co.slo.ca.us](mailto:mbandov@co.slo.ca.us)

**SAN LUIS OBISPO COUNTY INTEGRATED REGIONAL WATER MANAGEMENT PLAN TO BE UPDATED – June 23, 2017** – Members of the public are invited to participate in workshops throughout San Luis Obispo County. Input gathered from the workshops will be used to update the San Luis Obispo County Integrated Regional Water Management (IRWM) Plan, which seeks to create a unified framework among San Luis Obispo County stakeholders for sustainable water resources management.

The County of San Luis Obispo, together with Regional Water Management Group (RWMG) members, will host eight workshops on the following dates:

Date	Time	Location
Monday July 10, 2017	10:00 am – 12:00 pm	Veteran's Memorial Building 209 Surf Street, <b>Morro Bay</b> , CA 93442
Monday July 10, 2017	2:00 pm – 4:00 pm	Nipomo Community Services District 148 South Wilson Street, <b>Nipomo</b> , CA 93444
Monday July 10, 2017	6:00 pm – 8:00 pm	SLO City/County Library Community Room 995 Palm Street, <b>San Luis Obispo</b> , CA 93401
Wednesday July 12, 2017	10:00 am – 12:00 pm	Los Osos Community Services District 2122 9th Street Suite 106, <b>Los Osos</b> , CA 93402
Wednesday July 12, 2017	2:00 pm – 4:00 pm	Cavalier Banquet Room 250 San Simeon Avenue, <b>San Simeon</b> , CA 93452
Thursday July 13, 2017	10:00 am – 12:00 pm	Templeton Community Center 601 South Main Street, <b>Templeton</b> , CA 93465
Thursday July 13, 2017	6:00 pm – 8:00 pm	Oceano Community Services District 1655 Front Street, <b>Oceano</b> , CA 93445
Saturday July 15, 2017	1:00 pm – 3:00 pm	Templeton Community Services District 420 Crocker Street, <b>Templeton</b> , CA 93465

Each workshop will focus on presenting the planning process to update the current IRWM Plan and inviting agencies, organizations, and individuals to identify and discuss the

**County of San Luis Obispo Department of Public Works**

County Govt Center, Room 206 | San Luis Obispo, CA 93408 | (P) 805-781-5252 | (F) 805-781-1229  
[pwd@co.slo.ca.us](mailto:pwd@co.slo.ca.us) | [slocounty.ca.gov](http://slocounty.ca.gov)

important water issues in their communities. The update of the IRWM Plan will be prepared with grant funding awarded by the California Department of Water Resources (DWR) under Proposition 1. The IRWM Plan is intended to promote and implement strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, efficient urban development, protection of agricultural, drought preparedness, and watershed awareness.

The IRWM Plan, which was originally prepared in 2005 and updated in 2007 and 2014, includes projects and programs that are designed to meet the region's needs for water supply reliability, environmental protection, water quality, groundwater protection, and flood protection. Since the adoption of the Plan, several projects have been completed and new projects have been identified.

Over \$22 million of grant funding has been awarded through the IRWM program to support local projects. The Plan will be updated to meet the new state requirements to facilitate improved planning and ensure that projects are eligible for IRWM program funding. The update and adoption process is expected to be completed by April 2018.

For more information about the IRWM Plan, please visit <http://slocountywater.org/irwm>.

# # #



San Luis Obispo County  
Integrated Regional Water Management (IRWM)

*Creating a united framework among San Luis Obispo County Stakeholders for sustainable water resource management*

**IRWM Goals**

Water Supply • Ecosystem and Watershed • Groundwater Monitoring & Management • Flood Management • Water Resources Management & Communication

# Public Workshops – July 2017

## Purpose of the Workshops

- Engaging stakeholders on the Integrated Regional Water Management (IRWM) program and plan update process
- Identifying critical water issues in various communities throughout San Luis Obispo County

## TOPICS

### Overview Presentation

- IRWM Plan Update Process
- IRWM Goals & Objectives
- Resource Management Strategies (RMS)
- Implementation Projects
- Integration

### Workshop Activity

- Identifying the **critical water issues** in your community
- Identifying the solutions
- Discussing opportunities for integration
- Prioritizing objectives, strategies, and projects

Monday July 10	10 AM – 12 PM	Veterans Memorial Building, 209 Surf St., <b>Morro Bay</b>
Monday July 10	2 PM – 4 PM	Nipomo CSD, 148 South Wilson St., <b>Nipomo</b>
Monday July 10	6 PM – 8 PM	SLO Library Community Room, 995 Palm St., <b>San Luis Obispo</b>
Wednesday July 12	10 AM – 12 PM	Los Osos CSD, 2122 9 <sup>th</sup> St., Suite 106, <b>Los Osos</b>
Wednesday July 12	2 PM – 4 PM	Cavalier Banquet Room, 250 San Simeon Ave., <b>San Simeon</b>
Thursday July 13	10 AM – 12 PM	Templeton Community Center, 601 South Main St., <b>Templeton</b>
Thursday July 13	6 PM – 8 PM	Oceano CSD, 1655 Front St., <b>Oceano</b>
Saturday July 15	1 PM – 3 PM	Templeton CSD, 420 Crocker St., <b>Templeton</b>

Tell us about the **important water issues** in your community. Take the online survey: [surveymonkey.com/r/SLO-IRWM-20170622](http://surveymonkey.com/r/SLO-IRWM-20170622)

[slocountywater.org/irwm](http://slocountywater.org/irwm)

For more information, please contact:  
Mladen Bandov, IRWM Program Manager  
Email: mbandov@co.slo.ca.us  
Phone: (805) 781-5116





San Luis Obispo County  
Integrated Regional Water Management (IRWM)  
[slocountywater.org/irwm](http://slocountywater.org/irwm)

# Identifying critical water issues

Name \_\_\_\_\_

Agency/Organization \_\_\_\_\_

City/Town \_\_\_\_\_

Email (optional) \_\_\_\_\_

**Please describe the impacts to your community if these issues aren't addressed:**

**Water Supply Reliability:** Ensuring the availability of reliable long-term water supplies for municipal, agricultural, industrial, environmental, and domestic uses.

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**Groundwater Management:** Protecting groundwater basins from overdraft and pollution

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**Aging Infrastructure:** Identifying needs for repairing and replacing aging infrastructure to meet current demand.

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**Water Quality:** Protecting and improving surface water and groundwater quality.

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**Environmental Stewardship:** Meeting watershed management, and habitat and ecosystem restoration needs.

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**Climate Change:** Mitigating and adapting to climate change impacts.

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**Regulatory Constraints:** Complying with increasingly stringent and costly state and federal water quality requirements and other regulatory requirements.

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**Water Conservation:** Increasing public awareness and implementing water conservation programs and measures.

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**Flood Control and Stormwater Management:** Protecting property and public safety.

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Table 1-1 Resource Management Strategies and Management Objectives

<b>Reduce Water Demand</b>	<b>Improve Water Quality</b>
Agricultural Water Use Efficiency	Drinking Water Treatment & Distribution
Urban Water Use Efficiency	Groundwater / Aquifer Remediation
<b>Improve Operational Efficiency &amp; Transfers</b>	Matching Quality to Use
Conveyance – Delta	Pollution Prevention
Conveyance – Regional / Local	Salt & Salinity Management
System Reoperation	Urban Stormwater Runoff Management
Water Transfers	<b>Practice Resource Stewardship</b>
<b>Increase Water Supply</b>	Agricultural Land Stewardship
Conjunctive Management & Groundwater	Ecosystem Restoration
Desalination — Brackish & Seawater	Forest Management
Precipitation Enhancement	Land Use Planning & Management
Recycled Municipal Water	Recharge Areas Protection
Surface Storage – CALFED	Sediment Management*
Surface Storage – Regional/Local	Watershed Management
<b>Improve Flood Management</b>	<b>People &amp; Water</b>
Flood Management	Economic Incentives (Loans, Grants, & Water Pricing)
<b>Other Strategies</b>	Outreach and Engagement*
Crop idling, dew vaporization, fog collection, irrigated land retirement, rainfed agriculture, and waterbag transport	Water and Culture* Water-Dependent Recreation

Note:

\* New resource management strategies for California Water Plan Update 2013

in the Sierra Nevada is not nearly as significant as in the Sacramento Valley. Other strategies may have little value in particular conditions. For example, precipitation enhancement may not be effective during droughts. Water managers at different geographical scales will have different perspectives on the assortment and cost-effectiveness of RMSs for meeting the needs and priorities of the locality or region, or statewide.

## Planning a Diversified Portfolio

The new and continuing challenges of California’s diverse and extreme conditions require local agencies to use new and different methods of managing water. Growing population, urban

## **C.1.3 – CLIMATE CHANGE WORKSHOP**

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Attached is the workshop agenda and vulnerability assessment booklet for the workshop on the climate change section update of the 2018 IRWM Plan. The meeting was held on January 31, 2018.



**San Luis Obispo County Region**  
Integrated Regional Water Management (IRWM)

**IRWM Climate Change Workshop**  
**AGENDA**

Date: January 31, 2018  
Time: 9:00 AM – 12:00 PM  
Location: San Luis Obispo Library Community Room  
995 Palm Street, San Luis Obispo, CA 93401

1. Introductions and Overview of Workshop (*20 minutes*)
2. IRWM Guidelines (*25 minutes*)
  - a. Presentation on new IRWM Plan Standards and update process
  - b. Review of survey results

--- Break (*10 minutes*) ---

3. Vulnerability Prioritization – Part I (*45 minutes*)  
*Part I: Water Demand, Water Supply, and Water Quality*
  - a. Presentation on vulnerability indicator questions and discussion of the priority designation for each vulnerability
  - b. Activity: Vulnerability Prioritization Worksheet

--- Break (*10 minutes*) ---

4. Vulnerability Prioritization – Part II (*45 minutes*)  
*Part II: Sea Level Rise, Flooding, Ecosystems and Habitats, and Hydropower*
  - a. Presentation on vulnerability indicator questions and discussion of the priority designation for each vulnerability
  - b. Activity: Vulnerability Prioritization Worksheet

5. IRWM Plan Update and Next Actions (*20 minutes*)
  - a. Review of climate change objectives, mitigation and adaptation strategies, project review process, and policies and procedures for adaptive management

6. Wrap-up (*5 minutes*)

For more information, please contact  
Mladen Bandov, County of San Luis Obispo Public Works  
[mbandov@co.slo.ca.us](mailto:mbandov@co.slo.ca.us)  
(805) 781-5116  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)

<p><u>Next RWMG Meetings:</u> February 7, 2018 March 7, 2018</p>
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**REMINDER: Please return completed worksheet by the end of the workshop.**

## IRWM Climate Change Workshop Climate Change Vulnerability Assessment Worksheet

Name: \_\_\_\_\_

Organization/Affiliation: \_\_\_\_\_

City/Town: \_\_\_\_\_

*The draft answers in this handout come from a draft technical memo prepared by County of San Luis Obispo Public Works staff in collaboration with Water Systems Consulting, Inc (WSC) to develop the climate change vulnerability assessment for the 2018 IRWM Plan update.*

This document is designed for the IRWM Climate Change Workshop to collect comments/responses from stakeholders. Copies of this handout will be available at the workshop.

### Water Demand

#### **1. Are there major industries that require cooling/process water in your planning region?**

Several prominent industries in San Luis Obispo County require water for their operations. Notable industries include wineries, breweries, hospitals, energy production, and education. Additionally, agriculture is a major industry throughout the County and has a significant water demand for irrigation and other processes.

##### North Coast Subregion

Cuesta College requires water to maintain operations and serve its students and staff. Similarly, the California Men's Colony requires water to serve its residents and maintain operations. Wineries along the North Coast also contribute to the industrial water demand in the subregion.

##### North County Subregion

Wineries and vineyards throughout the North County have large water demands for growing and wine production. Another major industrial water use in the subregion is process water required by breweries. The Atascadero State Hospital and other hospitals are notable industrial water users in the subregion.

##### South County Subregion

The Diablo Canyon Power Plant requires cooling and process water for its operations. The Santa Maria Refinery in Nipomo is a major industrial water user. Cal Poly San Luis Obispo has a significant water demand to maintain operations and serve its students and staff. There are also several breweries throughout the South County Subregion that require water for the brewing process. Hospitals, including Sierra Vista Regional Medical Center and French Hospital Medical Center, are another prominent industry in the subregion that requires process water.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you agree think should be included in the final responses to the indicator questions.**

- The hotel industry is major water user requiring water for laundry facilities.
- The Arroyo Grande Oil Field uses large amounts of water during oil pumping.

- Details about the agricultural water use in each subregion should be added.
- Mission Linen, Culligan, and Casa de Flores are notable industrial water users in Morro Bay.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**2. Does water use vary by more than 50% seasonally in parts of your region?**

North Coast Subregion

Seasonal water use is affected by tourism and agriculture in the North Coast Subregion. San Simeon CSD and Cambria CSD both have a noticeably higher water demand from June to October.

North County Subregion

Seasonal water use is affected by agriculture in the North County Subregion. Templeton CSD, Atascadero MWC, and the City of Paso Robles all have significantly lower water demands during winter months.

South County Subregion

Seasonal water use is affected by agriculture and tourism in the South County Subregion. The City of Pismo Beach, City of Arroyo Grande, and Oceano CSD all have significantly lower water demands during winter months. In the City of San Luis Obispo, seasonal water demand is impacted by the fluctuating student population at Cal Poly.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Nipomo CSD has a significantly lower water demand in winter months.
- Arroyo Grande has less than a 15% difference in water use between summer and winter.
- San Simeon CSD water usage varies by 50% or more seasonally due to tourism.
- Los Osos CSD has a significant difference in seasonal water demand, but it is not more than 50%.
- During the summer, the City of San Luis Obispo experiences an increase in irrigation water use but a decrease in domestic water use with the absence of Cal Poly students. Overall, seasonal water use does not vary by more than 50%.
- As a whole, water use in the North County Subregion is significantly lower during the winter season.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

### 3. Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?

The highest ranked crops by dollar amount are grapes/wine, vegetables, strawberries, avocados, broccoli, and cattle/calves, all which are climate sensitive. The total value of agricultural production in 2016 was over \$900 million. A report by the USDA determined San Luis Obispo County had a high crop vulnerability ranking.

- While grapes are relatively drought tolerant crops, they are sensitive to temperature and other climate-related factors. The quality of wine grapes is especially sensitive to climate, and increased temperatures could significantly reduce the quality and economic value of wine grapes.
- Cattle production decreased 36% from 2015 to 2016 due largely to the decrease in rangeland caused by the drought.
- Strawberries are extremely sensitive to soil salinity. Increasing salt levels in soil would decrease growth rate and fruit yield of strawberries as well as increase irrigation demands for soil leaching. Additionally, strawberries are sensitive to fungal diseases and unusually warm temperatures.
- Broccoli is moderately climate sensitive. Broccoli has a narrow temperature range of 60 to 65°F and is harmed by temperatures exceeding 80°F. The vegetable is also sensitive to invertebrate pests and bacterial and fungal diseases, which are likely to pose a greater risk with increased temperatures.
- Avocados are a highly climate sensitive crop requiring wet conditions. Avocados need large amounts of water and frequent irrigation, and their sensitivity to soil salinity could increase this already high water demand. The fruit is sensitive to cold weather and can die during a freeze, but increased fall temperatures could also decrease avocado yields.

#### North Coast Subregion

Avocados, grapes, and berries are all grown in the North Coast Subregion.

#### North County Subregion

The primary crop in the North Coast Subregion is wine grapes. The cattle industry is also prominent in this subregion.

#### South County Subregion

Strawberries and grapes are some of the major crops grown in the South County Subregion.

*Note: Some members of the San Luis Obispo County Farm Bureau reviewed this draft answer and generally considered it to be sufficient, including some of the comments below.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Grapes are extremely sensitive to frost and cold temperatures.
- Changes in air temperature and decreased humidity can cause respiratory problems for cattle.
- Avocados should be included as a prominent crop in the South County Subregion.
- While other changes could be stressful, increased air temperature could be beneficial for avocados.



Please provide any additional suggestions to revise, add to, or update the draft response:

#### 4. Do groundwater supplies in your region lack resiliency after drought events?

##### North Coast Subregion

Multiple groundwater basins in the subregion (some of the largest/highest yield and storage capacity basins) have a Level I (2 basins) or Level III (2 basins) severity rating as assigned by the SLO County Planning Department. These basins experience reduced recharge and ability to meet demand during drought conditions. About 50% of the North Coast's urban water supply is from groundwater (2014 IRWMP).

##### North County Subregion

The Paso Robles Basin, the largest and highest yielding basin in the subregion, is a critically over-drafted basin. The groundwater basins in this subregion have low storage and difficulty meeting demands especially during drought events (2014 IRWMP). About 70% of the North County water supply is from groundwater (2014 IRWMP).

##### South County Subregion

The Cuyama Valley Basin is a critically over-drafted basin, and the Santa Maria Valley Basin is a high priority basin (DWR). Droughts reduce basin recharging and the ability of the basin to meet demand. About 30% of the South County water demand is supplied by groundwater (2014 IRWMP).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Drought conditions make groundwater basins more susceptible to salt water intrusion and often result in increased chloride levels. This has been witnessed in groundwater wells in Los Osos.
- Nipomo CSD is unique in that it obtains 50-100% of its water supply from groundwater.
- San Simeon CSD is dependent on a single creek basin, which is susceptible to adverse effects of drought events.
- The City of San Luis Obispo does not rely heavily upon groundwater to meet water demand.

Please provide any additional suggestions to revise, add to, or update the draft response:

#### 5. Are water curtailment measures effective in your region?

A local drought emergency was enacted in SLO County from 2014 through 2017 that restricted water usage and required acquiring alternate water sources while reservoir levels were allowed to recover. *More information is needed about curtailment measures and their results.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- While curtailment measures in Nipomo were successful in reducing groundwater pumping by 50%, they did not result in a significant increase in the groundwater level.
- The US-LT RCD developed the Agricultural Water Offset program, which limited the establishment of new irrigated lands in Paso Robles Groundwater Basin, but this did not necessarily prevent new groundwater pumping operations outside of the basin boundary.
- Efforts in the City of Paso Robles during the recent drought were effective in reducing per capita water use.
- Los Osos CSD implemented a Water Shortage Contingency Plan during the recent drought, and water usage dropped to 50 gallons per day per capita.
- Restrictions on outdoor water use in the City of San Luis Obispo have been effective at reducing the city's water consumption.
- The City of Arroyo Grande successfully curtailed water use by 35% from 2013 to 2016.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**6. Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?**

A study completed by Stillwater Sciences in 2014 determined the minimum instream seasonal flow requirements needed to sustain basic aquatic systems for stream systems throughout the County. Central coast steelhead trout were used as the indicator species for this study. Based on a 2017 report by the Central Coast Salmon Enhancement, there are streams within all three subregions that did not meet these minimum flow requirements in the past two years. In 2016, only 14 percent of the sites measured met spring flow requirements, and only 17 percent of measured sites met summer flow requirements (CCSE).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Some river and stream systems experience extended periods of no surface flow making steelhead swimming and spawning impossible. An alternate method for determining instream flow requirements may need to be developed for these water bodies.
- Instream flow conditions could be doubly impacted by climate change as streamflow is affected by changes in precipitation patterns as well as by changes in water use.

Please provide any additional suggestions to revise, add to, or update the draft response:

## Water Supply

**1. Does a portion of the water supply in your region come from snowmelt? Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?**

North Coast Subregion

The City of Morro Bay, California Men’s Colony, Cuesta College, and County Operations Center all receive water from the State Water Project (SWP).

North County Subregion

Shandon has a water service amount of 100 AFY from the SWP.

South County Subregion

The City of Pismo Beach, Oceano CSD, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, and San Luis Coastal USD all receive water from the SWP.

Please provide any additional suggestions to revise, add to, or update the draft response:

**2. Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?**

North Coast Subregion

The Pico Creek Valley, San Simeon Valley, Chorro Valley, Morro Valley, and Los Osos Valley Basins have all encountered sea water intrusion and are water supply sources for the subregion (SLO 2014 IRWMP).

North County Subregion

There are no coastal aquifers in this subregion.

South County Subregion

The Avila Valley Sub-basin and Santa Maria Valley Basin have both experienced sea water intrusion and serve as water supply sources for the subregion (SLO 2014 IRWMP).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**3. Would your region have difficulty storing carryover supply surpluses from year to year?**

Surplus supplies of State Water can be stored via San Luis Reservoir, which is operated by DWR and the Central Valley Project. State water contracts limit the quantity of water allowed to be stored by each contractor, and stored water is subject to spills based on the amount of water in the SWP system.

North County Subregion

The Salinas Reservoir, overseen by the City of San Luis Obispo, is limited in its ability to store new inflow due to criteria set forth by the SWRCB which only allow for new inflow to be stored when there is a live stream in the Salinas River. Monterey County operates and maintains the Nacimiento Reservoir. The District and the contractors of Nacimiento Water have contracts for water but no rights to storage.

South County Subregion

It is possible to store carryover supplies in Lopez Reservoir but only when the water level reaches 40.5% capacity (20,000 AF). The Low Reservoir Response Plan (LRRP) allows agencies to carryover any of their unused annual entitlement for future use when reservoir levels are low. The LRRP allows for reduced entitlement deliveries as well as reduced downstream releases to preserve or stretch out supplies for up to 2-3 years. When the LRRP is not in effect, agencies occasionally have access to surplus water but can only use it in that same year; they cannot store it for use in future years.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- San Simeon has no way of carrying over supply surpluses.
- Supply surpluses in Shandon are stored in San Luis Reservoir and experience significant losses through evaporation.
- Groundwater storage is the only possible storage option in Nipomo.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**4. Has your region faced a drought in the past during which it failed to meet local water demands?**

During water years 2014 and 2015, due to statewide drought conditions, the State Water Resources Control Board (SWRCB) curtailed post-1914 tributary water rights to the Sacramento-San Joaquin Delta. A local drought emergency was in effect from 2014-2017 during which time alternate water sources were needed.

*More information is needed about sub-regional drought impacts.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Even during droughts, San Simeon has never exceeded 70% of our available Pico Creek Basin capacity.
- In Nipomo, recent drought conditions have contributed to groundwater levels at record lows.
- State Water Project water has experienced increased salt levels during drought conditions, which resulted in violation of water quality standards in the Chorro Valley Water System.
- To ensure water demand could be met during drought conditions, the City of San Luis Obispo has added water sources and long-standing water conservation programs.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?**

The 2014 San Luis Obispo County Watersheds Management Plan determined that invasive species identification and assessment as a county-wide priority data gap. The California Invasive Plant Council has recognized areas of spreading invasive species in all three of the County’s subregions. Yellow star thistle, veldt grass, and arundo are three invasive species with notable management issues in San Luis Obispo County. Mitigation sites are especially vulnerable to invasive species management issues. *More information about invasive species management is currently being obtained from the County of SLO Environmental Division.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- There has been a significant increase in the overall size of acres covered by invasive species in local watersheds.
- Chorro Reservoir is at risk of arundo management issues.
- Invasive mussels in reservoirs are a concern.
- Cape Ivy in the Morro Bay watershed has been an invasive species of special concern.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## Water Quality

### 1. Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?

According to the Cal-Adapt Wildfire: Fire Risk Map, the SLO County IRWM Planning Region may experience a slight increase in annual mean hectares burned by wildfire (Cal Fire).

#### North Coast Subregion

The risk of wildfires near Whale Rock Reservoir are a significant contamination risk to the water supply ("Whale Rock" 18). The major source of contamination for the water body is sedimentation from erosion, which would be exacerbated by wildfires in the nearby area ("Whale Rock" 1).

#### North County Subregion

The Nacimiento Reservoir is in an area with a high risk of wildfires, and possible wildfires pose a threat to the water quality in the reservoir ("Nacimiento Reservoir" 1). Similarly, wildfires are a risk in the nearby areas of the Salinas Reservoir and threaten water quality (Cal Fire).

#### South County Subregion

Large amounts of dry brush have been noted throughout the Lopez Lake watershed and contribute to the significant risk of potential contamination due to wildfires ("Lopez Lake" 2). Wildfires would lead to increased sedimentation and add stress to other water quality concerns within the reservoir.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Dead trees and large areas of dry bush create a wildfire threat to water bodies throughout the North Coast Subregion – not just Whale Rock Reservoir.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

### 2. Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?

#### North Coast Subregion

The San Simeon, Cayucos Creek, and Morro Bay Watersheds all have low dissolved oxygen, among other water quality issues (SLO 2014 IRWMP). Cattle grazing in the Whale Rock Reservoir watershed has been linked to increased turbidity and nutrient levels in the area's water bodies ("Whale Rock" 1). These conditions encourage algal blooms and are worsened in times of drought and high temperatures.

#### North County Subregion

Middle Salinas-Atascadero and Cholame Creek Watersheds have low dissolved oxygen (SLO 2014 IRWMP). The Nacimiento Reservoir has a recent trend of high algal levels in summer months. Increased

erosion, drought conditions, and high temperatures all contribute to harmful levels of algae growth in the reservoir (“Nacimiento Reservoir” 27-28). Similarly, the recent drought conditions resulted in record high levels of nutrients in the Salinas Reservoir, which has contributed to a trend of high algae levels in warm summer and fall months (“Salinas Reservoir” 12).

South County Subregion

San Luis Obispo Creek and Pismo Creek Watersheds have low dissolved oxygen. San Luis Obispo Creek and Santa Maria River have chlorpyrifos and other water quality issues (SLO 2014 IRWMP). The Lopez Lake Reservoir experienced harmful algal blooms during the recent drought conditions and has a recorded trend of algae spikes during warm summer months (“Lopez Lake” 14).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Bacteria impairment can be exacerbated by warm temperatures, which accelerates the growth of bacteria. Water bodies with bacteria impairment include Morro bay estuary, Chorro Creek, Los Osos Creek and Warden Creek.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**3. Are seasonal low flows decreasing for some water bodies in your region? If so, are the reduced low flows limiting the water bodies' assimilative capacity?**

*More information is needed about assimilative capacity.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- There is a declining trend in seasonal low flows throughout the County. During these low flow periods, water quality and ecosystem processes are highly sensitive to minor alterations.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**4. Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?**

Beneficial uses are identified by the Watershed Management Planning Project Report for all but one of the watersheds in the region. It is unclear if these beneficial uses are unable to be met due to water quality issues (SLO 2014 IRWMP).

*More information is needed about any disruptions to beneficial uses.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Swimming and oyster harvesting in the back bay of the Morro Bay watershed have been limited in the past due to bacteria levels.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?**

Runoff into Whale Rock Reservoir (Cayucos Water Treatment Plant) and Lopez Lake (Lopez Water Treatment Plant) brings sediment into the reservoirs causing turbidity levels to rise. This can dramatically affect the treatability of the water source and increase the risk of exposure to water borne illnesses due to Cryptosporidium, Giardia, and E. Coli as chlorine and filtration demands are elevated during these times. It typically takes several big storms to see such a result in water quality at the water treatment plants, and it can take days for the turbid water to reach the end of the reservoir where water is distributed to the water treatment plants. Fortunately, County facilities can handle these changes to the water source and have not had a violation because of turbidity breakthrough or low chlorine after such rain events.

Storm runoff similarly affects Nacimiento Lake and Salinas Reservoir and treatment facilities in the City of Paso Robles and City of San Luis Obispo, respectively, must respond to the water quality shifts.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Heavy rains in San Simeon led to the addition of a filtration system to handle increased contamination.

**Please provide any additional suggestions to revise, add to, or update the draft response:**



## Sea Level Rise

### 1. Has coastal erosion already been observed in your region?

#### North Coast Subregion

Coastal erosion has been observed within the North Coast Subregion; however, the shoreline trends vary across the region and over time. A USGS study found that in the short-term over 80% of the subregion is experiencing net erosion (Hapke 50).

#### North County Subregion

There are no coastal areas in this subregion.

#### South County Subregion

The South County Subregion has experienced notable coastal erosion. Coastal bluffs in Pismo Beach are experiencing erosion rates of six to eight inches per year, which resulted in the construction of a sea wall in 2017 (LA District US Army Corps of Engineers 17). Avila Beach is also using a sea wall to protect roads and infrastructure from coastal erosion (Wallace Group).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- San Simeon has been forced to add armoring to the shoreline to protect beach access and the waste water treatment plant.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

### 2. Are there coastal structures, such as levees or breakwaters, in your region?

#### North Coast Subregion

Coastal structures along the North Coast include the San Simeon Pier, Cayucos Pier, and Morro Bay breakwaters.

#### North County Subregion

There are no coastal areas in this subregion.

#### South County Subregion

The Arroyo Grande Creek Channel Levee located in the South County Subregion is intended to mitigate flooding. Other notable coastal structures along the South Coast include the Port San Luis breakwater, Harford Pier, Unocal Pier, Avila Beach Pier, and Pismo Beach Pier.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**3. Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation at less than six feet above mean sea level?**

San Luis Obispo County Planning Department is currently working on a study that will provide information about specific infrastructure at risk from sea level rise.

North Coast Subregion

Based off the NOAA Sea Level Rise Viewer, roads and infrastructure within areas of San Simeon, San Simeon Ranch, and Los Osos would be impacted by six feet of sea level rise.

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

Based off the NOAA Sea Level Rise Viewer, roads and infrastructure near Pismo State Beach would be impacted by six feet of sea level rise.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Morro Bay harbor and Embarcadero area and Morro Bay State Park should be added to the North Coast Subregion description.
- The South SLO County Wastewater Treatment Plant and the railroad should be added to the South County Subregion description.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**4. Are there climate-sensitive low-lying coastal habitats in your region?**

North Coast Subregion

The US Fish and Wildlife Service has designated several Critical Habitats throughout the North Coast Subregion; these federally recognized areas are considered essential for the survival of an endangered or threatened species. Critical Habitats along the North Coast have been recognized for the following species: Steelhead, California red-legged frog, Banded dune snail, Western snowy plover, Morro Bay kangaroo rat, and Tidewater goby. Morro Bay Estuary, in particular, is home to multiple fully protected species and is one of 28 areas protected through the EPA's National Estuary Program.

North County Subregion

There are no coastal habitats in this region.

South County Subregion

The coastal area of the South County Subregion also contains several Critical Habitats. Endangered and threatened species dependent on coastal habitats along the South Coast include Tidewater goby, Steelhead, La Graciosa thistle, and Western snowy plover (“ECOS”). Pismo Beach is also home to a Monarch Butterfly Grove – a species which is currently under review for protection under the Endangered Species Act (“Monarch butterfly”).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Are there areas in your region that currently flood during extreme high tides or storm surges?**

*More information is needed about sub-regional historic flooding.*

South County Subregion

Pismo Beach experienced flooding during storm surges in 2016 that resulted in closing the pier (KSBY).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- During previous storm surges, Pico Creek lagoon has experienced salt water intrusion.
- In the past, storm events have caused flooding of the Oceano Lagoon and Highway 1 in Oceano.
- During king tides, the water level in Morro Bay is just inches below docks and waterfront restaurants. Additionally, many popular coastal areas in Morro Bay State Park are completely underwater.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**6. Is there land subsidence in the coastal areas of your region?**

The only land subsidence that has been observed in the coastal areas of San Luis Obispo County occurred in and around Oceano due to the December 2003 San Simeon Earthquake. The land subsidence was a result of liquefaction during shaking by the earthquake.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**7. Do tidal gauges along the coastal parts of your region show an increase over the past several decades?**

North County Subregion

It can be assumed that sea level trends in the North County Subregion are similar to those studied at Port San Luis and other surrounding areas. Nearby studies indicate the mean sea level is increasing along California’s central coast (“Sea Level Trends”).

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

According to NOAA’s Tides and Currents Sea Level Trends gauge for Port San Luis, the change in mean sea level is 0.84 mm/year with a 95% confidence interval. This calculation is based off data from 1945 to 2016 and is equivalent to a change of 0.28 feet in 100 years (“Sea Level Trends”).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## Flooding

**1. Does aging critical flood protection infrastructure exist in your region?**

*More information is needed about aging flood protection infrastructure.*

South County Subregion

The Arroyo Grande Creek Channel Levee was constructed in 1961 to reduce flooding in the area (SLO Flood Control District). The Diablo Canyon Nuclear Power Plant located along the coast has critical flood protection infrastructure.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The flood control gates on Oceano Lagoon are aging.
- Old and damaged drainage projects and flood protection infrastructure are present throughout the North County Subregion leaving the area vulnerable to flooding.
- Much of the City of San Luis Obispo’s downtown corridor has creeks and waterways with aging infrastructure.

- The Chorro Dam and spillway should be added to the North Coast Subregion description.
- Two 1940-era Chorro Creek bridges within the California Men’s Colony (CMC) are susceptible to collapse and/or obstruction from high water flows and flood debris leading to flooding and restricted access to the West Facility of CMC.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**2. Have flood control facilities (such as impoundment structures) been insufficient in the past?**

North Coast Subregion

Flood control and drainage studies were completed by RMC, Inc. for several communities in the North Coast Subregion in 2004. The study in Cambria revealed there were insufficient underground drainage facilities and improved organization and maintenance of the area’s flood control facilities was necessary (“Cambria” i). In Cayucos, a lack of initial drainage infrastructure when development began was identified as a major reason for the lack of necessary drainage facilities and frequent street flooding (“Cayucos” i). The study showed that the railroad in San Miguel was preventing runoff to the Salinas River and causing flooding (“San Miguel” ii). Additionally, a lack of curbs and gutter systems were contributing to road flooding (“San Miguel” i). In Santa Margarita, inadequate culverts and drainage structures blocked by sedimentation and debris resulted in flood risks (“Santa Margarita” i). Another study done in 1997 determined that development in Los Osos without rerouting of drainage facilities had led to poor flood control in the area (Engineering Development Associates ES-1).

North County Subregion

The Templeton Drainage and Flood Control Study completed in 2014 identified several insufficient flood control facilities, including culverts along Highway 101, Main Street, and Arizona Crossing as well as restricted conveyance capacity in the Toad Creek Channel due to vegetation and sedimentation (13-16).

South County Subregion

RMC, Inc. performed flood control and drainage studies in 2004 for several communities in the South County Subregion. The Nipomo study revealed Mesa area flooding was due to development locking existing runoff flow paths and flooding in Olde Towne was the result of insufficient culverts (“Nipomo” i-ii). In Oceano, the study found stormwater was not considered during the community’s initial development and that resulted in insufficient drainage facilities and frequent flooding of roads (“Oceano” i). Additionally, the Arroyo Grande Creek Channel Levee was breached in 2001 and hundreds of acres were flooded (SLO Flood Control District).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Floodplains throughout the County lack protective infrastructure and have a history of flooding.
- San Simeon lacks an adequate storm drainage system. Private storm drains currently provide most of the flood protection.

Please provide any additional suggestions to revise, add to, or update the draft response:

### 3. Are wildfires a concern in parts of your region?

There are areas within all three subregions determined as Very High Fire Hazard Severity Zones by Cal Fire.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- San Simeon lacks adequate fire protection for homes and businesses. There is not enough water storage nor fire flow to protect structures.
- Our community does not do a good job clearing dead trees, snags, piles of limbs, wood chips, etc.
- The West Facility of the California Men’s Colony is a 1940-era Army Hospital composed of highly flammable wooden materials and is located adjacent to areas susceptible to wildfire.

Please provide any additional suggestions to revise, add to, or update the draft response:

## Ecosystems and Habitats

### 1. Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?

#### North Coast Subregion

Increased sedimentation can cause shallower and warmer water, and in some cases, loss of estuaries. Morro Bay shorebird habitats have been identified as at-risk of these disrupting effects. Many species including snowy plovers, least terns, brown pelicans, and brant are expected to lose habitat and resources (Koopman 31). Additionally, Steelhead, California red-legged frog, Morro shoulderband snail, and Morro kangaroo rat Critical Habitats in the North Coast are vulnerable to the effects of erosion and sedimentation (“ECOS”).

#### North County Subregion

The Salinas River has already been impacted by increased sedimentation (Koopman 31). This sedimentation has degraded riparian habitats including areas designated as a Critical Habitat for Steelhead and California red-legged frog and supports numerous other special status species (“ECOS”).

South County Subregion

Increased sedimentation and coastal erosion could disrupt Critical Habitats for Steelhead, California red-legged frogs, Western snowy plover, and La Graciosa thistle in the South County (Koopman 31). The Pismo Beach area is especially at risk of coastal erosion and flooding.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The Morro Bay estuary salt marsh is a critical habitat that has already been impacted by sedimentation and effects will likely be complicated by sea level rise.
- Eelgrass beds are another Morro Bay habitat that can be adversely impacted by increased sedimentation. Eelgrass beds are critical fish habitats and contribute to cleaner, clearer water in the bay.
- Chorro Reservoir’s sedimentation has impacted habitats in and near the reservoir, including the Morro Bay Estuary.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**2. Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?**

North Coast Subregion

Morro Bay Estuary is an important coastal habitat supporting a diverse community of species, many of which have special species status, and is dependent on seasonal flow patterns (US-LT RCD). Several other river and stream mouths along the North Coast are dependent on seasonal flow patterns.

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

San Luis Obispo Creek, Pismo Creek, and Arroyo Grande Creek all form estuarine habitats dependent on seasonal flows and that support federally protected species (US-LT RCD).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Non-point and point sources of watershed pollution result in fecal coliform and other forms of contamination in estuaries.
- Morro Bay estuary is impacted by changes in freshwater flow. Understanding of specific impacts is limited, but the Morro Bay National Estuary Program is currently researching and monitoring impacts on eelgrass.

Please provide any additional suggestions to revise, add to, or update the draft response:

### 3. Do climate-sensitive fauna or flora populations live in your region?

#### North Coast Subregion

The elfin forests and estuary in Morro Bay are sensitive to climate change impacts, such as changes in fog, sea level rise, sedimentation, and drought (Koopman 31). These areas support various special status species that are at great risk of climate change impacts. Pine forests and woodlands along the North Coast are at risk of changing conditions that could make current habitats unsuitable, and their isolation from other suitable areas makes them especially vulnerable (Koopman 35).

#### North County Subregion

Carrizo Plain supports several climate-sensitive species, such as Pronghorn and Tule elk, which are at risk of declining grassland productivity and isolation from other suitable habitats (Koopman 37). The North County Subregion is also home to various endangered and threatened species that are at great risk of climate change impacts; these species include Steelhead, California tiger salamander, California red-legged frog, Longhorn fairy shrimp, Vernal pool fairy shrimp, Purple amole, and California condor ("ECOS").

#### South County Subregion

Steelhead and other protected species found in the coastal areas of the subregion are at risk of various climate change impacts that threaten the conditions required for suitable habitat ("ECOS"). Additionally, climate change effects could put new species at risk. For instance, higher temperatures and poor water quality could cause sea lions to be more susceptible to diseases (Koopman 31).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Steelhead should be added as climate-sensitive fauna in the North Coast Subregion.

Please provide any additional suggestions to revise, add to, or update the draft response:

### 4. Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?

#### North Coast Subregion

Endangered Species: Smith's butterfly, Chorro Creek bog thistle, California clapper rail, Morro Bay kangaroo rat, Morro shoulderband snail, Tidewater goby, California seablite, Indian Knob mountain-balm, Marsh sandwort, Salt marsh bird's-beak, Southern Steelhead (US-LT RCD).



Threatened Species: Steelhead, California red-legged frog, Monterey spineflower, California black rail (CA), Beach spectaclepod (CA), Morro manzanita, Western snowy plover (US-LT RCD).

North County Subregion

Endangered Species: Blunt-nosed leopard lizard, Giant kangaroo rat, San Joaquin kit fox, Camatta Canyon amole, Kern mallow, Least Bell’s vireo, California condor, California jewel-flower, San Joaquin woollythreads, Longhorn fairy shrimp, Tipton kangaroo rat, Bald Eagle (CA), Santa Lucia mint (CA) (US-LT RCD).

Threatened Species: Bank swallow (CA), Swainson’s hawk (CA), California red-legged frog, Vernal pool fairy shrimp, Spreading navarretia, Nelson’s antelope squirrel (CA), California tiger salamander, Kern primrose sphinx moth, Camatta Canyon amole, Santa Lucia purple amole (CA), Steelhead (US-LT RCD).

South County Subregion

Endangered Species: California least tern, Tidewater goby, Gambel’s water cress, La Graciosa thistle, Marsh sandwort, Nipomo Mesa lupine, Pismo clarkia, California condor, Blunt-nosed leopard lizard, Giant kangaroo rat, Longhorn fairy shrimp, San Joaquin kit fox, California jewel-flower, Kern mallow, San Joaquin woollythreads, Chorro Creek bog thistle, Indian Knob mountain-balm, Pismo clarkia (US-LT RCD).

Threatened Species: California black rail (CA), California red-legged frog, California tiger salamander, Steelhead, Western snowy plover, Beach spectaclepod (CA), Surf thistle, Kern primrose sphinx moth, Nelson’s antelope squirrel (CA), Swainson’s hawk (CA), Vernal pool fairy shrimp, Western snowy plover, Morro manzanita, Surf thistle (US-LT RCD).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- California red-legged frog and Southern sea otter should be added to the North Coast Subregion description.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?**

In 2015, the commercial fishing industry in San Luis Obispo County had a total revenue of \$10 million (County of SLO).

*More information is needed about the economic activities that depend on aquatic habitats.*

North Coast Subregion

Morro Bay and Montana de Oro State Parks and other coastal areas attract tourists and support water-related recreation. Similarly, Whale Rock Reservoir supports fishing and other recreation activities.

North County Subregion

Santa Margarita Lake supports water recreation activities. The Salinas River and other riparian habitats also support tourism and water recreation.

South County Subregion

Avila Beach, Pismo Beach, Oceano Dunes, and other coastal regions in the South County have a strong tourism industry. Whale Rock Reservoir also supports water-related recreation.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The beach access stairway in San Simeon could be impacted by rising sea levels.
- Morro Bay economic activities include oyster farming (2 oyster farms), recreational and commercial fishing, fishing-related, fish markets and restaurants that sell local fish. There are now two shops in Morro Bay dedicated to stand-up paddling, as well as numerous kayak rentals shops and three bay tour boat operators. There is a growing number charter boats that do private sailing and fishing charters. Wildlife viewing also generates economic activity, such as the Morro Bay Winter Bird Festival.
- Chorro Reservoir supports recreation and other economic activities.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**6. Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?**

Stillwater Sciences completed an evaluation in 2014 of minimum instream seasonal flows required to sustain aquatic habitats for steelhead. This study determined minimum seasonal flow values required to support Steelhead habitats at 63 different analysis points across the Region (Stillwater Sciences 23-24).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**7. Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?**

Coastal storms bringing storm surges, waterspouts, and flooding are all possible and occur somewhat regularly along the San Luis Obispo County coastline. These events are often linked to atmospheric rivers.

North Coast Subregion

Areas at risk: Estero Bluffs State Park, Morro Bay National Estuary, Morro Bay State Park, William Randolph Hearst Memorial State Beach, San Simeon State Beach, Moonstone Beach, Cayucos Beach, Cayucos State Beach, Morro Strand State Beach, Harmony Headlands State Beach (SLO 2014 IRWMP).

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

Areas at risk: Montana de Oro State Park, Port San Luis Pier and Beach, Avila State Beach, Pismo State Beach, Oceano Dunes State Vehicles Recreation Area, Guadalupe-Nipomo Dunes wetland complex (SLO 2014 IRWMP).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**8. Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?**

*More information is needed about the fragmentation of aquatic habitats.*

North Coast Subregion

Santa Rosa Creek experiences fish passage barriers due to infrastructure changes (SLO 2014 IRWMP).

South County Subregion

Arroyo Grande Creek experiences fish passage barriers, and Nipomo-Suey Creeks have habitat fragmentation due to development (SLO 2014 IRWMP).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The Salinas and Estrella Rivers are important corridors for aquatic and riparian species movement.
- There are many fish passage barriers in the Morro Bay watershed, including the South Bay Boulevard bridge.
- The Chorro Reservoir Dam is a fish passage barrier impacting steelhead. There is other infrastructure throughout Chorro Creek that creates barriers to fish passage.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## Hydropower

**1. Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in you region?**

*More information is needed about sub-regional future energy plans.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The City of San Luis Obispo is examining options for hydropower facilities.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**REMINDER: Please return completed worksheet by the end of the workshop.**

## IRWM Climate Change Workshop Vulnerability Prioritization Worksheet

Name: \_\_\_\_\_

Organization/Affiliation: \_\_\_\_\_

City/Town: \_\_\_\_\_

County Public Works staff held an online survey (January 4-19, 2018) about the regional water resources that are vulnerable to the effects of climate change. Twenty-two (22) RWMG members and stakeholders responded to the vulnerability assessment. Thirty-five (35) vulnerabilities were identified within these categories: **water demand (WD)**, **water supply (WS)**, **water quality (WQ)**, **sea level rise (SLR)**, **flooding (FL)**, **ecosystem and habitat vulnerability (EH)**, and **hydropower (HP)**.

The following three characteristics were used to help prioritize the vulnerabilities:

Exposure – the extent (e.g., percentage) that a resource/asset/system could be subject to climate change effects

Sensitivity – the degree to which small variations of climate change effects could impact a resource/asset/system

Likelihood – the probability that a resource/asset/system could be impacted *due to lack of adaptive capacity*

Each vulnerability was evaluated using the following scale and averaged for all survey responses.

	1	2	3	4	5
<b>Exposure</b>	Not Exposed	Somewhat Exposed	Exposed	Very Exposed	Completely Exposed
<b>Sensitivity</b>	Not Sensitive	Somewhat Sensitive	Sensitive	Very Sensitive	Extremely Sensitive
<b>Likelihood</b>	Unlikely	Somewhat Likely	Likely	Very Likely	Extremely Likely

Each vulnerability was scored using the following equation:

$$Exposure \times Sensitivity \times Likelihood = Score$$

Scores were assigned a high, medium, or low priority based on this table (to the right)

Priority	Score
High	> 27.0
Medium	20.8 - 27.0
Low	< 20.8

**RWMG Members:** Please write **yes** or **no** if you agree or disagree with the recommended priority. If you disagree, please suggest otherwise (**High, Medium, or Low**).

ID	Vulnerability	Exposure	Sensitivity	Likelihood	Score	Priority	Agree? Y/N If no, High/Med/Low
WD 1	Water-dependent industries	3.11	2.81	3.24	28.31	High	
WD 2	Seasonal water demand	3.17	2.50	3.00	23.78	Medium	
WD 3	Climate-sensitive crops	3.18	2.82	2.73	24.48	Medium	
WD 4	Drought-sensitive groundwater basins	3.81	3.47	3.67	48.52	High	
WD 5	Communities with water curtailment efforts	2.85	2.54	2.75	19.91	Low	
WD 6	Insufficient instream flows	3.77	3.54	3.62	48.31	High	
WS 1	Water supply from snowmelt	3.00	2.83	2.83	24.03	Medium	
WS 2	Water supply from coastal aquifers	3.54	3.23	3.42	39.10	High	

ID	Vulnerability	Exposure	Sensitivity	Likelihood	Score	Priority	Agree? Y/N If no, High/Med/Low
WS 3	Inability to store carryover supply surpluses	3.00	2.82	2.80	23.69	Medium	
WS 4	Drought-sensitive water systems	3.91	3.45	3.55	47.89	High	
WS 5	Invasive species management issues	2.90	2.67	2.60	20.13	Low	
WQ 1	Water bodies in areas at risk of wildfire	3.09	3.00	3.00	27.81	High	
WQ 2	Water bodies impacted by eutrophication	3.09	3.00	3.00	27.81	High	
WQ 3	Declining seasonal low flows	3.63	3.50	3.38	42.94	High	
WQ 4	Water bodies with restricted beneficial uses	2.89	2.67	2.78	21.45	Medium	
WQ 5	Water quality impacted by rain events	2.92	2.67	2.67	20.82	Medium	
SLR 1	Coastal erosion	3.00	2.70	2.80	22.68	Medium	
SLR 2	Coastal structures	2.40	2.20	2.30	12.14	Low	
SLR 3	Coastal infrastructure in low-lying areas	2.60	2.50	2.60	16.90	Low	
SLR 4	Low-lying coastal habitats	2.50	2.40	2.60	15.60	Low	
SLR 5	Flooding due to high tides and storm surges	2.60	2.50	2.40	15.60	Low	
SLR 6	Coastal land subsidence	1.63	1.50	1.50	3.67	Low	
SLR 7	Rising sea levels	2.13	2.00	2.13	9.07	Low	
FL 1	Aging flood protection infrastructure	3.44	3.11	3.11	33.27	High	
FL 2	Insufficient flood control facilities	3.30	3.10	3.20	32.74	High	
FL 3	Increased flood risk due to wildfires	3.55	3.36	3.36	40.08	High	
EH 1	Aquatic habitats at risk of erosion and sedimentation	2.90	3.00	2.80	24.36	Medium	
EH 2	Estuarine habitats dependent on freshwater flow patterns	3.00	3.09	3.09	28.64	High	
EH 3	Climate-sensitive fauna and flora	3.00	2.90	3.00	26.10	Medium	
EH 4	Changes in species distributions	3.18	3.09	3.09	30.36	High	
EH 5	Aquatic habitats used for economic activities & recreation	2.82	2.55	2.64	18.98	Low	
EH 6	Environmental flow requirements	3.36	3.27	3.09	33.95	High	
EH 7	Exposed coastal ecosystems	2.64	2.64	2.64	18.40	Low	
EH 8	Fragmented aquatic habitats	3.00	2.70	2.80	22.68	Medium	
HP 1	Future hydropower plans	1.78	1.67	1.89	5.62	Low	

## **APPENDIX C.2 - RWMG MEETINGS**

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Attached are all agendas and presentation files for the regular Regional Water Management Group (RWMG) Meetings related to the update of the IRWM Plan to the 2016 Standards.

Meeting list includes:

1. February 1<sup>st</sup>, 2017
2. April 5<sup>th</sup>, 2017
3. June 7<sup>th</sup>, 2017
4. October 4<sup>th</sup>, 2017
5. December 6<sup>th</sup>, 2017
6. February 7<sup>th</sup>, 2018
7. April 4<sup>th</sup>, 2018
8. August 1<sup>st</sup>, 2018
9. November 7<sup>th</sup>, 2018
10. February 6<sup>th</sup>, 2019
11. April 3<sup>rd</sup>, 2019
12. June 5<sup>th</sup>, 2019
13. November 14<sup>th</sup>, 2019
14. February 25<sup>th</sup>, 2020
15. June 3<sup>rd</sup>, 2020
16. August 24<sup>th</sup>, 2020



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

**AGENDA**

Date: February 1, 2017  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room  
995 Palm St, San Luis Obispo, CA 93401

1. Introductions
2. Public Comment
3. Updates on
  - a. Prop 84 IRWM Round 1 Implementation Grant
  - b. Prop 84 IRWM Drought Grant
  - c. Prop 84 IRWM 2015 Implementation Grant
  - d. Stormwater Resource Planning efforts
4. Prop 1 IRWM Disadvantaged Community (DAC) Involvement Proposal  
[http://www.water.ca.gov/irwm/grants/p1\\_dac\\_involvement.cfm](http://www.water.ca.gov/irwm/grants/p1_dac_involvement.cfm)
  - a. Update on DAC Involvement Request for Proposal (RFP) submittal
  - b. San Luis Obispo County DAC overview
  - c. **Workshop activity:** Needs Assessment scoping (*handouts will be provided*)
5. 2016 IRWM Guidelines Review and IRWM Plan Update
  - a. Update on Prop 1 IRWM Planning Grant efforts
  - b. Review of Plan Standard requirements
6. Prop 1 IRWM Implementation Round 1 (anticipated: Spring 2018)
  - a. Review of 2014 IRWM Plan *Section G Project Solicitation and Prioritization*
  - b. Consider forming sub-committee to review project solicitation process

**NEXT RWMG MEETING:**

Wednesday April 5, 2017 at 10:00 AM – 12:00 PM

SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Mladen Bandov, San Luis Obispo County Public Works  
mbandov@co.slo.ca.us  
(805) 781-5116  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)





San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

**AGENDA**

Date: April 5, 2017  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room  
995 Palm St, San Luis Obispo, CA 93401

1. Introductions
2. Public Comment
3. Ongoing Updates
  - a. Prop 84 IRWM Grants
    - i. Round 1 Implementation
    - ii. 2014 Drought Grant
    - iii. 2015 Implementation
  - b. Prop 1 IRWM Grants
    - i. Planning Grant, including Stormwater Resource Planning efforts
    - ii. Disadvantaged Community (DAC) Involvement
4. Full Project List
  - a. Discussion on the compiled Full Project List and consider an update to ensure current, comprehensive and reflecting existing project statuses
5. IRWM Plan Project List Update
  - a. Presentation on Project Solicitation Process
  - b. Consider opening a region-wide solicitation for new project abstracts (Phase 1a)
  - c. Consider RWMG Working Group for preliminary review of project abstracts

**NEXT RWMG MEETING:**

Wednesday June 7, 2017 at 10:00 AM – 12:00 PM

SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Mladen Bandov, San Luis Obispo County Public Works  
mbandov@co.slo.ca.us  
(805) 781-5116  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

**AGENDA**

Date: June 7, 2017  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room, 995 Palm St, San Luis Obispo, CA 93401

- 1) Introductions/Public Comment
- 2) Ongoing Updates
- 3) Project Abstract Solicitation Update
  - a) Receive the list of submitted projects abstracts
  - b) Consider updating the Full Project List with the received updates of existing project updates and the new project submissions
- 4) 2018 IRWM Plan Update
  - a) Presentation on 2018 IRWM Plan Update timeline and tasks
  - b) Consider publishing notice of intent to update the IRWM Plan (Government Code §6066)
  - c) Consider continuation of RWMG Working Group to update IRWM Plan
- 5) Workshop activity for IRWM Plan Update (handouts provided at meeting)  
*Intention: To provide direction to the Working Group (if formed) on updating the following Plan sections:*
  - a) Section E: IRWM Goals and Objectives
  - b) Section F: Resource Management Strategies (RMS)
  - c) Section G: Project Solicitation, Selection, and Prioritization
  - d) Section J: Plan Performance and Monitoring

**NOTICE: All IRWM notices will be emailed only by the online mailing list service after September 6, 2017.** Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocountywater.org/irwm>

**NEXT RWMG MEETING:**

Wednesday September 6, 2017 at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Mladen Bandov, County of San Luis Obispo Public Works Department  
mbandov@co.slo.ca.us  
(805) 781-5116  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

**AGENDA**

Date: October 4, 2017  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room, 995 Palm St, San Luis Obispo, CA 93401

- 1) Introductions/Public Comment
- 2) RWMG Membership Update
- 3) 2018 IRWM Plan Update
  - a) Plan Update Schedule
  - b) RWMG Working Group recommendations to update IRWM Plan
  - c) Discussion on Climate Change standard requirements, including hosting public workshop and/or formation of working group
- 4) Stormwater Resource Plan efforts
  - a) Presentation on Stormwater Resource Plan (SWRP) efforts
  - b) Discussion for the participation/representation of the SLO County RWMG as part of the Technical Advisory Committee for the Stormwater Resource Plan effort (handouts will be provided at the meeting)
- 5) Disadvantage Community (DAC) Involvement Activities
  - a) Presentation on revised proposal to DWR for DAC Involvement activities
  - b) Discussion on scoping for the Needs Assessment activity

NOTICE: All IRWM notices will be emailed **only by the online mailing list service**. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocountywater.org/irwm>

**NEXT RWMG MEETING:**

Wednesday **December 6, 2017** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

**(note: no meeting in November)**

For more information, please contact  
Mladen Bandov, County of San Luis Obispo Public Works Department  
mbandov@co.slo.ca.us  
(805) 781-5116  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

**AGENDA**

Date: December 6, 2017  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room, 995 Palm St, San Luis Obispo, CA 93401

- 1) Introductions/Public Comment
- 2) RWMG Member Updates
- 3) Stormwater Resource Plan (SWRP) development
  - a) Update on the region-wide SWRP efforts
  - b) Consider formation of ad hoc sub-committee to represent the region-wide watershed areas on the Technical Advisory Committee (TAC)
- 4) Disadvantaged Community (DAC) Involvement Activities
  - a) Update on the DAC Involvement grant agreement and timeline
- 5) 2018 IRWM Plan Update
  - a) Update on 2018 IRWM Plan efforts, including upcoming climate change standard update workshop

**Climate Change standard update workshop**

Wednesday January 31, 2018 at 9:00 am – 12:00 pm  
SLO Library Community Room, 995 Palm Street, San Luis Obispo

NOTICE: All IRWM notices will be emailed **only by the online mailing list service**. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocountywater.org/irwm>

**NEXT RWMG MEETING:**

Wednesday **February 7, 2017** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

**(note: no RWMG meeting in January)**

For more information, please contact  
Mladen Bandov, County of San Luis Obispo Public Works Department  
mbandov@co.slo.ca.us  
(805) 781-5116  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

**AGENDA**

Date: February 7, 2018  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room, 995 Palm St, San Luis Obispo, CA 93401

- 1) Introductions/Public Comment
  - a) IRWM Program Manager transition
- 2) Stormwater Resource Plan (SWRP) development
  - a) Update on the region-wide SWRP efforts (handouts will be provided)
- 3) Climate Change Section - 2018 IRWM Plan Update
  - a) Update on Climate Change Workshop
  - b) Consider recommended identified vulnerabilities
  - c) Consider recommended vulnerability prioritization
  - d) Consider incorporating any or all prioritization categories (e.g., Very High and High) into the Objectives and/or Project Review Factors in the IRWM Plan
  - e) Consider recommended inclusion and emphasis in the Climate Change section on housing & development related vulnerabilities identified during the January 31, 2018 Workshop
  - f) Discuss Climate Change requirements including RWMG feasibility to address priority vulnerabilities and policies/procedures that promote adaptive management
- 4) Update on the 2018 IRWM Plan Adoption Schedule

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocountywater.org/irwm>

**NEXT RWMG MEETING:**

Wednesday **March 7, 2018** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

**NOTE:**  
LOCATION  
CHANGED!

**AGENDA**

Date: April 4, 2018  
Time: 10:00 AM – 12:00 PM  
Location: University of California Cooperative Extension Auditorium,  
2156 Sierra Way, Suite C, San Luis Obispo, CA 93401

- 1) Introduction/Public Comment
- 2) Stormwater Resources Plan Updates
- 3) IRWM Program Updates
  - a) Draft 2018 IRWM Plan Updates
  - b) Plan Adoption Schedule
  - c) DAC Involvement Update
  - d) Proposition 1 Implementation Grant Schedule
- 4) Project Review Process
  - a) Overview of DWR's Guidelines
  - b) Summary of the revised Project Review Process and Scoring Rubric
  - c) Consider forming an RWMG Working Group who, over multiple meetings, will refine the Project Review Process and update the IRWM Plan Implementation List, per DWR's Guidelines.
- 5) Discussion and Questions

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocountywater.org/irwm>

**NEXT RWMG MEETING:**

Wednesday **May 2, 2018** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: August 1, 2018  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room,  
995 Palm St, San Luis Obispo, CA 93401

- 1) Introduction/Public Comment
- 2) Stormwater Resources Plan Update
- 3) IRWM 2018 Plan Update
  - a) Updated Plan Adoption Schedule
- 4) Prop 1, Round 1 Grant Concepts and Updates
  - a) Current Schedule from DWR
  - b) New Timeline, Application and Program from DWR
- 5) Project Review Process
  - a) Full Project List Update – via SurveyMonkey
    - i) <https://www.surveymonkey.com/r/SLO-IRWM-Project-Form>
  - b) Results of the RWMG Working Group
  - c) Implementation List Scoring
- 6) Workshop for Project Lists
  - a) This is free/open time to review and update the Full Project List and begin the Implementation Scoring process. Expect to have at least an hour for these tasks.

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocountywater.org/irwm>

**NEXT RWMG MEETING:**

Wednesday **September 5, 2018** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: November 1, 2018  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room,  
995 Palm St, San Luis Obispo, CA 93401

- 1) Introduction, Public Comment and Member Updates
- 2) Stormwater Resources Plan Update
- 3) Project Review Process
  - a) Full Project List Update
  - b) Implementation List Review
- 4) Prop 1, Round 1 Grant – Overview of Draft Released by DWR
  - a) Timing, funds available, etc.
  - b) Q&A
  - c) Receive comments

The Draft Grant “Solicitation Package Documents” can be downloaded from DWR:  
<https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs/Proposition-1/Implementation-Grants>

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at  
<http://www.slocountywater.org/irwm>

**NEXT RWMG MEETING:**

Wednesday **December 5, 2018** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)





San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: February 6, 2019  
Time: 10:00 AM – 12:00 PM  
Location: SLO City Council Chambers  
990 Palm St, San Luis Obispo, CA

- 1) Introduction, Public Comment and Member Updates
- 2) Stormwater Resources Plan Update
- 3) 2019 IRWM Plan and Program Updates
- 4) Prop 1, Round 1 Grant – Project Selection Process
  - a) DWR Schedule and Funding
  - b) RWMG Selection Process
  - c) Consider forming an RWMG Working Group to review submitted project scores and prepare a funding recommendation for the RWMG to consider at an upcoming meeting.

The Draft Project Solicitation Package (PSP) can be viewed and downloaded from DWR:  
<https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs/Proposition-1/Implementation-Grants>

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at  
<http://www.slocountywater.org/irwm>

**UPCOMING RWMG MEETINGS:**

1. Wednesday **March 13, 2019** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo, CA
2. Wednesday **April 3, 2019** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo CA

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: April 3, 2019  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room  
995 Palm St, San Luis Obispo, CA

- 1) Introduction, Public Comment and Member Updates
- 2) 2019 IRWM Plan and Program Updates
- 3) Prop 1, Round 1 Grant – Updates and Overview
  - a) Grant process check-in
  - b) Submitted projects summary
- 4) Project Showcase
  - a) Submitting Agencies/Organizations will present their projects submitted for the Prop 1, Round 1 Grant.

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at

<http://www.slocountywater.org/irwm>

**UPCOMING RWMG MEETINGS:**

1. Wednesday **May 1st, 2019** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo, CA
2. May TBA, 2019 – Public Draft Presentation of 2019 IRWM Plan
3. **June TBA, 2019** – RWMG Meeting to approve Final IRWM Plan submittal to DWR

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: June 5, 2019  
Time: 10:00 AM – 12:00 PM  
Location: SLO City/County Library Community Room  
995 Palm St, San Luis Obispo, CA

- 1) Introduction, Public Comment and Member Updates
- 2) 2019 IRWM Plan and Program Updates
- 3) Consider recommending the RWMG Working Group-selected projects and funding to the Board of Supervisors for an application for the Prop 1, Round 1 Implementation Grant.
  - a) Review of Selection Process
  - b) RWMG Working Group Meeting Recap
  - c) Selected Projects and Funding

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocountywater.org/irwm>

**UPCOMING RWMG MEETINGS:**

1. Wednesday **September 4, 2019** at 10:00 AM – 12:00 PM  
SLO City/County Library Community Room, 995 Palm St, San Luis Obispo, CA
2. **Summer/Fall TBA, 2019** – Public Draft Presentation of 2019 IRWM Plan

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: November 14, 2019  
Time: 10:00 AM – 12:00 PM  
Location: SLO City Council Chambers  
990 Palm St, San Luis Obispo, CA

- 1) Introduction, Public Comment and Member Updates
- 2) Grants Update
  - a) Prop 84 & Prop 1
- 3) 2019 IRWM Plan Update (see staff report)
  - a) Submittal to DWR, Public Comment Period, Adoption, etc.
  - b) Consider endorsing proposed submittal, review and adoption schedule for the Plan
  - c) Consider forming an RWMG Working Group to review the Draft plan and assist in comment response from DWR, the public and others
- 4) Looking Ahead to 2020 (see staff report)
  - a) Discuss Plan Implementation activities

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocounty.ca.gov/irwm>

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocounty.ca.gov/irwm](http://www.slocounty.ca.gov/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: February 25, 2019  
Time: 2:30 PM – 4:30 PM  
Location: SLO City/County Library  
Community Room  
995 Palm St, San Luis Obispo, CA

- 1) Introduction
- 2) 2019 IRWM Public Draft Presentation
  - a) Staff Presentation
  - b) Adoption Schedule
  - c) Q&A
- 3) Prop 84 & Prop 1 Grant Updates
  - a) Prop 84, Round 1
  - b) Prop 84, 2015 Implementation
  - c) Prop 1, Planning
  - d) Prop 1, Disadvantaged Community Involvement
  - e) Prop 1, Round 1 Implementation
- 4) Stormwater Resources Plan (SWRP) Update
  - a) Consider incorporating the SWRP into the 2019 IRWM Plan as Appendix I upon concurrence from the State Water Resources Control Board
  - b) Consider forming a standing RWMG Working Group to implement the SWRP
- 5) Public Comment

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at

<http://www.slocounty.ca.gov/irwm>

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocounty.ca.gov/irwm](http://www.slocounty.ca.gov/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: June 3<sup>rd</sup>, 2020  
Time: 10:00 AM – 11:30 AM  
Location: GoTo Meeting  
Via Teleconference: <https://global.gotomeeting.com/join/295331549>  
Call-in information: 1 (872) 240-3412 Access Code: 295-331-549

- 1) Introduction
- 2) Prop 1, Round 1 Grant Update
  - a) Release of Draft Awards by DWR
  - b) Next Steps
- 3) Stormwater Resources Plan (SWRP) Update
  - a) IRWM Prop 1, Round 2 Grant Funding
- 4) 2019 IRWM Plan Adoption
  - a) Recommend adoption of the 2019 IRWM Plan to the SLO County Board of Supervisors
- 5) Public Comment

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocounty.ca.gov/irwm>

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocounty.ca.gov/irwm](http://www.slocounty.ca.gov/irwm)



San Luis Obispo County Region  
Integrated Regional Water Management (IRWM)  
Regional Water Management Group (RWMG)

Date: August 24<sup>th</sup>, 2020  
Time: 2:00 PM – 3:00 PM  
Location: GoTo Meeting  
Via Teleconference: <https://global.gotomeeting.com/join/754518733>  
Call-in information: 1 (571) 317-3122, Access Code: 754-518-733

- 1) Introduction
- 2) Grants Update
  - a) Release of final Awards by DWR for Prop 1, Round 1 Implementation
  - b) Next Steps
- 3) 2019 IRWM Plan Revisions
  - a) Review minor revisions to Plan by staff
  - b) Re-recommend adoption of the 2019 IRWM Plan to the SLO County Board of Supervisors
- 4) Public Comment

NOTICE: All IRWM notices will be emailed only by the online mailing list service. Please sign-up for the IRWM Stakeholder mailing list online at <http://www.slocounty.ca.gov/irwm>

For more information, please contact  
Brendan Clark, County of San Luis Obispo Public Works Department  
bclark@co.slo.ca.us  
(805) 788-2316  
[www.slocounty.ca.gov/irwm](http://www.slocounty.ca.gov/irwm)

## **APPENDIX D – NATIVE AMERICAN TRIBAL OUTREACH**

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Native American Tribes are sovereign nations and are to be communicated with on a government to government basis.

While there are no Tribal lands in San Luis Obispo County, many Tribal communities call San Luis Obispo County home. To that end, the San Luis Obispo County Flood Control and Water Conservation District, the Lead Agency, made two concerted efforts to inform these communities about IRWM and invite them to be a part of the local RWMG. These efforts are documented in the following sub-Appendices:

<b>Appendix Number</b>	<b>Title</b>
D.1.1	2018 Outreach Letters
D.1.2	2018 Outreach Letter Attachments
D.1.3	2018 Outreach Response
D.2.1	2016 Outreach Email
D.2.2	2016 Outreach Response



## **APPENDIX D.1 – 2018 NATIVE AMERICAN TRIBAL OUTREACH**

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Attached to Appendix D.1 are the 2018 Outreach letters, attachments, and responses.

# D.1.1 – 2018 OUTREACH LETTERS

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COUNTY OF SAN LUIS OBISPO

Department of Public Works

John Diodati, *Interim Director*

April 16, 2018

Donna Haro  
Xolon Salinan Tribe  
74 La Habra  
Pittsburg, CA 94565

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Ms. Haro:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Brendan Clark".

BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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COUNTY OF SAN LUIS OBISPO

Department of Public Works

John Diodati, *Interim Director*

April 16, 2018

Francine Martinez  
3816 Pintail Ct  
Merced, CA 95340

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Ms. Martinez:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Brendan Clark".

BRENDAN CLARK, PE  
IRWM Program Manager  
Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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COUNTY OF SAN LUIS OBISPO

Department of Public Works

John Diodati, *Interim Director*

April 16, 2018

Fred Collins  
Northern Chumash Tribal Council  
67 South St  
San Luis Obispo, CA 93401

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Mr. Collins:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Brendan Clark".

BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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April 16, 2018

Fred Segobia, MLD Lead  
Salinan Tribe of San Luis Obispo, Monterey and San Benito Counties  
46451 Little Creek Court  
King City, CA 93930-9781

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Mr. Segobia:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Clark".

BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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COUNTY OF SAN LUIS OBISPO

Department of Public Works

John Diodati, Interim Director

April 16, 2018

Julie Lynn Tumamait-Stennsile  
Barbareno/Ventureno Band of Mission Indians  
365 North Poli Ave  
Ojai, CA 93023

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Ms. Tumamait-Stennsile:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Brendan Clark".

BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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COUNTY OF SAN LUIS OBISPO

Department of Public Works

John Diodati, *Interim Director*

April 16, 2018

Karen White  
Xolon Salinan Tribe  
PO Box 7405  
Spreckles, CA 93962

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Ms. White:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
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The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Brendan Clark".

BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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April 16, 2018

Kenneth Kahn  
Coastal Band of the Chumash Nation  
PO Box 4464  
Santa Barbara, CA 93140

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Mr. Kahn:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
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Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

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BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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COUNTY OF SAN LUIS OBISPO

Department of Public Works

John Diodati, *Interim Director*

April 16, 2018

Mona Olivas Tucker  
yak tityu tityu - Northern Chumash Tribe  
660 Camino Del Rey  
Arroyo Grande, CA 93420

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Ms. Tucker:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

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BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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April 16, 2018

Tribal Administrator  
Salinan Tribe of San Luis Obispo Monterey & San Benito Counties  
7070 Morro Rd, Ste.A  
Atascadero, CA 93422

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Tribal Administrator:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
- Describing the social and cultural makeup of Tribal communities
- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Clark".

BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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COUNTY OF SAN LUIS OBISPO

Department of Public Works

John Diodati, *Interim Director*

April 16, 2018

Vincent Armenta  
Santa Ynez Band of Mission Indians  
PO Box 517  
Santa Ynez, CA 93460

**Subject: Tribal Communities Involvement and Updates for Integrated Regional Water Management (IRWM) Planning Efforts in San Luis Obispo County**

Dear Mr. Armenta:

On behalf of the Regional Water Management Group (RWMG), I would like to invite you to participate in planning efforts for regional water resources management in San Luis Obispo County. I would also like to request descriptions of your community to help update the Integrated Regional Water Management (IRWM) Plan. The IRWM Plan is a comprehensive regional-based planning document involving many local stakeholders with the intent to achieve sustainable water resources in San Luis Obispo County.

There are four areas in the IRWM Plan related to Tribal communities that require updates:

- Understanding whether or how local Tribal communities will participate in the RWMG
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- Describing the critical water issues of Tribal communities
- Discussing any potential impacts or benefits of plan implementation to Tribal communities

The attached letter provides further background and purpose of the IRWM Plan and next steps for involvement, which is completely voluntary. At your discretion, please complete the attached questionnaire for these four areas of Tribal community involvement and return it to me at [bclark@co.slo.ca.us](mailto:bclark@co.slo.ca.us) or send it to the County Government Center, Room 206, San Luis Obispo, CA 93408.

Please feel free to contact me at (805) 788-2316, if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Brendan Clark".

BRENDAN CLARK, PE  
IRWM Program Manager

Attachments:

1. IRWM and Involvement Summary
2. Questionnaire

File: 9004901

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## **D.1.2 – 2018 OUTREACH LETTER ATTACHMENTS**

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## **Attachment 1: IRWM and Involvement Summary**

### **Background and Purpose of IRWM**

The Integrated Regional Water Management (IRWM) Program began in 2002 and is administered by the California Department of Water Resources (DWR). This program is one mechanism for how DWR provides State funding and resources for regional water-related projects. To date, over \$1.5 billion dollars of voter approved funds have been distributed across the state through this program.

San Luis Obispo County (geographically) is one of 48 IRWM Regions that is eligible for funding. Not every IRWM Region has the same boundary as County, but it does in our case. Each IRWM Region is managed by a Regional Water Management Group (RWMG). It is a group of local agencies with statutory authority over water supply or water management, as well as any individual who may be necessary for the development and implementation of the IRWM Plan. Each member of the RWMG has signed the Memorandum of Understanding (MOU) and is either a local agency or IRS 501(c)(3) nonprofit organization. Agencies or organizations that implement projects and programs must also demonstrate sufficient financial and organization capability to do so.

The 2014 IRWM Plan is the most current update of the original plan developed in 2005. The IRWM Plan is scheduled to be updated at least every 5 years and as necessary to meet new State guidelines. Keeping the plan up-to-date ensures that implementation strategies and projects meet the current needs in the region and that local project sponsors are eligible for various State funding opportunities.

### **Tribal Involvement**

In preparation of the update, the current State guidelines (released in 2016) prescribe engagement with Native American Tribal communities on a Government-to-Government basis for this specific information:

1. Whether or how Native American tribes in San Luis Obispo County will participate in the RWMG.
2. Description of social and cultural makeup of tribal communities in the County.



3. Description of critical water issues for Native American Tribal Communities in the County.
4. Discussion of any potential impacts or benefits of implementing the IRWM Plan to Native American Tribal Communities in the County.

Additional information is provided below to assist in the responses. Please use the attached document to respond to the prompts.

### 1. *Participation*

Participation in the IRWM program is entirely voluntary for any party, be they water companies, Cities, etc., including Native American Tribes.

The governing document that establishes the RWMG is a Memorandum of Understanding (MOU). The MOU describes the levels of participation in the IRWM program:

- **RWMG Member** - RWMG Members are local agencies or nonprofit organizations that have signed the MOU and formally adopted the IRWM Plan. The RWMG is responsible for the development and implementation of the IRWM Plan.
- **Implementation Affiliate** - Implementation Affiliates are local agencies or nonprofit organizations that have formally adopted the IRWM Plan. This allows the agency or organization to submit projects for implementation, without needing to be a part of plan development and decision-making processes.
- **Interested Stakeholder** - Interested Stakeholders are any agency, organization or individual who would like to be engaged with regional water resources planning. They may choose to submit a letter of support for the IRWM Plan, provide input to the RWMG, or otherwise participate in IRWM planning efforts. However, only project proponents that are eligible entities per State guidelines and have adopted the IRWM Plan can receive grant funding.

At any level, Tribal input is highly valued. For example, should a proposed project provide benefit to your tribe or tribal interests, the RWMG would appreciate knowing so, as this project would then more positively achieve the goals and objectives of the IRWM Plan.

## 2. *Social and Cultural Makeup of the Tribal Community*

As part of the “Region Description” section of the IRWM Plan, a description of the social and cultural makeup of the tribal community in our region is required.

## 3. *Critical Water Issues for Native American Tribal Communities*

Identifying and detailing critical water issues facing Native American Tribal Communities is a new prompt from DWR. For example, as a region, we’ve identified several critical water issues, including: general water supply, groundwater management, and water reclamation.

What are the critical water issues that face or are of interest to your community in San Luis Obispo County?

Knowing these critical water issues is vital for the RWMG in assessing the benefits or impacts of a potential project on your community.

## 4. *Potential Impacts Benefits of or implementing the IRWM Plan to Native American Tribal Communities*

It’s important to highlight that the IRWM Plan is not an approval process. It is a conduit for planning and prioritizing water-based projects that provide multiple benefits to the County of SLO. The plan also provides eligibility for local project sponsors to seek State funding opportunities. All local, regional, county, state and federal permitting and notification requirements (i.e. CEQA, NEPA, etc.) are applicable to the projects.

Does your community see any potential impacts or benefits of implementing the IRWM Plan?

Implementation of the plan means prioritizing, supporting and facilitating local project sponsors in seeking funding opportunities for projects that support, enhance and benefit multiple uses of water within the region. Past projects have included the Los Osos Wastewater Treatment Plant, Nipomo Supplemental Water Supply, Emergency interties for Drought resiliency, Arroyo Grande Creek flood control improvements, to name a few.

## **Next Steps**

In summary and understanding these 4 specific areas of tribal involvement, we would like to have a dialogue, or receive a completed copy of the attached questionnaire, which addresses:

- Whether or how Native American tribes in San Luis Obispo County will participate in the RWMG.
- Description of social and cultural makeup of tribal communities in San Luis Obispo County
- Description of critical water issues for Native American Tribal Communities in the County.
- Discussion of any potential impacts or benefits of implementing the IRWM Plan to Native American Tribal Communities in the County.

More information regarding the Program, current RWMG members, upcoming meetings and plan updates can be found at our website [www.slocountywater.org/irwm](http://www.slocountywater.org/irwm) and the State's website <https://www.water.ca.gov/Programs/Integrated-Regional-Water-Management>.

File: 9004901

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## **Attachment 2: Questionnaire**

We appreciate your responses to the following four questions. For additional information regarding the Integrated Regional Water Management (IRWM) Program, please refer to the letter that accompanied this form.

Please note, if do not want to be involved with IRWM and the RWMG at this time, you do not need to provide answers to the following questions.

1. IRWM and RWMG Involvement. Do you want to be involved and participate in the RWMG? If so, what level of involvement would you like to have?
2. Provide a description of the social and cultural makeup of your tribal community in San Luis Obispo County.
3. Provide a description of the critical water issues facing your tribal community in San Luis Obispo County.
4. Discuss any potential benefits or impacts of IRWM implementation to your tribal community within San Luis Obispo County.

File: 9004901

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# D.1.3 – 2018 OUTREACH RESPONSES

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## Brendan Clark

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**From:** Fred Collins <fcollins@northernchumash.org>  
**Sent:** Saturday, June 9, 2018 7:39 AM  
**To:** Brendan Clark  
**Subject:** RE: San Luis Obispo County IRWM Update and Request  
**Attachments:** IRWM\_Attachment 2 - Questionnaire (Fillable PDF).pdf

Please find answer to questions attached.

---

**From:** Brendan Clark [mailto:BClark@co.slo.ca.us]  
**Sent:** Wednesday, April 18, 2018 11:06 AM  
**To:** fcollins\_northernchumash.org  
**Subject:** San Luis Obispo County IRWM Update and Request

Mr. Collins,

I'm contacting you today regarding the San Luis Obispo County "IRWM" Region. The attached documents contain information about what IRWM is, how you could be involved and a brief questionnaire (4 questions) for your response. This program and the questionnaire are voluntary.

The attachments are:

- Letter – Brief overview of IRWM and the purpose of contacting you.
- Attachment 1 – Additional details regarding IRWM and the requested information
- Attachment 2 – A single page questionnaire, designed as a fillable PDF form that can be emailed back to me, if you chose to respond.

I respectfully ask if you would consider responding to the 4 questions in attachment 2 and returning to me via email at your earliest convenience. I'm available to meet in person if you would prefer as well.

Thank you,



### **Brendan Clark, P.E.**

**Water Resources Engineer**

Public Works, County of San Luis Obispo

Tel: (805) 788-2316 | *An APWA Accredited Agency*

[Website](#) | [Twitter](#) | [Map](#)





## **Attachment 2: Questionnaire**

We appreciate your responses to the following four questions. For additional information regarding the Integrated Regional Water Management (IRWM) Program, please refer to the letter that accompanied this form.

Please note, if do not want to be involved with IRWM and the RWMG at this time, you do not need to provide answers to the following questions.

1. IRWM and RWMG Involvement. Do you want to be involved and participate in the RWMG? If so, what level of involvement would you like to have?

The Northern Chumash Tribal Council, Inc. is involved with all natural resources management, we are growing as a Tribal Government and would like to be in the informational loop for all meetings and projects.

2. Provide a description of the social and cultural makeup of your tribal community in San Luis Obispo County.

The California Tribal community in San Luis Obispo has always been emerging from total Genocide, as we re-indigenize ourself our social and cultural status will grow with each new generation of our community.

3. Provide a description of the critical water issues facing your tribal community in San Luis Obispo County.

The water quality flowing into our Great Mother Ocean is a critical issue, we need to maange our farming industry, waste water industry, and/any other industry that causes our Great Mother Ocean to be trashed.

4. Discuss any potential benefits or impacts of IRWM implementation to your tribal community within San Luis Obispo County.

The proper management of our water tables and use systems must be reevaluated and improved, we have lost the natural migrations of fish from the Great Mother Ocean, to see the natural rejuvenation of our natural habitat will reverse this trend.

File: 9004901

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## **APPENDIX D.2 – 2016 NATIVE AMERICAN TRIBAL OUTREACH**

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Attached to this appendix are the 2016 Native American Tribal outreach emails and responses.



## **D.2.1 – 2016 OUTREACH EMAILS**

---

## Mladen Bandov

---

**From:** Mladen Bandov  
**Sent:** Thursday, March 10, 2016 9:00 AM  
**To:** jtumamait@hotmail.com; cbcn.nahc.sb@gmail.com; fcollins@northernchumas.org; salinatribe@aol.com; varmenta@santaynezchumash.org; blukat41@yahoo.com; olivas.mona@gmail.com  
**Cc:** sharaya.souza@nahc.ca.gov  
**Subject:** San Luis Obispo County's Integrated Regional Water Management (IRWM) Program Outreach

Dear Native American Tribe Representative:

I received your contact information through the Native American Heritage Commission's list of tribes that have cultural and traditional affiliation in the San Luis Obispo County area. I am currently the Program Manager for the San Luis Obispo County's Integrated Regional Water Management (IRWM) Program. The IRWM Program seeks to create a united framework among SLO County stakeholders for sustainable water resource management.

The Regional Water Management Group (RWMG), a group of agencies and nonprofit organizations responsible to oversee the IRWM program, adopted the latest IRWM Plan in July 2014. This plan is available online for your reference at <http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/index.htm>

It's a rather large document with many appendices; however, its aim is to be a comprehensive plan to manage our local water resources with as much involvement and collaboration as possible. For updates on the SLO County IRWM Program, please visit: <http://www.slocountywater.org/irwm>

Additionally the State's Department of Water Resources has revised the guidelines as an update to IRWM Programs. These draft guidelines are posted online at [http://www.water.ca.gov/irwm/grants/docs/p1Guidelines/2016Prop1IRWM\\_GuidelinesPublicReviewDraft.pdf](http://www.water.ca.gov/irwm/grants/docs/p1Guidelines/2016Prop1IRWM_GuidelinesPublicReviewDraft.pdf)

The entities now eligible as applicants (per Water Code §79712) for Proposition 1 IRWM grants have been expanded and include

- Public agencies
- Non-profit organizations
- Public utilities
- Federally recognized Indian tribes
- State Indian tribes listed on the Native American Heritage Commission's Tribal Consultation list
- Mutual water companies

I would like to invite you participate in the IRWM Program. If you are interested, there are various ways to participate.

Please let me know at your earliest convenience and we can go over more details about the program and upcoming grant opportunities.

Sincerely,  
Mladen Bandov  
IRWM Program Manager



**Mladen Bandov PE**  
Water Resources Engineer  
Water Resources Division  
Office: 805-781-5116  
[Website](#) / [Twitter](#) / [Map](#)



## Mladen Bandov

---

**From:** Mladen Bandov  
**Sent:** Thursday, March 10, 2016 11:04 AM  
**Cc:** fcollins@northernchumash.org; salinatribe@aol.com  
**Subject:** Fw: San Luis Obispo County's Integrated Regional Water Management (IRWM) Program Outreach

I apologize that I had mistyped the emails. Please see the email below.



**Mladen Bandov PE**  
Water Resources Engineer  
Water Resources Division  
Office: 805-781-5116  
[Website](#) / [Twitter](#) / [Map](#)



----- Forwarded by Mladen Bandov/PubWorks/COSLO on 03/10/2016 11:00 AM -----

From: Mladen Bandov/PubWorks/COSLO  
To: jtumamait@hotmail.com, cbcn.nahc.sb@gmail.com, fcollins@northernchumash.org, salinatribe@aol.com, varmenta@santaynezhumash.org, blukat41@yahoo.com, olivas.mona@gmail.com,  
Cc: sharaya.souza@nahc.ca.gov  
Date: 03/10/2016 09:00 AM  
Subject: San Luis Obispo County's Integrated Regional Water Management (IRWM) Program Outreach

---

Dear Native American Tribe Representative:

I received your contact information through the Native American Heritage Commission's list of tribes that have cultural and traditional affiliation in the San Luis Obispo County area. I am currently the Program Manager for the San Luis Obispo County's Integrated Regional Water Management (IRWM) Program. The IRWM Program seeks to create a united framework among SLO County stakeholders for sustainable water resource management.

The Regional Water Management Group (RWMG), a group of agencies and nonprofit organizations responsible to oversee the IRWM program, adopted the latest IRWM Plan in July 2014. This plan is available online for your reference at <http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/index.htm>

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- Mutual water companies

I would like to invite you participate in the IRWM Program.  
If you are interested, there are various ways to participate.

Please let me know at your earliest convenience and we can go over more details about the program and upcoming grant opportunities.

Sincerely,  
Mladen Bandov  
IRWM Program Manager



**Mladen Bandov PE**  
Water Resources Engineer  
Water Resources Division  
Office: 805-781-5116  
[Website](#) / [Twitter](#) / [Map](#)



# D.2.2 – 2016 OUTREACH RESPONSES

---

# Re: San Luis Obispo County's Integrated Regional Water Management (IRWM) Program Outreach

Karen White <blukat41@yahoo.com>

Tue 3/15/2016 3:46 PM

To: mbandov@co.slo.ca.us <mbandov@co.slo.ca.us>;

Good Evening Mladen Bandov,

Thank you for the information, unfortunately and presently we do not have our own land base to care for until we become a federally recognized tribe, therefore this wonderful opportunity we will have to pass on.

It looks like a very good opportunity for the future endeavors we hope to be apart of in the near future.

Best Regards,

Karen R. White

Council Chair

Xolon Salinan Tribe

[Sent from Yahoo Mail for iPad](#)

On Thursday, March 10, 2016, 9:00 AM, mbandov@co.slo.ca.us <mbandov@co.slo.ca.us> wrote:

Dear Native American Tribe Representative:

I received your contact information through the Native American Heritage Commission's list of tribes that have cultural and traditional affiliation in the San Luis Obispo County area. I am currently the Program Manager for the San Luis Obispo County's Integrated Regional Water Management (IRWM) Program. The IRWM Program seeks to create a united framework among SLO County stakeholders for sustainable water resource management.

The Regional Water Management Group (RWMG), a group of agencies and nonprofit organizations responsible to oversee the IRWM program, adopted the latest IRWM Plan in July 2014. This plan is available online for your reference at

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It's a rather large document with many appendices; however, its aim is to be a comprehensive plan to manage our local water resources with as much involvement and collaboration as possible. For updates on the SLO County IRWM Program, please visit:

<http://www.slocountywater.org/irwm>

Additionally the State's Department of Water Resources has revised the guidelines as an update to IRWM Programs. These draft guidelines are posted online at

[http://www.water.ca.gov/irwm/grants/docs/p1Guidelines/2016Prop1IRWM\\_GuidelinesPublicReviewDraft.pdf](http://www.water.ca.gov/irwm/grants/docs/p1Guidelines/2016Prop1IRWM_GuidelinesPublicReviewDraft.pdf)

The entities now eligible as applicants (per Water Code §79712) for Proposition 1 IRWM grants have been expanded and include

- Public agencies
- Non-profit organizations
- Public utilities
- Federally recognized Indian tribes
- State Indian tribes listed on the Native American Heritage Commission's Tribal Consultation list
- Mutual water companies

I would like to invite you participate in the IRWM Program.

If you are interested, there are various ways to participate.

Please let me know at your earliest convenience and we can go over more details about the program and upcoming grant opportunities.

Sincerely,  
Mladen Bandov  
IRWM Program Manager



**Mladen Bandov PE**  
Water Resources Engineer  
Water Resources Division  
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# APPENDIX E – SUPPLY AND DEMAND

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## E.1 INTRODUCTION

This section of the San Luis Obispo IRWM Plan provides a discussion and analysis of the current and projected water supply and demand for the San Luis Obispo IRWMP planning region. This section is limited to descriptions of supply infrastructure and demand areas addressed in **Section 3 – Region Description**.

For in depth discussion and analysis of water supply and demand for a specific area, refer to the Urban Water Management Plan (UWMP) for a specific area. **Section 12 – Relation to Local Water Planning** includes a comprehensive list of these and other planning documents.

### E.1.1 Intended Use of the Supply and Demand Appendix

It's important to highlight what this appendix is and what it is not. The Master Water Report (MWR, San Luis Obispo County, 2012) is the most recent *comprehensive* analysis of supply, demand, water budgets/balances and projection. This appendix relies heavily upon the MWR and is not a replacement for that analysis.

Looking ahead, the County of San Luis Obispo and the Flood Control and Water Conservation District intend to develop a comprehensive update to the supply and demand analysis and planning of the 2012 MWR. Once completed, this document will absolutely inform and be appended to this IRWM Plan.

## E.2 REGIONAL SUPPLIES

Water is drawn from a number of supply sources, both inside and outside of the County. In-county reservoirs have a significant role in water supply, drainage and flood control, potential hydro-power, and recreation for the region. Groundwater basins, while currently threatened by contamination and over-pumping, are the largest source of in-county supply currently in use. As groundwater basins are relied upon for their Perennial yield of drinking water, imported surface water from the California State Water Project helps reduce the pressure on these basins when used conjunctively, based on availability of state water and facility capacity, over hydrologic wet and dry periods.

Below are brief summaries of the current supply sources either in use or being planned for near term implementation. By establishing what is known of water supplies currently, future forecasting of supply needs can be placed in context with the constraints and costs associated with each supply source.

## E.2.1 Local Surface Water

Many of the local reservoirs are multi-purpose by providing flood control, water supply, groundwater recharge, environmental, hydropower, and recreation benefits. Dams and reservoirs were constructed as the need for supplemental water supplies and flood control became apparent with growing development in the region.

**Table E-1:** Local Surface Water Supplies

Surface Water Source (Year Built)	Storage Capacity (AF)	Contracted Amount/ Average Annual Yield in SLO IRWM Region (AFY)	Primary Purpose(s)	Owner / Operator (if different)	Sub-Region(s) Supplied
<b>Nacimiento Reservoir (1957)</b>	377,900	15,750 <sup>(1)</sup>	Water supply, Flood Control, Groundwater Recharge	Monterey County Water Resources Agency	North Coast, South County, North County
<b>Whale Rock Reservoir (1961)</b>	40,662	40,660 <sup>(2)</sup>	Water supply	Whale Rock Commission / City of San Luis Obispo	North Coast, South County
<b>Lopez Lake (1968)</b>	49,388	4,530	Water supply, Flood Control	SLOCFC&WCD	South County
<b>San Margarita Lake/ Salinas Reservoir (1941)</b>	23,843	6,950	Water supply	U.S. Army Corps of Engineers / SLOCFC&WCD	South County, North County
<b>Chorro Reservoir (1941)</b>	90	140	Water supply	CA Dept of Corrections <sup>(3)</sup>	North Coast
<b>Twitchell Reservoir<sup>(4)</sup></b>	224,300	0	Irrigation, Groundwater Recharge, Flood Control	Santa Maria Valley Water Conservation District	South County

**Notes:**

- 17,500 AFY total, less 1,750 AFY for lakeside users 15,750 AFY available to SLO Co Nacimiento Water Project.
- 40,660 AFY of Whale Rock Reservoir water is allocated to the joint right-holders in addition to downstream water rights, which are accounted for separately.
- Per CA Dam Safety website inventory.
- Straddles SLO County with the Dam located in Santa Barbara County

## E.2.2 State Water Supply

**Section 3.9.6** provides some details about State Water in SLO County. **Table E-2** summarizes the 2019 contracted State Water supplies for the Region.

*Table E-2: State Water Allocations*

Turnout Location	Subcontractor	Water Service Amount (AFY)	Drought Buffer (AFY)	Total (AFY)
SHANDON	CSA 16 (Shandon)	100	0	100
	<i>Subtotal</i>	<i>100</i>	<i>0</i>	<i>100</i>
CHORRO VALLEY	City of Morro Bay	1,313	2,290	3,603
	CMC	400	400	800
	County Ops Center	425	425	850
	Cuesta College	200	200	400
	<i>Subtotal</i>	<i>2,338</i>	<i>3,315</i>	<i>5,653</i>
LOPEZ	City of Pismo Beach	1,240	1,240	2,480
	Oceano CSD	750	750	1,500
	San Miguelito MWC	275	275	550
	Avila Beach CSD	100	100	200
	Avila Valley MWC	20	20	40
	San Luis Coastal USD	7	7	14
	<i>Subtotal</i>	<i>2,392</i>	<i>2,392</i>	<i>4,784</i>
	<b>Total Subcontracted*</b>	<b>4,830</b>	<b>5,707</b>	<b>10,537</b>
<b>"Unsubscribed" Allocation (AFY)</b>				<b>14,463</b>
<b>District's Total "Table A" Allocation (AFY)</b>				<b>25,000</b>

## E.2.3 Groundwater Supplies

Groundwater is a critical supply source in San Luis Obispo County. For the latest in-depth analysis of groundwater supplies across the County, refer to the Master Water Report. **Table E-3** summarizes known safe yields of groundwater basins in the region, color-coded by sub-region. For those basins under adjudication and developing GSPs, refer to [www.slocounty.ca.gov/sgma](http://www.slocounty.ca.gov/sgma) for the latest information regarding basin conditions and management actions.

**Table E-3: Groundwater Basin Yields**

<b>Groundwater Basin Name</b>	<b>Estimated Perennial Yield (AFY)</b>	<b>WPA</b>	<b>Groundwater Basin Name</b>	<b>Estimated Perennial Yield (AFY)</b>	<b>WPA</b>
Arroyo de la Cruz Valley	1,244	1	Northern Cities Management Area	Under adjudication	3
Pico Creek Valley	120	1	Nipomo Mesa Management Area	Under adjudication	3
San Carpofooro Valley	No estimates of basin yield exist.	1	Santa Maria Valley Management Area	Under adjudication	3
San Simeon Valley	1,040	1	Huasna Valley	No estimates of basin yield exist.	4
Santa Rosa Valley	2,260	1	Cuyama Valley	Pending GSP	4
Villa Valley	1,000	1	Big Spring Area	No estimates of basin yield exist.	5
Cayucos Valley	600	2	Rafael Valley	No estimates of basin yield exist.	5
Old Valley	505	2	Pozo Valley	1,000	5
Toro Valley	532	2	Rinconada Valley	No estimates of basin yield exist.	5
Chorro Valley	2,210	2	Santa Margarita Valley	No estimates of basin yield exist.	5
Morro Valley	1,500	2	Cholame Valley	No estimates of basin yield exist.	5
Los Osos Valley	Under adjudication	2	Salinas Valley - Atascadero Area	Pending GSP	5
San Luis Valley	Pending GSP	3	Salinas Valley - Paso Robles Area	Pending GSP	5
Arroyo Grande Valley Sub-basin	Pending GSP	3	Carrizo Plain	8,000 - 11,000	6

## E.3 REGIONAL DEMAND

This section extends the Demand analysis performed within the Master Water Report (MWR, San Luis Obispo County, 2012). The MWR is a land-use based, comprehensive supply and demand analysis. The extension of these calculations extends the planning horizon of the demand to 2040.

### E.3.1 WPA 1

WPA 1 consists of the urban communities of Cambria and San Simeon who are served by their respective CSD's. **Table E-4** presents both the 2015 and projected water usage for the two urban communities along with the rural and agricultural water usage of the WPA.

*Table E-4: WPA 1 Regional Demand*

Water Usage Type	Water Usage (AFY)		Projection Year	Water Purveyors	Source
	2015	Projected			
Urban	555	877	-		
<i>Cambria</i>	467	789	2040	Cambria CSD	UWMP
<i>San Simeon</i>	88	88	2050	San Simeon CSD	Water usage forms; SLOCOG projections
Rural	147	282	2040		2014 IRWM Plan (WPAs 1 & 2); Linear regression
Agricultural	908	1,234	2040		2014 IRWM Plan (WPAs 1 & 2); Linear regression

### E.3.2 WPA 2

WPA 2 consists of the urban communities of Cayucos, Chorro Valley, Los Osos, and Morro Bay. **Table E-5** presents both the 2015 and projected water usage for the four urban communities along with the rural and agricultural water usage of the WPA.

*Table E-5: WPA 2 Regional Demand*

Water Usage Type	Water Usage (AFY)		Projection Year	Water Purveyors	Source
	2015	Projected			
Urban	3,783	4,928	-		
<i>Cayucos</i>	309	607	2045	Morro Rock MWC, Cayucos Beach MWC, CSA 10A	Water usage forms

<i>Chorro Valley</i>	1,440	1,447	2040	California Men's Colony, Camp SLO, Cuesta College, County Op. Center	Cuesta College article; MWR
<i>Los Osos</i>	960	1,437	2040	Los Osos CSD, S&T MWC, GSWC	UWMP
<i>Morro Bay</i>	1,074	1,437	2050	City of Morro Bay	Water usage forms; SLOCOG projections
Rural	248	388	2040		2014 IRWM Plan (WPAs 3-5); Linear regression
Agricultural	4,675	6,257	2040		2014 IRWM Plan (WPAs 3-5); Linear regression

### E.3.3 WPA 3

WPA 3 consists of the urban communities of Arroyo Grande, Avila, Cal Poly, Conoco Phillips Co., Edna Valley, Grover Beach, Nipomo, Oceano, Pismo Beach, San Luis Obispo, and Woodlands Village. **Table E-6** presents both the 2015 and projected water usage for the urban communities and rural and agricultural communities within the WPA.

**Table E-6:** WPA 3 Regional Demand

Water Usage Type	Water Usage (AFY)		Projection Year	Water Purveyors	Source
	2015	Projected			
Urban	16,720	22,991	-		
<i>Arroyo Grande</i>	2,106	3,239	2040	City of Arroyo Grande	UWMP; Linear regression
<i>Avila</i>	344	715	2045	Avila CSD, Avila Valley MWC, CSA 12, San Miguelito MWC, Port San Luis	Water usage forms
<i>Cal Poly</i>	974		2040	Cal Poly	<a href="https://afd.calpoly.edu/sustainability/campus_resources/water">https://afd.calpoly.edu/sustainability/campus_resources/water</a>
<i>Conoco Phillips Co.</i>	1,100	1,100	2040	Conoco Phillips Co.	NMMA Annual Report
<i>Edna Valley</i>	198	269	2050	GSWC - Edna	Water usage forms; SLOCOG projections

<i>Grover Beach</i>	1,781	2,422	2040	City of Grover Beach	2010 UWMP; Linear regression
<i>Nipomo</i>	2,508	2,703	2050	Nipomo CSD, GSWC - Nipomo	Water usage forms; SLOCOG projections
<i>Oceano</i>	667	776	2050	Oceano CSD, Halcyon Water Co.	Water usage forms; SLOCOG projections
<i>Pismo Beach</i>	1,632	2,135	2040	City of Pismo Beach	UWMP; Linear regression
<i>San Luis Obispo</i>	4,722	8,294	2040	City of San Luis Obispo	UWMP; Linear regression
<i>Woodlands Village</i>	688	1,339	2050	Woodlands MWC	Water usage forms; SLOCOG projections
Rural	4,400	6,770	2040		2014 IRWM Plan (WPAs 6 & 7); Linear regression
Agricultural	43,891	18,637	2040		2014 IRWM Plan (WPAs 6 & 7); Linear regression

#### E.3.4 WPA 4

WPA 4 has no urban communities, the 2015 water usage numbers and future predictions consist of rural and agricultural water usage.

*Table E-7: WPA 4 Regional Demand*

Water Usage Type	Water Usage (AFY)		Projection Year	Source
	2015	Projected		
Rural	197	682	2040	2014 IRWM Plan (WPAs 8 & 9); Linear regression
Agricultural	31,990	31,081	2040	2014 IRWM Plan (WPAs 8 & 9); Linear regression

#### E.3.5 WPA 5

WPA 5 represents the most urban communities including Atascadero, Camp Roberts, Garden Farms, Heritage Ranch, Oak Shores, Paso Robles, San Miguel, Santa Margarita, Shandon, Spanish Lakes, Templeton, and Whitley Gardens. Table E-8 presents 2015 water usage and projected water usage for the WPA.

**Table E-8: WPA 5 Regional Demand**

Water Usage Type	Water Usage (AFY)		Projection Year	Water Purveyors	Source
	2015	Projected			
Urban	21,591	30,582	-		
<i>Atascadero</i>	5,139	7,485	2040	Atascadero MWC	UWMP
<i>Camp Roberts</i>	190	190	2040	Camp Roberts	MWR
<i>Garden Farms</i>	38	46	2075	Garden Farms Community Water District	Water usage forms; SLOCOG projections
<i>Heritage Ranch</i>	424	513	2070	Heritage Ranch CSD	Water usage forms; SLOCOG projections
<i>Oak Shores</i>	39	47	2050	Nacimiento Water Company	Water usage forms; SLOCOG projections
<i>Paso Robles</i>	5,153	9,032	2040	City of Paso Robles	UWMP
<i>San Miguel</i>	299	340	2050	San Miguel CSD	Water usage forms; SLOCOG projections
<i>Santa Margarita</i>	107	110	2050	CSA 23	Water usage forms; SLOCOG projections
<i>Shandon</i>	92	116	2050	CSA 16	Water usage forms; SLOCOG projections
<i>Spanish Lakes</i>	51			Spanish Lakes MWC	Water usage forms
<i>Templeton</i>	1,030	1,348	2050	Templeton CSD, Los Robles Mobile Estates	Water usage forms; SLOCOG projections
<i>Whitley Gardens</i>	82	91	2050	Green River MWC	Water usage forms (2013-14); SLOCOG projections
Rural	8,947	11,264	2040		2014 IRWM Plan (WPAs 10-16); Linear regression
Agricultural	90,117	95,413	2040		2014 IRWM Plan (WPAs 10-16); Linear regression

### E.3.6 WPA 6

Demand projections for WPA 6 are not available. In evaluating the Land-used based approach for demand projections in WPA 6, there is a major disparity between the planned growth and



the actual growth. Such a disparity exists that projects based on the 2012 MWR are unreasonable. A discussion of the issues facing California Valley, the main community of WPA 6, is included in the forthcoming Disadvantaged Community Needs Assessment, which will be added to this plan **as Appendix K** when completed. Additionally, WPA 6's Land-use based approach will be re-evaluated as part of the District's planned in-depth supply and demand analysis to be undertaken in 2020 and 2021.

# **APPENDIX F – PROJECT LISTS AND IMPLEMENTATION LIST DEVELOPMENT**

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Appendix F contains the full projects lists and details on the development of the implementation list.

## **F.1 FULL PROJECT LIST**

This attachment includes the full project list.

## **F.2 IMPLEMENTATION LIST DEVELOPMENT**

This attachment includes the 2019 IRWM Implementation List evaluation sheets. See **Section 6** for more details about the Implementation List.

Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Avila Beach Wastewater System Upgrade	Avila Beach CSD		x		x				Design
Camp San Luis Obispo Chorro Creek Habitat Management Program	California Army National Guard**	Local watershed agencies		x		x	x		Planning
Camp San Luis Obispo Chorro Creek Habitat Management Program	California Army National Guard**	Local watershed agencies		x		x	x	x	Planning
Water Conservation Corps	California Conservation Corps**			x			x		Concept
Chorro Reservoir Rehabilitation	California Department of Corrections		x	x	x	x	x		Design
CMC Wastewater System Upgrade	California Department of Corrections		x	x	x				Planning
Emergency Water Supply	Cambria CSD		x		x				Complete
San Simeon Creek Road Flooding Remediation	Cambria CSD			x		x			Planning
WWTP Nutrient Removal and Efficiency Improvements	Cambria CSD	PG&E	x	x	x				Design
Cayucos Sustainable Water Project, Phase 1	Cayucos Sanitary District		x	x	x	x	x		Being Implemented
Cayucos Sustainable Water Project, Phase 2	Cayucos Sanitary District	3 local water purveyors; Whale Rock Commission	x				x		Planning
Corbett Creek Floodplain and Stream Restoration	City of Arroyo Grande	CSLRCD		x		x		x	Planning
South Halcyon Green / Complete Street	City of Arroyo Grande			x		x		x	Planning
Atascadero Creek Watershed Management Plan	City of Atascadero**	Upper Salinas Las Tablas RCD	x	x	x	x	x		Concept
Sunken Gardens Stormwater Capture	City of Atascadero**			x		x		x	Planning
El Camino Real Greenstreets	City of Atascadero**			x		x		x	Planning
Turnout Pump Station Design & Water Master Plan Update	City of Grover Beach		x				x		Being Implemented
Morro Bay-Cayucos Sanitation District Salt and Nutrient Management Plan	City of Morro Bay		x	x	x		x		Ready for Implementation
Morro Bay Harbor walk	City of Morro Bay	MBNEP; County of SLO	x	x		x			Design
Embarcadero Surf Project	City of Morro Bay			x		x		x	Planning
Embarcadero Boat Wash Project (small)	City of Morro Bay			x		x		x	Planning
Embarcadero Boat Wash Project (large)	City of Morro Bay			x		x		x	Planning
Chorro Valley Wells Nitrate Removal Project	City of Morro Bay		x		x				Concept
Morro Bay Desalination Facility Upgrade	City of Morro Bay		x				x		Design

Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Cloisters Project	City of Morro Bay			x		x		x	Planning
21st Street Reservoir Reconstruction	City of Paso Robles		x	x			x		Design
Phase 2 – Lake Nacimiento Potable Water Treatment Plant	City of Paso Robles	Nacimiento Water Project	x	x	x		x		Planning
Recycled Water Treatment and Distribution System – Phase 1	City of Paso Robles	Cooperative agreements between agricultural and golf interests	x	x	x		x		Planning
Recycled Water Treatment and Distribution System – Phases 2_3	City of Paso Robles	Cooperative agreements between agricultural and golf interests	x	x	x		x		Planning
Upper Spring Street LID	City of Paso Robles			x		x		x	Planning
Melody Basin Retrofit	City of Paso Robles			x		x		x	Planning
Grand Canyon Basin Retrofit	City of Paso Robles			x		x		x	Planning
Montebello Oaks Basin Retrofit	City of Paso Robles			x		x		x	Planning
Niblick LID Drainage Retrofit	City of Paso Robles			x		x		x	Planning
Pismo Beach Wastewater System Upgrade	City of Pismo Beach		x	x	x		x		Design
Central Coast Blue	City of Pismo Beach	SSLOCS	x	x	x	x	x		Design
One Water SLO - MBR/UV Component	City of San Luis Obispo	Cal Poly; PG&E; The Nature Conservancy; Water Education Foundation; Cuesta College; SLO Chamber of Commerce; CreekLands; SWRCB; Others.	x	x	x	x	x		Being Implemented
Recycled Water Distribution System Expansion	City of San Luis Obispo		x				x		Ready for Implementation
Mid-Higuera Bypass	City of San Luis Obispo	SLO Flood Control District Zone 9;	x	x			x		Design
Mitchell Park Bioretention	City of San Luis Obispo			x		x		x	Planning
Higuera St. Widening Project	City of San Luis Obispo			x		x		x	Concept
Meadow Park Stormwater Capture and Use Project	City of San Luis Obispo	Cal Poly; LID Initiative; RWQCB	x	x	x	x	x	x	Concept
Rancher to Rancher Program	Coastal San Luis RCD	US-LT RCD, NRCS, UC Cooperative Extension, and Cattleman/woman	x	x	x	x	x		Ready for Implementation

Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Stormwater Rewards (LID) Program	Coastal San Luis RCD		x	x	x	x	x	x	Ready for Implementation
Edna Valley Groundwater Basin Recharge and Steelhead Trout Habitat Enhancement	Coastal San Luis RCD	Edna Valley Growers MWC; CreekLands	x	x	x				Design
Remediation and BMP Implementation for the Oso Flaco Watershed	Coastal San Luis RCD	Cachuma RCD; RWQCB; State Parks	x	x	x	x	x	x	Planning
Conservation Planning for Coastal Watersheds	Coastal San Luis RCD	Natural Resource Conservation Science	x	x	x	x	x		Planning
Urban Landscape Water Management and Conservation Program	Coastal San Luis RCD		x	x			x		Planning
Agricultural Water Management and Climate Resiliency Program	Coastal San Luis RCD	Coastal San Luis RCD, NRCS, US-LT RCD, UC Cooperative Extension	x	x	x		x	x	Planning
Countywide Watershed Planning Phase II	Coastal San Luis RCD	Upper Salinas Las Tablas RCD; County of SLO; local conservation groups	x	x	x	x	x		Planning
Livestock & Land Program	Coastal San Luis RCD	Upper Salinas Las Tablas RCD	x		x		x		Planning
Arroyo Grande Creek Floodplain and Riparian Enhancement Feasibility	Coastal San Luis RCD	CreekLands	x	x		x	x		Conceptual
Feasibility Study for Recycled Water for Climate Resilient Agricultural Use	Coastal San Luis RCD	Upper Salinas Las Tablas RCD	x		x		x		Concept
Los Osos Community Wastewater Project	County of SLO	Los Osos CSD, RWQCB, LOBMC	x	x	x		x		Complete
CSA 23 / AWC / Garden Farms Emergency Intertie	County of SLO	Atascadero Mutual Water Company; Garden Farms MWC	x				x		Complete
Oceano 13th Street Drainage Project	County of SLO	CalTrans			x	x		x	Ready for Implementation
CSA 16 Water System Improvements	County of SLO		x		x				Design
Mountain Springs Road Sediment Control	County of SLO	City of Paso Robles				x		x	Planning
County Service Area 7A - Oak Shores - Interception Sewer System Replacement	County of SLO	Monterey County Parks; Oak Shores Community Association	x	x					Concept
County Service Area 10 - Clearwell Tank Roof Replacement	County of SLO		x				x		Design
Toad Creek Basin 8A	County of SLO			x		x		x	Concept
Toad Creek Basin 8B	County of SLO			x		x		x	Concept

Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Meadow Creek Restoration Plan	Creeklands	State Parks; Coastal San Luis RCD; County of SLO	x	x		x	x		Ready for Implementation
Pismo Creek Watershed Program	Creeklands	City of Pismo Beach; Coastal San Luis RCD; CreekLands; State Parks	x						Ready for Implementation
SLO Communities Water Enhancement Program	Creeklands		x	x	x	x	x		Ready for Implementation
See Canyon Habitat Enhancement	Creeklands	City of SLO	x	x		x	x		Conceptual
Steelhead 4(d) Program	Creeklands			x					Planning
Huer Huero Recharge Project	Estrella-El Pomar-Creston Water District		x		x	x			Planning
Emergency Turnout	Heritage Ranch CSD		x						Complete
Vertical Well Project for HRCSD	Heritage Ranch CSD		x	x		x			Planning
Attiyah Ranch Conservation Easement	Land Conservancy of SLO		x	x	x	x	x		Ready for Implementation
Pismo Preserve Roads Improvement Project	Land Conservancy of SLO			x				x	Design
Los Osos Creek Groundwater Replenishment and Recharge Program	Los Osos Basin Management Committee**	MBNEP	x	x	x				Planning
8th Street Upper Aquifer Well	Los Osos CSD	Los Osos CSD, SLO County; Golden State Water Company; S&T MWC	x	x	x		x		Ready for Implementation
Los Osos Water System Improvements	Los Osos CSD	Golden State Water Company; S&T Mutual Water Company; County of SLO	x	x	x				Ready for Implementation
Capture and Reuse of Storm Water	Los Osos CSD		x	x		x		x	Planning
3rd Street Chromium Removal	Los Osos CSD		x						Concept
Morro Bay Estuary Comprehensive Conservation and Management Plan	Morro Bay National Estuary Program			x			x		Complete

Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Chorro Creek Ecological Reserve Floodplain Restoration Project	Morro Bay National Estuary Program	Trust for Public Land; Wildlife Conservation Board; US Fish and Wildlife Service; CA Department of Transportation; State Coastal Conservancy; CA Department of Fish and Wildlife; Sierra Club - Santa Lucia Chapter	x	x	x	x			Ready for Implementation
Los Padres CCC Center – Stormwater LID Treatment Project	Morro Bay National Estuary Program	National Guard	x	x	x	x	x	x	Design
Morro Bay State Park Marina Parking Lot LID	Morro Bay National Estuary Program			x		x		x	Design
Water Conservation Partnerships in Chorro Valley	Morro Bay National Estuary Program	Trout Unlimited; California Conservation Corps; NOAA; CA Department of Fish and Wildlife	x	x	x	x	x		Planning
Bioreactor Installation in Morro Bay Watershed	Morro Bay National Estuary Program			x		x		x	Planning
Baywood Park 2nd Street Stormwater Management	Morro Bay National Estuary Program	Cal Poly; County of SLO; Los Osos CSD; Los Osos Basin Management Committee; Low Impact Development Initiative	x	x	x	x	x	x	Conceptual
Supplemental Water Project - Phase 1	Nipomo CSD	Golden State Water Company, Woodlands Mutual Water Company, and City of Santa Maria	x		x				Complete
Supplemental Water Project - Final Phase	Nipomo CSD	Golden State Water Company, Woodlands Mutual Water Company, and City of Santa Maria	x		x				Ready for Implementation
Water Resources Reliability Program (WRRP) – Planning Study	Oceano CSD		x	x	x	x	x		Complete

Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Water Resources Reliability Program (WRRP) – Design	Oceano CSD		x	x	x	x	x		Design
Water Resources Reliability Program (WRRP) – Projects #1-1 & #1-9	Oceano CSD		x				x		Ready for Implementation
Water Resources Reliability Program (WRRP) – Waterline Replacement Construction	Oceano CSD		x				x		Ready for Implementation
Beach Street Alley Waterline Replacement	Oceano CSD		x	x	x		x		Design
Oceano CSD Water System Improvements	Oceano CSD		x				x		Design
Oceano LID and Stormwater Infiltration Basins	Oceano CSD		x	x	x	x	x	x	Design
Reclaimed Water Injection Evaluation	Oceano CSD	Santa Maria Groundwater Basin stakeholders	x		x		x		Design
S&T Mutual Water Co - Golden State Water Co Intertie	S&T Mutual Water Company	Golden State Water Company	x		x				Concept
San Miguel CSD Water System Improvements	San Miguel CSD		x	x					Ready for Implementation
San Miguel CSD Wastewater Treatment Expansion	San Miguel CSD		x	x	x				Design
New Well Water Supply	San Miguel CSD		x	x	x				Design
Toilet Retrofit Incentive Program	San Miguel CSD		x	x	x				Design
San Miguelito Wastewater System Upgrade	San Miguelito MWC		x						Planning
Lower San Luis Obispo Creek Fish Passage Improvement and Seawater Intrusion Barrier Planning Study	San Miguelito MWC	CreekLands	x	x	x				Planning
Avila Valley Regional Recycled Water Program	San Miguelito MWC	Avila Beach CSD	x	x	x	x	x		Concept
Wellhead Treatment Project	San Simeon CSD		x		x				Complete
Reservoir Expansion Project Design & Water Master Plan Update	San Simeon CSD		x	x	x				Being Implemented
Potable Water System Distribution Reliability - Water Loop	San Simeon CSD		x						Ready for Implementation
Recycled Water System Expansion West	San Simeon CSD		x	x	x				Ready for Implementation
Reservoir Expansion Project	San Simeon CSD		x	x	x				Ready for Implementation
San Juan Stormwater Infiltration Project	Shandon-San Juan Water District			x		x		x	Concept
Lopez Treatment Plan Membrane Rack Addition	SLO County FCWCD		x						Complete



Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Flood Control Zone 9 Waterway Management Program	SLO County FCWCD		x	x	x	x	x		Complete
Flood Control Zone 1/1A Waterway Management Program	SLO County FCWCD			x		x	x		Being Implemented
Region-wide Disadvantaged Community Needs Assessment	SLO County FCWCD						x		Being Implemented
Arroyo Grande Creek Channel Waterway Management Program	SLO County FCWCD	CreekLands		x		x	x		Ready for Implementation
Salinas Pipeline-Nacimiento Pipeline Emergency Intertie and Pipeline Extension Project	SLO County FCWCD	Nacimiento Water Project, City of SLO, CA Department of Corrections and Rehabilitation	x	x	x	x	x		Design
Lopez Pipeline Improvements	SLO County FCWCD	Oceano CSD; City of Arroyo Grande; City of Grover Beach; City of Pismo Beach; CSA 12	x	x	x	x	x		Planning
Flood Control Zone 3 – Lopez WTP Sludge Bed 1 & 2 Upgrades	SLO County FCWCD	Flood Control Zone Advisory Committee; Lopez WTP users	x	x					Planning
Lopez Water Project Habitat Conservation Plan	SLO County FCWCD	National Marine Fisheries Service and California Fish & Wildlife	x	x			x		Planning
San Miguel Flood Control Program	SLO County FCWCD		x			x			Planning
Toad Creek Waterway Management Program	SLO County FCWCD	TCSD; Templeton Area Advisory Group		x		x			Concept
Upper Salinas River Basin Water Conservation/Conjunctive Use Project	Templeton CSD		x	x	x		x		Complete
Toad Creek Flood Control, Restoration and Basin Recharge	Upper Salinas Las Tablas RCD	US-LT RCD; SLO Flood Control; Templeton CSD; CA Fish & Wildlife	x	x	x	x	x		Ready for Implementation
On-Farm Water Management Improvements	Upper Salinas Las Tablas RCD	Central Coast Vineyard Team; Center for Irrigation Technology Fresno; others	x	x	x		x		Ready for Implementation
Paso Robles Creek Sediment Sampling & Assessment	Upper Salinas Las Tablas RCD	City of Paso Robles; RWQCB	x	x					Planning

Project	Lead Agency	Project Partners	Relevant IRWM Goals					Stormwater Project?*	Status
			Water Supply	Ecosystem	GW Mgmt.	Flood Mgmt.	Communication		
Santa Rosa Creek Recharge Basins	Upper Salinas Las Tablas RCD	USFS; BLM	x	x	x				Planning
Santa Rosa Creek Floodplain/ Wetland Restoration	Upper Salinas Las Tablas RCD	CDFW; WCB; NOAA; NCRS	x	x	x	x		x	Planning
Santa Rosa Creek Streamflow Enhancement	Upper Salinas Las Tablas RCD		x	x	x			x	Planning
Expanded Key Percolation Zone Study	Upper Salinas Las Tablas RCD		x	x	x	x	x	x	Planning
Basin-wide Water Quality Sampling	Upper Salinas Las Tablas RCD			x			x		Concept
Salinas River Management Plan	Upper Salinas Las Tablas RCD		x	x	x	x	x		Concept

\* A part of the Stormwater Resources Plan

<https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Stormwater-Resource-Plan-Program.aspx>

\*\* Project Sponsor has not adopted the IRWM Plan and/or signed the RWMG MOU

# APPENDIX F1 – FULL PROJECT LIST

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This appendix accompanies **Section 6**. Details about the eligibility, processes and scope of the Full Project List can be found in **Section 6**.

## APPENDIX F.2 – IMPLEMENTATION LIST DEVELOPMENT

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This appendix accompanies **Section 6**. Details about the eligibility, processes and scope of the Implementation List can be found in **Section 6**.

The following attachments are included:

1. 2018 IRWM Project Evaluation Sheet 1 – Rubric. This file is the overview of the scoring criteria and the basic parameters for scoring a project.
2. 2018 IRWM Project Evaluation Sheet 2 – Summary and Worksheets. This spreadsheet is for tallying the scores for each criterion and allows for streamlined scoring of Criteria A (Contributing to Objectives), Criteria B (Resource Management Strategies) and Criteria I (Climate Change Adaptation).
3. 2018 IRWM Project Evaluation Sheet 3 – Form. This document is for demonstrating the project's position/status with each criterion.

Submitted projects and their individual scores can be accessed at

[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm). Directly at: <https://slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Meetings/pdf/2018%20IRWM%20Project%20Scoring%20-%20Submitted%20Scoring%20documents.pdf>



### 2018 IRWM Project Evaluation - Sheet 1 Rubric

Note: The central idea behind the Scoring Guidelines is “percent-complete”. If a project doesn’t fit these Guidelines, evaluate it for the subject Criteria based on completeness.

Criteria	Scoring Guidelines	Points	
		Subtotal	Total
A. How a project contributes to the IRWM Plan Objectives <i>(Scored via separate worksheet)</i>	<ul style="list-style-type: none"> <li>- Projects that contribute to 5 or fewer objectives, 1 point</li> <li>- Projects that contribute to 6-10 objectives, 2 points.</li> <li>- Projects that contribute to 11-15 objectives, 3 points.</li> <li>- Projects that contribute to 16-20 objectives, 4 points.</li> <li>- Projects that contribute to 21 or more, 5 points.</li> </ul> <p><i>Note: Include any direct, indirect or qualitative contribution.</i></p>	5	<b>25</b>
	<ul style="list-style-type: none"> <li>- For a project that documents of how it <u>directly</u> contributes to objectives:               <ul style="list-style-type: none"> <li>- Evidence of contributing to 5 or less objectives: 4 pts.</li> <li>- Evidence of contributing to 6-10 objectives: 8 points.</li> <li>- Evidence of contributing to 11-15 objectives: 12 points.</li> <li>- Evidence of contributing to 16-20 objectives: 16 points.</li> <li>- Evidence of contributing to 21 or more objectives are given 20 points.</li> </ul> </li> </ul>	20	
B. How the project is related to resource management strategies <i>(Scored via separate worksheet)</i>	<ul style="list-style-type: none"> <li>- Project that includes 1-3 RMSs from the SLO IRWM Plan are given 3 points.</li> <li>- Project that includes 4-9 RMSs from the SLO IRWM Plan are given 6 points.</li> <li>- Project that includes 10 or more RMSs from the SLO IRWM Plan are given 10 points.</li> </ul>	-	<b>10</b>
C. Strategic considerations for IRWM Plan Implementation	<ul style="list-style-type: none"> <li>- If the project demonstrates the ability to integrate with other projects or be modified to encourage regional planning and produce multiple benefits, it is given 5 points. No partial points are given for this criterion.</li> </ul>	-	<b>5</b>
D. Technical feasibility of the project	<ul style="list-style-type: none"> <li>- If project plans/designs have been completed and if there is evidence to indicate it will have a successful outcome (i.e. achieve the claimed benefits of the project), the project is given all 10 points.</li> <li>- If project plans/designs have not been completed and evaluated for feasibility, the subsequent guidelines are followed:               <ul style="list-style-type: none"> <li>- For completed technical feasibility studies, the project is given 2 points.</li> <li>- For the completion of background studies and reconnaissance (before design), it is given 2 points.</li> <li>- For completed designs or technical project plans, the project is given 3 points.</li> <li>- For completed report(s) that document a successful outcome of the project, the project is given 3 points.</li> </ul> </li> </ul>	10	<b>10</b>

E. Project status / Readiness to Proceed	<ul style="list-style-type: none"> <li>- If fully prepared for implementation (i.e. CEQA complete or exempt, Easements executed, etc.), project earns 10 pts.</li> <li>- If a project is not ready for implementation, the subsequent guidelines are followed: <ul style="list-style-type: none"> <li>- For a project that has identified it's permitting needs and a timeline to completion, 2 points are given.</li> <li>- A portion of the remaining 8 points will be given based on the percent-complete of the project's permitting needs and timeline.</li> </ul> </li> </ul>	-	<b>10</b>
F. Project costs and financing	- Project Costs. If project costs are known to best extent possible and documented, the full 5 points will be given. A full 5 points will be awarded for projects with contractor bids and an engineer's estimate. If there is only an estimate without bids, 3 points will be awarded.	5	<b>10</b>
	- Financing. A project will receive the full 5 points if it can document 80% financing or more. If partially financed, points will be given according to the percent financed, rounded up to the nearest whole number. (i.e. 62% financed rounds to 4 pts).	5	
G. Economic feasibility (O&M)	- Is the O&M cost of the completed, operational project accounted for? An analysis or report of these anticipated O&M costs, and how any additional financial needs are being covered is required to receive 10 points. No increase in O&M costs, with proof, will receive 10 points.	-	<b>10</b>
H. Environmental justice considerations	- If the project specifically addresses critical water issues of a disadvantaged community (DAC), it is given 4 points.	4	<b>10</b>
	- If the project specifically addresses critical water issues of Native American Tribal communities, it is given 3 points.	3	
	- If the project specifically addresses Environmental Justice concerns (i.e. pollution, industrial contamination), then the project is given 3 points.	3	
I. Climate Change Adaption (Scored via separate worksheet)	- For each climate change vulnerability addressed, the project is given points based on a weighting of the vulnerability's priority.	4	<b>6</b>
	<ul style="list-style-type: none"> <li>- If changes in runoff and recharge are addressed in the project planning, then the project is given 1 point.</li> <li>- If sea level rise impacts, specifically to water supply, are addressed in project planning, the project is given 1 point.</li> </ul>	2	
J. Climate Change Mitigation (GHG Emission Reduction)	- If the selected project reduces GHG emissions compared to other project alternatives, and can provide documentation of this analysis, it is given 1 point.	1	<b>3</b>
	- If the project qualitatively reduces energy consumption, especially energy embedded in water, it is given 1 point.	1	
	- When evaluating the project-related GHG emissions on a 20-year planning horizon, projects that reduce GHG emissions are given 1 point.	1	
K. Reduce reliance on the Delta	- If the project reduces dependence on the Sacramento-San Joaquin Delta for water supply, it is given 1 point.	-	<b>1</b>
<i>Total Possible Score</i>			<b>100</b>





**Objectives Scorecard**

**Instructions:**

This Worksheet is intended to simplify scoring for how a project contributes to meeting the Objectives of the 2018 IRWM Plan. Projects shall be scored in Column A1 on if it qualitatively contributes to an Objective and separately in Column A2 if the contribution is documented. Project Sponsors should be prepared to provide documentation to show that a project directly contributes to meeting an Objective. *Only enter a 'x' for 'yes'. If the project does not contribute to an Objective, leave the corresponding cell blank.*

<b>WORKSHEET INSTRUCTIONS:</b> Enter 'x' in the empty if the project contributes to an objective and if it is documented. Otherwise, leave blank.		<b>&lt;enter project1 name&gt;</b>		<b>&lt;enter project2 name&gt;</b>	
<b>Actions</b>	<b>Abbreviated Objectives</b>	<b>Column A1 Contributed to Objective</b>	<b>Column A2 Documented Contribution</b>	<b>Column A1 Contributed to Objective</b>	<b>Column A2 Documented Contribution</b>
Water Supply	Maximize accessibility of water				
	Adequate water supply				
	Sustainable potable water for rural				
	Sustainable water for agriculture				
	Water Quality improvements to a water system				
	Develop/implement water management plans				
	Conservation/water use efficiency				
	Plan for climate change vulnerabilities				
	Diverse supply (recycled, desalination)				
Ecosystem & Watershed	Understand watershed needs				
	Conserve balance of ecosystem				
	Reduce contaminants				
	Public involvement and stewardship				
	Protect endangered species				
	Reduce impacts of invasive species				
Groundwater	Climate change in ecosystems				
	Understand GW issues and conditions				
	Support local GW management				
	Further local basin management objectives				
	CASGEM Program				
	Groundwater recharge				
	Protect and improve GW quality				





Objectives Scorecard

		<enter project1 name>		<enter project2 name>	
Actions	Abbreviated Objectives (continued)	Column A1 Contributed to Objective	Column A2 Documented Contribution	Column A1 Contributed to Objective	Column A2 Documented Contribution
Flood Management	Understand flood management needs				
	Promote low impact development				
	Enhance natural recharge				
	Improve infrastructure and operations				
	Implement multiple-benefit projects				
	Restore streams, rivers and floodplains				
	Support DAC flood protection				
Water Resources Management	Public outreach on IRWM implementation				
	Funding for IRWM implementation				
	Support local control				
	Consider property owner rights				
	Agency alignment on water resource efforts				
	Collaboration between urban, rural, and ag				
	DAC support and education				
	Promote public education programs				
		Total Objectives Contributed to by Project	Total Objectives Documented	Total Objectives Contributed to by Project	Total Objectives Documented
<i>Maximum is 37</i>		0	0	0	0
		Total Points (max. of 5 points)	Total Points (max. of 20 points)	Total Points (max. of 5 points)	Total Points (max. of 20 points)
<i>See "Scoring Rubric" for Point Allocation</i>		0	0	0	0



**Resource Management Strategies (RMS) Scorecard**

**Instructions:**

This Worksheet is intended to simplify scoring for how a project implements the Resource Management Strategies (RMS) of the 2018 IRWM Plan. Project Sponsors should be prepared to provide documentation to show that a project implements a claimed RMS. *Only enter an 'x' for RMSs implemented by the Project.*

WORKSHEET INSTRUCTIONS: Enter 'x' in the empty if the project utilizes the listed RMS. Otherwise, leave blank.	<enter project1 name>	<enter project2 name>	<enter project3 name>	<enter project4 name>	<enter project5 name>
<b>Resource Management Strategy (RMS)</b>					
Agricultural water use efficiency					
Conjunctive management and groundwater storage					
Conveyance – Regional/Local					
Desalination					
Drinking water treatment & distribution					
Ecosystem restoration					
Flood risk management					
Land use planning and management					
Matching quality to use					
Pollution prevention					
Recycle municipal water					
Salt and salinity management					
Surface storage – CALFED/State					
Surface storage – Regional/Local					
System reoperation					
Urban water use efficiency					
Water transfers					
Watershed management					
Precipitation enhancement					
Groundwater/Aquifer remediation					
Urban stormwater runoff management					
Recharge area protection					
Sediment management					
Water and culture					
Outreach and engagement					
	Total RMS's Implemented to by Project	Total RMS's Implemented to by Project	Total RMS's Implemented to by Project	Total RMS's Implemented to by Project	Total RMS's Implemented to by Project
<i>Maximum is 25</i>	0	0	0	0	0
<i>1-3 RMS = 3 points 4-9 RMS = 6 points 10+ RMS = 10 points</i>	Total Points (maximum of 10 points)	Total Points (maximum of 10 points)	Total Points (maximum of 10 points)	Total Points (maximum of 10 points)	Total Points (maximum of 10 points)
	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



**Climate Change Adaption Scorecard**

**Instructions:**

Determine if the proposed project(s) address the climate change vulnerability, either qualitatively or quantitatively. If yes, enter the corresponding prioritized value (1 - 4) as shown. Points for each vulnerability are all-or-nothing.

Vulnerabilities include Very High (VH), High (H), Medium (M) and Low (L).

For example, if the proposed project address "Coastal Erosion", a medium vulnerability for our region, enter '2'.

WORKSHEET INSTRUCTIONS: Enter 'x' in the empty cell if the project addresses a vulnerability. Otherwise, leave blank.		<enter project1 name>	<enter project2 name>	<enter project3 name>	<enter project4 name>	<enter project5 name>
Climate Change Vulnerabilities With Prioritization	Possible Points					
Drought-sensitive groundwater basins (VH)	4					
Insufficient instream flows (VH)	4					
Water-dependent industries (H)	3					
Climate-sensitive crops (M)	2					
Communities with water curtailment efforts (M)	2					
Seasonal water demand (M)	2					
Drought-sensitive water systems (VH)	4					
Water supply from coastal aquifers (VH)	4					
Inability to store carryover supply surpluses (H)	3					
Invasive species management issues (M)	2					
Water supply from snowmelt (L)	1					
Declining seasonal low flows (VH)	4					
Water bodies impacted by eutrophication (H)	3					
Water bodies in areas at risk of wildfires (H)	3					
Water quality impacted by rain events (H)	3					
Water bodies with restricted beneficial uses (M)	2					
Coastal erosion (M)	2					
Coastal infrastructure in low-lying areas (M)	2					
Flooding due to high tides and storm surges (M)	2					
Low-lying coastal habitats (M)	2					
Rising sea levels (M)	2					
Coastal land subsidence (L)	1					
Coastal structures (L)	1					
Increased flood risk due to wildfires (VH)	4					
Aging flood protection infrastructure (H)	3					
Insufficient flood control facilities (H)	3					
Changes in species distributions (H)	3					
Environmental flow requirements (H)	3					
Estuarine habitats dependent on freshwater flow patterns (H)	3					



Climate Change Adaption Scorecard

		<enter project1 name>	<enter project2 name>	<enter project3 name>	<enter project4 name>	<enter project5 name>
<b>Climate Change Vulnerabilities With Prioritization (continued)</b>	<b>Possible Points</b>					
Aquatic habitats at risk of erosion and sedimentation (M)	2					
Climate-sensitive fauna and flora (M)	2					
Fragmented aquatic habitats (M)	2					
Aquatic habitats used for economic activities & recreation (L)	1					
Exposed coastal ecosystems (L)	1					
Future hydropower plans (L)	1					
<i>Climate Change Vulnerabilities Subtotal (86 total)</i>	86	0	0	0	0	0
<i>Normalized Score (4 points max) (Total Score / Points Possible) * 4</i>	4	0	0	0	0	0
Changes in runoff and recharge addressed? (1 point for 'yes')	1					
Impacts of sea level rise addressed, specifically for water supply? (1 point for 'yes')	1					
<i>Climate Change Impacts Subtotal</i>	2	0	0	0	0	0
<b><i>Total CC Adaptation Score</i></b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



**2018 IRWM Project Evaluation  
Sheet 3 - Form**

Instructions:

This Form accompanies and supplements the “2018 IRWM Project Scoring Sheet 2 – Summary and Worksheets”

Project Sponsors shall evaluate a single project with this Form as guided in the “Project Evaluation Rubric”. This Form is to be filled out on a per project basis. Please ensure the Project Name and Sponsor information matches with what is on the Summary worksheet.

Note for non-infrastructure projects: The Rubric and guidance for this scoring is geared toward traditional infrastructure projects. In general, evaluate your “project” for “readiness” and “understanding”. Think high-level. Please contact Brendan Clark (805-788-2316) with any questions.

**Project Name:**

**Project Sponsor Agency/Organization:**

**Contact Person:**

**A. Contribution to the IRWM Plan Objectives** (See Sheet 2 - Worksheet)

**B. Utilization of IRWM Resource Management Strategies (RMS)** (See Sheet 2 - Worksheet)

**C. Strategic considerations for IRWM Plan Implementation** \_\_\_\_\_ out of 5 points.

*For all 5 points, insert a description if the project demonstrates the ability to integrate with other projects and agencies or be modified to encourage regional planning and produce multiple benefits. No partial points are given for this criterion.*

(insert brief description)

**D. Technical feasibility of the project (Design)** \_\_\_\_\_ out of 10 points.

*See Rubric. Is the design complete? If not complete, describe the status of the design and a percent complete.*

*For non-infrastructure projects (i.e. programs), describe the project's feasibility to achieve the desired benefits and score it accordingly. For example, has a pilot project been completed, observed and documented? If so, a program would score highly for “Technical Feasibility”.*

(insert brief description)

**E. Project status / Readiness to Proceed (Permitting, etc.)** \_\_\_\_\_ out of 10 points.

*See Rubric. Is the project CEQA complete or exempt? If CEQA is not yet complete, what is the timeline and how complete is it? When will the Final EIR/MND/NOE/Etc. be approved by your governing body?*

*For non-infrastructure projects (i.e. programs), describe the project's readiness to proceed and score it accordingly. No delay of implementation of the program would be 10pts. Less than 1year, 8pts. 1-2 years, 5 points. 2-4 years, 2 points, unknown timeline – 0pts.*

*(insert brief description)*

**F. Project costs and financing**

\_\_\_\_\_ out of 10 points.

*Part I. Project Costs (5 points possible).*

*Are project costs known? If a cost estimate has been prepared, submit it along with the form to the IRWM Program Manager.*

*3 points are given if an engineer's estimate (or equivalent) has been prepared.*

*5 points are given if contractor bids have been received or project costs are understood/known via a pilot project or other method. Be prepared to provide documentation.*

*(insert brief description)*

*Part II. Project Financing (5 Points possible).*

*How is the project being funded? Points are awarded for percent complete of secured & documented financing:*

*0% financed, 0 points*

*1% - 19%, 1 point*

*20% - 39%, 2 points*

*40% - 59%, 3 points*

*60% - 79%, 4 points*

*80% or more, full 5 points.*

*(insert brief description of funding sources, including the percent complete of the funding for the project)*

**G. Economic Feasibility (Is project cost effective? O&M Costs planned?)**

\_\_\_\_\_ out of 10 points.

*If an economic analysis of the project has been completed within the past 5 years and indicates the project is financially feasible, the project is given 10 points. Project sponsor shall provide documentation of the completed analysis to receive points.*

*(insert brief description)*

**H. DAC, Tribal and Environmental Justice considerations**

\_\_\_\_\_ out of 10 points.

*Part I. DAC (4 points)*

*Does the project directly benefit a critical water issue of a DAC? DAC's in our Region include the communities of San Miguel, San Simeon, Oceano and the Cities of San Luis Obispo and Grover Beach.*

*0 points for does not directly benefits*

*4 points for directly benefits*

*(insert brief description if project directly benefits one or more DAC)*

*Part II. Native American Critical Water Issues (3 points)*

*Does the project directly address water quality in surface waters, habitat restoration and/or fish migration?*

(insert brief description if project directly addresses one of the above critical water issues for Tribal communities)

*Part III. Environmental Justice (3 points)*

*Does the project directly address Environmental Justice issues, i.e. access to quality water, water pollution generation reduction, etc.? Guidelines state "Environmental Justice seeks to redress inequitable distribution of environmental burden and access to environmental goods (i.e. clean water and air)".*

(insert brief description if project directly addresses an Environmental Justice issue)

**I. Climate Change Adaption**

*(See Sheet 2 - Worksheet)*

**J. Climate Change Mitigation (GHG Emission Reduction)**

\_\_\_\_\_ out of 3 points.

*Part I. Project Alternatives Analysis (1 point)*

*Does the selected project reduce GHG emissions compared to other project alternatives, and can provide documentation of this analysis? (It's possible this was included in an EIR or other CQEA compliance efforts.)*

*If yes, it is given 1 point.*

(insert brief description)

*Part II. Energy Consumption Reduction (1 point)*

*Does the project qualitatively reduce energy consumption, especially energy embedded in water?*

*If yes, it is given 1 point.*

(insert brief description)

*Part III. Emission Reduction over 20-year Horizon (1point)*

*When evaluating the project-related GHG emissions on a 20-year planning horizon, does the project reduce GHG emissions?*

*If yes, it is given 1 point.*

(insert brief description)

**K. Reduce reliance on the Delta**

\_\_\_\_\_ out of 1 point.

*If the project reduces dependence on the Sacramento-San Joaquin Delta for water supply, it is given 1 point.*

(insert brief description of how the project reduces dependence on the Delta)

## APPENDIX G – GROUNDWATER BASIN DESCRIPTIONS

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The description of each groundwater basin and sub-basin contained within this appendix is a compilation of many works from prior studies and reports. In many cases, the best available information is used with a careful understanding of the approximate nature of the information and the need to update the data to a more current understanding under controlled conditions.

In some cases, storage, yield, and other basin measurables are not provided. See the Master Water Report (2012) for the latest comprehensive basin analysis. Additionally, for basins subject to SGMA, visit the County of San Luis Obispo's SGMA website. This includes the Paso Robles, Atascadero, Santa Maria, Los Osos, San Luis Obispo and Cuyama Valley Groundwater Basins:

[http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\).aspx](http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA).aspx)

This Appendix is organized by Water Planning Area (WPA), Groundwater Basin and Sub-Basin. See **Figure 3-2** (attached at the end of this Appendix for reference) for the locations of these groundwater basins in the IRWM Planning Region. See **Section 3 – Region Description** for additional information regarding Water Planning Areas, Watersheds, etc.

### G.1 WPA 1 – SAN SIMEON / CAMBRIA AREA

#### G.1.1 San Carpoforo Valley Groundwater Basin

The San Carpoforo Valley Groundwater Basin is located in WPA 1 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-33 (DWR 2003). The basin underlies the San Carpoforo Valley, is 200 acres (0.3 square miles) in size and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in San Carpoforo Creek and to a lesser extent percolation of precipitation and irrigation return flows. There are no current estimates of actual groundwater in terms of in-storage volumes. The volume of in-storage groundwater likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. There are neither estimates of basin yield, nor is their information available describing water quality in the basin. The primary constraints on water availability in the basin include physical limitations in storage volume and recharge and potential water quality issues, including salinity intrusion from the Pacific Ocean.

As discussed above, groundwater levels in this basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or



water quality for shared well systems) would be useful to these studies. Additional information may be available from CDWR and other private sources.

### **G.1.2 Arroyo De La Cruz Valley Groundwater Basin**

The Arroyo De La Cruz Valley Groundwater Basin is located in WPA 1 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-34 (DWR 2003). The basin is 750 acres (1.2 square miles) in size and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from percolation of surface flows in Arroyo de la Cruz, deep percolation of precipitation, and agricultural irrigation return flows. The volume of groundwater basin storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions for agriculture during the irrigation season. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying private pumpers for rural uses. The safe yield of the basin is estimated to be 1,244 AFY (Envicom, 1982). Groundwater samples taken from four wells from 1957 to 1985 show total dissolved solids concentration ranging from 211 to 381 mg/L.

The primary constraints on water availability in the basin include physical limitations and potential water quality issues from applied fertilizers and pesticides, small ranch properties and salinity intrusion. Groundwater levels in the basin are likely highest during the wet season, steadily declining from these levels during the dry season, and recover again to higher levels during the next wet season.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from CDWR and private well sources.

### **G.1.3 San Simeon Valley Groundwater Basin**

The San Simeon Valley Groundwater Basin is located in the WPA 1 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-35 (DWR 2003). The basin underlies San Simeon Valley and is 620 acres (approx. 1 square mile) in size, and is bounded by the Pacific Ocean, the Santa Lucia Range, and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in San Simeon and Van Gordon creeks, deep percolation of precipitation, and agricultural irrigation return flows.

Groundwater is found in alluvial deposits underlying San Simeon Creek (DWR 2003). The alluvium's thickness varies from about 100 feet beneath the center of the valley to more than 120 feet at the coast (Yates and Van Konyenburg, 1998). The groundwater storage capacity is estimated as 4,000 AF; however the actual amount in groundwater storage is unknown (DWR

2003). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

Water users in the basin include the Cambria Community Services District (Cambria CSD) and overlying users. The safe yield of the basin was estimated to be 1,040 AFY (Cambria County Water District, 1976). Groundwater samples from 31 wells collected from 1955 to 1994 show total dissolved solids (TDS) concentration ranging from 46 to 2,210 mg/L (DWR 2003). Samples from three public supply wells show a TDS concentration range of 400 to 420 mg/L with an average concentration of 413 mg/L. Manganese concentrations in the downstream regions of the basin have exceeded the MCL, with a range of 0.002 to 1.6 mg/L (Yates and Van Konyenburg, 1998).

The primary constraints on water availability in the basin include physical limitations and potential water quality issues. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Cambria CSD is constantly challenged to meet demands through water conservation, proper well location, and groundwater treatment. New growth is constrained due to the lack of sustainability in water supplies.

#### **G.1.4 Santa Rosa Valley Groundwater Basin**

The Santa Rosa Valley Groundwater Basin is located in WPA 1 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-36 (DWR 2003). The basin underlies the Santa Rosa Valley, is 4,480 acres (7 square miles) in size, and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in Santa Rosa Creek and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

According to Bulletin 118, the main water-bearing unit in the basin is unconfined alluvium (DWR 2003). The groundwater storage capacity of the basin has been estimated as 24,700 AF (DWR 1975). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions. The actual amount of groundwater in storage is unknown.

Water users in the basin include the Cambria CSD and overlying users. The safe yield of the basin has been estimated to be 2,260 AFY (Cambria County Water District, 1976). Groundwater sampled from one public supply well had a total dissolved solids concentration of 680 mg/L. Increases in measured groundwater chloride concentration suggest the possibility of seawater intrusion into the basin (DWR 1975). From 1955 to 1975, measured chloride concentration increased from 80 mg/L to 933 mg/L (DWR 1975), where background chloride concentration typically range from 30 to 270 mg/L (Yates and Van Konyenburg, 1998).

The primary constraints on water availability in the basin include physical limitations and potential water quality issues. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover

again to higher levels during the next wet season. Cambria CSD is constantly challenged to meet demands through water conservation, proper well location, and groundwater treatment. New growth is constrained due to the lack of sustainability in water supplies.

### **G.1.5 Villa Valley Groundwater Basin**

The Villa Valley Groundwater Basin is located in WPA 1 in the North Coast Sub-Region and encompasses approximately 980 acres (approx. 1.5 square miles). The basin is bounded by the Pacific Ocean and by relatively impermeable rocks. This basin has been designated by the DWR as Basin 3-37 (DWR 2003). Recharge to the basin comes primarily from seepage of surface flows in Villa Creek, deep percolation of precipitation, and residential/agricultural return flows.

The aquifer consists of alluvial deposits that are up to approximately 50 feet thick. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural and residential purposes by overlying users. The projected safe seasonal yield of the Villa Valley Groundwater Basin was historically estimated at 1,000 AFY (DWR 1958). There has been no subsequent basin study to confirm or update this estimate.

Seawater intrusion has been reported historically in the lower portion of the basin (DWR 1975). Upstream of sea water influence, the TDS concentration averaged 500 mg/L in samples collected from three wells between 1965 and 1970 (based on data extracted from STORET Legacy Database).

Constraints on water availability in this basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts. For the upper Villa Valley, water level and well capacity declines during drought limit the availability of the resource, while in the lower valley area; sea water intrusion is the primary constraint.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for the Villa Valley Groundwater Basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful for these studies. Additional information may be available from the DWR and private well user sources.

## **G.2 WPA 2 – CAYUCOS / MORRO BAY / LOS OSOS**

### **G.2.1 Cayucos Valley Groundwater Basin**

The Cayucos Valley Groundwater Basin is located in WPA 2 in the North Coast Sub-Region and encompasses approximately 580 acres (approx. 0.9 square miles). The basin is bounded by the Pacific Ocean and by relatively non-water bearing rock units (Cleath, T. S., 1988). This basin has been designated by the DWR as Basin 3-38. Recharge to the basin comes primarily from seepage of surface flows in Cayucos Creek, deep percolation of precipitation, and residential/agricultural return flows.

Basin groundwater users include a small public water system (mobile home park) and overlying residential and agricultural users. The Morro Rock Mutual Water Company and Paso Robles Beach Water Association service areas overlie a portion of the basin; however, these purveyors do not pump from the Cayucos Valley basin.

The water supply aquifer is within the alluvial deposits of Cayucos Creek, which are comprised of gravel, sand, silt and clay. These alluvial deposits extend up to an estimated 80 feet thick, and are at least 68 feet thick at a distance of one mile inland from the coast (Cleath, T. S., 1988). The projected safe seasonal yield of the Cayucos Valley Groundwater Basin was historically estimated at 600 AFY (DWR 1958). There has been no subsequent basin-wide studies to confirm or update this estimate. Estimated production from the basin was 350 AFY in 1987 (Cleath, T. S., 1988).

There is evidence of sea water intrusion in the basin extending to the mobile home park wells and ranch wells immediately upstream of Highway 1. The TDS concentration of groundwater upstream of the sea water influence is close to 500 mg/L (Cleath, T. S., 1988).

Constraints on water availability in this basin include both physical limitations and water quality issues. Water level and well capacity declines during drought limit the availability of the resource, while in the lower valley area; sea water intrusion is the primary constraint.

Some of the published hydrogeologic information for the Cayucos Valley Groundwater Basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private well sources.

### **G.2.2 Old Valley Groundwater Basin**

The Old Valley Groundwater Basin is in WPA 2 and encompasses approximately 750 acres (approx. 1.2 square miles). The basin is bounded by the Pacific Ocean and by relatively impermeable rocks. This basin, which includes Whale Rock Reservoir, was designated by the DWR as Basin 3-39. Basin recharge upstream of the reservoir comes primarily from deep percolation of precipitation and seepage from surface flows in Cottontail Creek and Old Creek. Below the dam, recharge includes dam underflow and seepage from reservoir releases.

Basin groundwater users downstream of Whale Rock reservoir include members of the Cayucos Area Water Organization (CAWO), which include Morro Rock Mutual Water Company (Morro Rock MWC), Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A), the Cayucos Cemetery District (CCD), and two landowners.

CAWO agencies receive water directly from the reservoir via the treatment plant and transmission pipeline. Mainini Ranch and Ogle also receive entitlements to 64 AFY of Whale Rock Reservoir. Upstream of the reservoir are residential and agricultural overlying users.

Whale Rock Reservoir water users, including the City of San Luis Obispo, Cal Poly, and the California Men's Colony, are discussed later in this section.

The water supply aquifer is within the alluvial deposits of Old Creek and upstream tributary valleys. These alluvial deposits extend up to an estimated 72 feet thick (Cleath & Associates, 1993, 1995). Production from wells in the lower Old Valley Groundwater Basin (below the reservoir) ranged from 389 to 603 AFY, with an average of 505 AFY between 1981 and 1992. The lower basin was estimated to have a yield capable of providing the entire 600 AFY CAWO allocation, although releases from the reservoir were necessary to protect against sea water intrusion (Cleath & Associates 1993, 1995). With direct deliveries of CAWO downstream entitlements to a water treatment plant beginning in 1997, re-evaluation of the yield in this part of the basin has not been a high priority. The TDS concentration of the groundwater below the reservoir averaged 440 mg/L in 2008 (CSA 10/10A, 2008).

Constraints on water availability in this basin include physical limitations, water rights, and environmental considerations. Shallow alluvial deposits upstream of the reservoir are susceptible to drought impacts, having limited groundwater in storage. For the area below the reservoir, dam underflow may provide a source of recharge. Water agreements limit the amount of groundwater available to the members of CAWO and downstream landowners in Old Valley.

### **G.2.3 Toro Valley Groundwater Basin**

The Toro Valley Groundwater Basin is in WPA 2 and encompasses approximately 510 acres (approx. 0.8 square miles). The basin is bounded by the Pacific Ocean and by generally non-water bearing rocks. This basin is designated by the DWR as Basin 3-40 (Cleath, T. S., 1988; DWR 2003). Basin recharge comes primarily from seepage of surface flows in Toro Creek, deep percolation of precipitation, and residential/agricultural return flows.

Basin water users include Chevron (with agricultural tenants), and overlying residential and agricultural users. The water supply aquifer is within the alluvial deposits drained by Toro Creek. These alluvial deposits extend up to an estimated 80 feet thick, and average approximately 50 feet thick in the lower portion of the basin (McClelland Engineers, 1988). The projected safe seasonal yield of the Toro Valley Groundwater Basin was historically estimated at 500 AFY (DWR 1958). Estimates of hydrologic budget items for 1987 conditions included 591 AFY of percolation of precipitation and 532 AFY of basin groundwater production. Given the shallow nature of alluvial deposits and limited groundwater basin storage, the safe yield estimate is limited to the documented historical production that has not resulted in water supply problems, which to date has been up to 532 AFY.

Water quality data for a well approximately 0.7 miles inland of the coast between 1954 and 1987 indicates mild sea water intrusion at this location in the basin, with chloride concentrations up to 129 mg/L. The TDS concentration typically ranges between 400 and 700 mg/L (STORET Legacy Database and DWR 2003). In the lower basin area near Highway 1,

petroleum hydrocarbon contamination associated with the Chevron marine terminal has been detected in groundwater and remedial activities are ongoing (GeoTracker Database).

Constraints on water availability in this basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. For the upper basin, water level and well capacity declines during drought limit water availability, while in the lower valley area, sea water intrusion and petroleum hydrocarbon contamination are the primary constraints.

Some of the published hydrogeologic information for this groundwater basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private well sources.

#### **G.2.4 Morro Valley Groundwater Basin**

The Morro Valley Groundwater Basin is in WPA 2 and encompasses approximately 1,200 acres (1.9 square miles). The basin is bounded by the Pacific Ocean, the Morro Bay estuary, and by impermeable rock units. The basin is designated by the DWR as Basin 3-41. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area southwest of the narrows near Highway 1 (DWR 2003). Recharge to the basin comes primarily from seepage of surface flows in Morro Creek and Little Morro Creek, deep percolation of precipitation, and residential/agricultural return flows. The water supply aquifers are predominantly within alluvial deposits drained by Morro Creek, which are comprised of gravel, sand, silt and clay. The alluvial deposits are typically up to 80 feet thick (Cleath & Associates, 2007).

Basin groundwater users include the City of Morro Bay, Morro Bay power plant, a cement plant, a small public water system (mobile home park), and residential and agricultural overlying users. The City of Morro Bay pumps sea water and Morro Creek underflow from the basin for use as recycled water.

Groundwater modeling performed to evaluate the impacts of sea water well operation on the basin indicated that concurrent operation of the City of Morro Bay's sea water and fresh water supply wells could interfere during drought conditions such that the fresh water wells would be subject to sea water intrusion (Cleath & Associates, 1993a; 1993b).

Sea water intrusion and nitrates are the predominant concerns for water quality in this basin. In the mid-1980's TDS concentrations in groundwater downstream of the narrows near Highway 1 began to exceed 1,000 mg/L seasonally due to sea water intrusion and tidal influences. More recently, basin TDS concentrations (measured in 2007) were typically between 400 and 800 mg/L and increasing toward the coast, except for an area beneath agricultural fields in the

lower valley where TDS concentrations reached 1000 mg/L, and nitrate concentrations reached 220 mg/L as nitrate (Cleath & Associates 1993a; 2007). Primary constraints on water availability in this basin include physical limitations, water quality issues, and water rights. Shallow alluvial deposits are typically more susceptible to drought impacts. For the upper Morro Valley, water level and well capacity declines during drought would limit the availability of the resource, while in the lower valley area, sea water intrusion would be the primary constraint. Elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field, where appropriative water right permits from the State Board also limit production.

### **G.2.5 Chorro Valley Groundwater Basin**

The Chorro Valley Groundwater Basin is in WPA 2 and encompasses approximately 3,200 acres (5 square miles), although the effective extent of saturated basin deposits covers an estimated 1,900 acres (approx. 3 square miles). The basin is bounded by the Morro Bay estuary and elsewhere by impermeable rock units (Cleath-Harris Geologists, 2009). This basin is designated by the DWR as Basin 3-42. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area near the Morro Bay estuary. Recharge to the basin comes primarily from seepage of surface flows in Chorro Creek and tributaries (including wastewater treatment plant discharges and releases from Chorro Reservoir), deep percolation of precipitation, and residential/agricultural return flows. The water supply aquifers are alluvial deposits drained by Chorro Creek, which are comprised of gravel, sand, silt, and clay. These alluvial deposits are 50-70 feet thick downstream of Canet Road (Cleath-Harris Geologists, 2009).

Basin groundwater users include the City of Morro Bay, San Luis Obispo County, California State Parks, California State Polytechnic University, California National Guard, California Men's Colony, and residential and agricultural overlying users.

The perennial yield of the Chorro Valley basin is estimated for planning purposes at 2,210 AFY (Cleath & Associates, 1993a; DWR 1958). Nitrate concentrations are a concern for water quality in the lower portion of this basin. Sea water intrusion has been documented historically and is a potential future concern in the Chorro Flats area, should pumping patterns change significantly. Recent basin TDS concentrations (measured in 2008) are typically between 500 and 700 mg/L (DWR 1975; Cleath-Harris Geologists, 2009).

Constraints on groundwater availability in this basin include physical limitations, water quality issues, environmental demand, and water rights. In the Chorro Valley upstream of the Chorro Creek discharge point for the California Men's Colony wastewater treatment plant, water level and well capacity declines during drought continue to limit the availability of the resource. The wastewater plant discharges enter the basin as imported water sources, and therefore provide additional available water for basin wells and environmental demand below the discharge point. In the lower valley area, sea water intrusion is the primary constraint, especially during drought conditions. The elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field where production is also limited by appropriative water right permits from the State Board. These permits for underflow production by the City of Morro Bay

have also been conditioned to require minimum surface flows in Chorro Creek for Steelhead habitat protection.

### **G.2.6 Los Osos Groundwater Basin**

The Los Osos Valley Groundwater Basin encompasses approximately 6,400 acres (10 square miles), of which 3.3 square miles underlie the Morro Bay estuary and sandspits (i.e., sandy deposits built into landforms), and 6.7 square miles underlie the communities of Los Osos, Baywood Park, and the Los Osos Creek Valley. The basin is bounded by the Pacific Ocean, and elsewhere by relatively impermeable rocks. The southern basin boundary also runs parallel to the main strand of the Los Osos fault. This basin is designated by the DWR as Basin 3-8 (DWR, 2003; Cleath & Associates, 2005).

Basin groundwater users in the Los Osos Valley basin include Golden State Water Company, S&T Mutual, the Los Osos Community Services District, and overlying private well users. The three local water purveyors, along with the County of San Luis Obispo, are currently under a court-approved Interlocutory Stipulated Judgment (ISJ Working Group). This group has developed a Basin Management Plan with identified management actions to be implemented.

For the latest information, including annual reports, visit the Los Osos Basin website: [https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\)/Los-Osos-Valley-Groundwater-Basin.aspx](https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Los-Osos-Valley-Groundwater-Basin.aspx)

## **G.3 WPA 3 – SAN LUIS OBISPO / SOUTH COUNTY**

### **G.3.1 San Luis Obispo Valley Groundwater Basin**

The San Luis Obispo Valley Groundwater Basin is part of WPA 3 and encompasses approximately 13,800 acres (approx. 21.6 square miles). The basin underlies the San Luis and Edna Valleys and is bounded by the Santa Lucia Range, the San Luis Range and the Los Osos and Edna faults. The San Luis Valley Basin (approximately 8,000 acres) includes both unincorporated County and the City of San Luis Obispo.

With a Groundwater Sustainability Plan (GSP) under development, this plan defers to the latest information, modelling and actions being taken by the GSA partners.

For the latest information, visit the San Luis Obispo Valley Basin website: [http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\)/San-Luis-Obispo-Valley-Groundwater-Basin.aspx](http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/San-Luis-Obispo-Valley-Groundwater-Basin.aspx)

### **G.3.2 Santa Maria Valley Groundwater Basin**

The Santa Maria Valley Groundwater Basin is part of WPA 3. The Santa Maria Valley Groundwater Basin (DWR boundary, including sub-basins) encompasses approximately 184,000 acres (288 square miles), of which approximately 61,220 acres (95.7 square miles) are part of



WPA 3. This groundwater basin underlies the Santa Maria Valley in the coastal portion of northern Santa Barbara and southern San Luis Obispo Counties. The basin also underlies Nipomo and Tri-Cities Mesas, Arroyo Grande Plain, with sub-basins in the Nipomo, Arroyo Grande and Pismo Creek Valleys. The basin is bounded on the north by the San Luis and Santa Lucia Ranges, on the east by the San Rafael Mountains, on the south by the Solomon Hills and the San Antonio Creek Valley Groundwater Basin, on the southwest by the Casmalia Hills, and on the west by the Pacific Ocean. In addition, three sub-basins have been identified in San Luis Obispo County that are separated from the main basin by the Wilmar Avenue fault. These are the Pismo Creek Valley (1,220 acres), Arroyo Grande Valley (3,860 acres), and Nipomo Valley (6,230 acres) Sub-basins. The Santa Maria River Valley Groundwater Basin is designated by the DWR as Basin 3-12 (DWR 2002, 2003).

The Santa Maria Valley Groundwater Basin has been adjudicated. In 2005, the Superior Court of California entered a Judgment for a basin-wide groundwater litigation case that defined three basin management areas. These management areas are the Northern Cities Management Area (NCMA), the Nipomo Mesa Management Area (NMMA), and the Santa Maria Valley Management Area (SMVMA), which are used herein for planning by the County of San Luis Obispo. The Judgment incorporated a Stipulated Settlement which was made binding by the Court on the signatories, with a declaratory judgment and physical solution adjudged and decreed in the Judgment after Trial, dated January 25, 2008. The three DWR sub-basins included herein as separate basin components are outside of the adjudicated area.

The San Luis Obispo County portion of the SMVMA and the NMMA are in unincorporated County. The NCMA includes unincorporated County areas and the Cities of Pismo Beach, Arroyo Grande and Grover Beach. The City of Arroyo Grande also overlies a portion of the Arroyo Grande Sub-basin, and the City of Pismo Beach overlies a portion of the Pismo Creek Valley Sub-Basin.

For the latest information on the Santa Maria Valley Groundwater Basin, visit:

[http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\)/Santa-Maria-River-Valley-Groundwater-Basin.aspx](http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Santa-Maria-River-Valley-Groundwater-Basin.aspx)

### G.3.3 Santa Maria Valley- Arroyo Grande Sub-Basin

The Arroyo Grande Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by the DWR but outside of the adjudicated basin area. Water supply aquifers are within alluvial deposits in Arroyo Grande Valley, which is drained by the Arroyo Grande Creek. The alluvial deposits reach approximately 100 feet thick (DWR 2002). Recharge to the sub-basin comes primarily from seepage from Arroyo Grande Creek (including Lopez Reservoir releases) and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

Sub-basin groundwater users include small public water systems (residential, commercial, and County park), and agricultural and residential overlying users. There is no estimated safe yield or existing developed yield value reported for this sub-basin. Groundwater levels in the Arroyo

Grande Creek alluvium downstream of Lopez Dam are controlled by releases from Lopez reservoir, and have been fairly stable since 1969 (DWR 2002).

The primary constraints on water availability in the Arroyo Grande Valley Sub-basin are water quality issues, environmental demand, and water rights. Although shallow alluvial deposits are typically more susceptible to drought impacts, releases from Lopez Reservoir provide greater dry period recharge than would otherwise exist. Groundwater quality in the lower sub-basin is marginal to poor, and steelhead habitat is present in the Arroyo Grande Creek. The legal framework for Lopez Reservoir releases, downstream monitoring, and surface water allocations could also limit groundwater availability.

## **G.4 WPA 4 – CUYAMA RIVER**

### **G.4.1 Huasna Valley Groundwater Basin**

The Huasna Valley Groundwater basin is part of WPA 4 and encompasses approximately 4,700 acres (approx. 7.3 square miles). The basin underlies valleys drained by two branches of Huasna Creek, which flow to Twitchell reservoir. Huasna Valley has been designated as Basin 3-45 and is entirely within unincorporated San Luis Obispo County (DWR 2003). Recharge to the basin comes primarily from seepage from Huasna River and tributaries, deep percolation of precipitation, residential/agricultural return flows, and from Twitchell reservoir seepage when the reservoir fills the lower valley. The basin aquifer consists of alluvial deposits drained by Huasna Creek and Huasna River (DWR 2003).

Basin water users are residential and agricultural overlying users. There is no existing estimate of basin safe yield or hydrologic budget items. No historical water quality data for the alluvial basin has been published in public documents or is available through the STORET Legacy Database.

Constraints on water availability in the Huasna Valley Groundwater Basin include physical limitations. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers. Water availability in the sandstone and fractured reservoirs can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

There is limited hydrogeologic information published for this basin. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

### **G.4.2 Cuyama Valley Groundwater Basin**

The Cuyama Valley Groundwater Basin is part of WPA 4 and encompasses approximately 147,200 acres (230 square miles), of which approximately 32,600 acres (51 square miles) are

within San Luis Obispo County. The basin underlies the valley drained by the Cuyama River and is bounded on the north by the Caliente range and on the Southwest by the Sierra Madre Mountains. Cuyama Valley has been designated as Basin 3-13 and includes portions within unincorporated San Luis Obispo County, Santa Barbara County, Kern County, and Ventura County (DWR 2003). Recharge to the basin comes primarily from seepage from Cuyama River, deep percolation of precipitation, and residential/agricultural return flows.

The Cuyama Basin is subject to SGMA and more information can be found here:

<http://cuyamabasin.org/>

## **G.5 WPA 5 - NORTH COUNTY**

### **G.5.1 Big Spring Area Groundwater Basin**

The Big Spring Area Groundwater Basin is located in WPA 5 and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-47 (DWR 2003). The basin is 7,320 acres (approx. 11.4 square miles) in size and underlies a valley that is drained by a tributary to San Juan Creek. According to Bulletin 118, the main water-bearing unit in the basin is Quaternary age alluvium (DWR 2003). No additional information is available describing the basin hydrogeology.

There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality.

Constraints on water availability in this basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Big Spring area, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge. Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

### **G.5.2 Rafael Valley Groundwater Basin**

The Rafael Valley Groundwater Basin is located in WPA 5 and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-46 (DWR 2003). The basin underlies the Rafael Valley and is 2,990 acres (approx. 3.6 square miles) in size. The Rafael Valley is drained by the Rafael and San Juan creeks.

According to Bulletin 118, the main water-bearing unit in the basin is an alluvial aquifer (DWR 2003). There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality for this basin.

Constraints on water availability in the Rafael Valley Groundwater Basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rafael Valley, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

### **G.5.3 Pozo Valley Groundwater Basin**

The Pozo Valley Groundwater Basin is located in WPA 5 and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-44 (DWR 2003). The basin is 6,840 acres (approx. 10.7 square miles) in size and is bounded on all sides by low permeability rocks. The basin is drained by Pozo Creek and the Salinas River, both of which flow into Santa Margarita Lake.

According to Bulletin 118, alluvium is the main water-bearing unit in the basin (DWR 2003). The alluvium is up to 30 feet thick. Basin recharge occurs as percolation of stream flow, percolation of precipitation, and irrigation return flows.

There are some small public water systems in the basin. All other pumping is for residential and agricultural purposes by overlying users. The safe yield in the basin has been reported to be 1,000 AFY (DWR 1958). According to Bulletin 118, groundwater samples from 5 wells in the basin taken from 1951 to 1988 indicate TDS concentrations ranging from 287 to 676 mg/L (DWR 2003).

Constraints on water availability in this basin are physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Pozo Valley, the alluvial aquifer also overlies and recharges the underlying rock formations. Water availability in the consolidated rock reservoirs is generally limited and highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary.

### **G.5.4 Rinconada Valley Groundwater Basin**

The Rinconada Valley Groundwater Basin is located in WPA 5 and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-43 (DWR 2003). The basin underlies the Rinconada Valley and is 2,580 acres (approx. 4 square miles) in size. The valley is drained by Rinconada Creek, which is tributary to the Salinas River.

There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality in the basin. There is very limited information available for this basin. If the District requires more current or detailed information for this basin, new studies would be necessary.

Constraints on water availability in the Rinconada Valley basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rinconada Valley, the alluvial aquifer also overlies and recharges the underlying rock formations. Water availability in the consolidated rock formations is generally limited and highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

#### **G.5.5 Salinas Valley - Paso Robles Area Groundwater Basin**

The Salinas Valley - Paso Robles Area Groundwater Basin is part of WPA 5. According to California's Groundwater Bulletin 118, the entire Salinas Valley - Paso Robles Groundwater Basin is located within the greater Salinas Valley Groundwater Basin and is identified as Groundwater Basin Number 3-4.06. The Salinas Valley - Paso Robles Area Groundwater Basin is located in both Monterey and San Luis Obispo counties and is 505,000 acres (approx. 790 square miles) in size. Roughly one-third of the areal extent of the Paso Robles Groundwater Basin extends into Monterey County. The basin ranges from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon.

In general, the Salinas River, Estrella Creek, San Juan Creek, Huer Huero Creek, and numerous other smaller channels that are tributary to these major rivers and creeks drain the basin. Groundwater in the basin is found in alluvium and in the Paso Robles Formation. In general, the alluvium is mostly unconfined and is characterized by relatively high permeability. The Salinas River is a significant source of groundwater to several municipalities located adjacent to and along its reach as well as a number of overlying users with appropriative or riparian rights. Groundwater in the alluvium is a principal source of recharge to the underlying Paso Robles Formation. The Paso Robles Formation is the most significant source of groundwater in the basin. Recharge to the basin derives from stream percolation of the alluvium underflow, infiltration of precipitation, and deep percolation of applied irrigation and wastewater discharge.

Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major municipal water purveyors include the City of Paso Robles, CSA 16-1 (Shandon), and San Miguel Community Services District (San Miguel CSD). The San Luis Obispo County Environmental Health Department also identified 36 small commercial and community water systems that extract groundwater from the basin. Overlying users include rural domestic residences and agricultural users.

In response to SGMA, the County of San Luis Obispo, City of Paso Robles, Shandon-San Juan Water District and San Miguel Community Services District have formed GSA's and developed a GSP. To view the GSP, and the latest information and modelling, visit the Paso Robles Basin website:

[https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\)/Paso-Robles-Groundwater-Basin.aspx](https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Paso-Robles-Groundwater-Basin.aspx)

#### **G.5.6 Salinas Valley - Atascadero Area Groundwater Sub-Basin**

The Salinas Valley - Atascadero Area Groundwater Sub-basin is located in WPA 5 and is a sub-basin within the Paso Robles Groundwater Basin. The northern boundary of the sub-basin is approximately the southern end of the City of Paso Robles and the southern sub-basin boundary is located just south of the community of Garden Farms. The eastern boundary of the sub-basin is the Rinconada fault. Because the fault displaces the Paso Robles Formation, the hydraulic connection between the aquifer across the Rinconada fault is sufficiently restricted to warrant the classification of this area as a distinct sub-basin. Therefore, the Salinas Valley - Atascadero Area Groundwater Sub-basin of the Paso Robles Groundwater Basin is defined as that portion of the basin west of the Rinconada fault.

The Salinas Valley - Atascadero Area Groundwater Sub-basin includes the City of Atascadero and the communities of Templeton and Garden Farms. The Salinas River is the major hydrologic feature in the sub-basin. Outflow (primarily surface flow and Salinas River underflow) occurs in the northern direction from the sub-basin into the Estrella subarea of the Paso Robles Groundwater Basin.

Though identified by DWR as "low priority", basin partners are utilizing grant funds to proactively develop a GSP. For the latest information and GSP updates, visit the Atascadero Groundwater Sub-Basin website:

[http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\)/Atascadero-Groundwater-Basin.aspx](http://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Atascadero-Groundwater-Basin.aspx)

#### **G.5.7 Cholame Valley Groundwater Basin**

The Cholame Valley Groundwater Basin is located in the Inland Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-5 (DWR 2003). The basin is located in both Monterey and San Luis Obispo counties and is 39,800 acres (approx. 62.2 square miles) in size. The basin is comprised of alluvium and is bounded in the southwest by the Paso Robles Formation. The valley is drained by Cholame Creek. The depths of the wells in this area ranged from 100 to 665 feet. Most wells were located on the fringe of the basin in the upper canyon areas and are used primarily for domestic water supply.

There are some small public water systems in the San Luis Obispo County portion of the basin. All other pumping is for residential and agricultural purposes by overlying users. No information is available describing basin yield. Very limited groundwater quality information has been published or described. Water quality data from non-specific sites indicate generally

high concentrations of TDS, chlorides, sulfates, and boron (Chipping, et al., 1993). Constraints on water availability in this basin include physical limitations and water quality.

Published hydrogeologic information for this basin is limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

## **G.6 WPA 6 – CARRIZO PLAIN**

### **G.6.1 Carrizo Plain Groundwater Basin**

The Carrizo Plain Groundwater Basin is located in WPA 10 and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-19 (DWR 2003). The basin is 173,000 acres (approx. 270 square miles) in size and is situated between the Temblor Range to the east and the Caliente Range and San Juan Hills to the west. The basin has internal drainage to Soda Lake.

Groundwater in the basin is found in alluvium, the Paso Robles Formation, and the Morales Formation (DWR 2003). The upper alluvium and Paso Robles Formation deposits are more than 3,000 feet thick in the eastern portion of the basin and decrease in thickness to the west. Recharge to the basin is predominantly from percolation of stream flow and infiltration of precipitation.

There is one small public water system serving the local school (part of the Atascadero Unified School District). All other pumping in the basin is for agricultural and residential purposes by overlying users. There are two proposed solar farms that will be located within this WPA (Topaz Farms 550-MW; SunPower 250-MW).

The safe yield of the basin is estimated to be 600 AFY (DWR 1958). The Kemnitzer safe yield was estimated at 59,000 AFY (based on 1967 inflow/outflow analysis). Taking into consideration the methodologies used in previous studies, current and historical groundwater levels, and water quality, the solar project EIRs' water analyses conclude that a more reasonable safe yield on which to base planning decisions is between 8,000 to 11,000 AFY.

Groundwater samples from 79 wells collected from 1957 to 1985 show total dissolved solids concentration ranging from 161 to 94,750 mg/L (DWR 2003). Groundwater in the lower alluvium and upper Paso Robles Formation that both underlie Soda Lake are highly mineralized. Groundwater deeper in the confined Paso Robles Formation is of higher quality. Groundwater in the Morales Formation is likely brackish.

Constraints on water availability in the basin include physical limitations and water quality issues. The low safe yield estimate of this basin relative to its large size, and the high TDS concentrations in areas (e.g., Soda Lake) suggest that water availability in the region is limited. Other than water quality issues associated with the internal drainage structure of the basin, other constraints are not well defined.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.



# **APPENDIX H – SAN LUIS OBISPO COUNTY WATERSHED MANAGEMENT PLANNING PROJECT REPORT**

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Due to the size of this file and its associated appendices, this report is available at the [San Luis Obispo County IRWM website](#).

# **APPENDIX I – STORMWATER RESOURCE PLAN**

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The San Luis Obispo County Stormwater Resources Plan was incorporated into this plan by the RWMG on February 25<sup>th</sup>, 2020 and subsequently achieved concurrence from the State Water Resources Control Board on February 27<sup>th</sup>, 2020.

In order for stormwater or dry runoff capture projects to be eligible for State of California funds (i.e. Prop. 1 (2014) and Prop 68 (2016)), it must be scored and included in an approved Stormwater Resource Plan (see Water Code section 10563).

Due to the size of this file and its associated appendices, this report is available at the [San Luis Obispo County IRWM website](#).

## APPENDIX J – CLIMATE CHANGE

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This appendix includes the Vulnerability Assessment memorandum, the Adaptation and Mitigation Memorandum, which includes results of the Climate Change Vulnerability Assessment (see **Section 14** and **Appendix C.1.2**) and details regarding Climate Change, prioritized vulnerabilities, IRWM Plan Goals, Objectives and RMS. Additional Climate Change update outreach materials are included as well.

Much of the information in Appendix J was developed by or with Water Systems Consulting, Inc. (WSC).

Appendix Number	Title
J.1	Climate Change Vulnerability Assessment Memorandum
J.2	Climate Change Adaptation and Mitigation Memorandum
J.3	Notice of Public Meeting
J.4	Outreach Materials
J.5	2018 Climate Change Workshop Attendees

## J.1 CLIMATE CHANGE VULNERABILITY ASSESSMENT MEMORANDUM

*This draft technical memo was prepared by County of San Luis Obispo Public Works staff in collaboration with Water Systems Consulting, Inc (WSC) to develop the climate change vulnerability assessment for the 2018 IRWM Plan update. The Department of Water Resources (DWR) awarded grant funding from Proposition 1 to support this planning effort.*

## **CLIMATE CHANGE VULNERABILITY ASSESSMENT**

### **1 PURPOSE**

The purpose of this document is to provide information relevant to the San Luis Obispo (SLO) County Climate Change Vulnerability Assessment as part of the SLO County Integrated Regional Water Management (IRWM) Plan (IRWMP) climate change update. The existing 2014 IRWMP Climate Change Vulnerability Assessment described in Section P.10 will be updated with input from IRWM stakeholders in order to: 1) characterize regional water resources vulnerable to climate change; 2) identify climate change impacts that could affect the planning region; and 3) assess the potential vulnerabilities for each of the IRWM's subregions. These three tasks will be completed to satisfy the requirements of the California Department of Water Resources' (DWR's) 2016 IRWM Grant Program Guidelines (1) and the Climate Change Handbook for Regional Water Planning (Climate Change Handbook), Section 4 and Appendix B (2).

### **2 CLIMATE CHANGE VULNERABILITY ASSESSMENT**

#### **2.1 Identifying Climate Change Impacts**

Climate change impacts and vulnerabilities will be identified through an iterative and collaborative process of literature review and stakeholder input. Prior to stakeholder input being solicited via the IRWM Climate Change Workshop, WSC in collaboration with SLO County has identified appropriate literature sources and summarized regional climate change impacts (Section 2.1.1).

#### **Regional Climate Change Impacts**

The 2014 IRWMP includes a climate change analysis based on various models, which concludes that local climate change projections suggest longer and drier summers, an increased frequency and severity of droughts, increased evapotranspiration rates, increased temperatures, increased winter runoff, increased storm severity, more frequent wildfires, sea level rise, and reduced groundwater recharge. Impacts on regional water resources from these projected changes can be identified and analyzed to determine prioritized vulnerabilities. DWR's Climate Change Handbook recommends assessing seven vulnerability categories impacted by climate change. Climate change impacts affecting those seven vulnerability categories in the region may include, but are not limited to, those described below.

##### **1. Water Demand**

- a. Seasonal agricultural water demands are expected to increase (California Department of Water Resources, 2008). Non-irrigated agriculture and rangeland will be especially vulnerable to reduced surface flows and soil moisture (California Department of Water Resources, 2008), (California Natural Resources Agency, 2009).
- b. Evapotranspiration rates are expected to increase (California Natural Resources Agency, 2009), which will increase agricultural water demands.
- c. A longer growing season will also increase agricultural water demands (California Natural Resources Agency, 2009).

- d. Landscaping and other domestic seasonal use, such as cooling processes, is expected to increase (California Department of Water Resources, 2008), (California Natural Resources Agency, 2009).
- e. As average air and surface water temperatures increase, cooling water needs may also increase (California Department of Water Resources, 2011). Industries, such as energy production, may see increases in demand or production in response to climate change that in turn increase process water usage.
- f. As average temperatures increase and droughts become more frequent, seasonal water use, which is primarily outdoor use, could increase. Seasonal use impacts peak demands that often coincide with low flow summer periods. Increasing seasonal demands puts the region at risk of water shortages (GEOS Institute, 2010).
- g. A variety of crops are grown in the region and many are seasonally variable and are sensitive to changes in growing season and heat patterns (GEOS Institute, 2010).
- h. Curtailments are challenging especially for small and isolated communities without access to other water sources. If drought conditions continue or worsen, it is unclear how curtailments can be achieved in economically distressed communities with diminishing water supplies and no access to alternative supplies. Lack of drinking water access can lead to poor health, disease spreading, and death (California Natural Resources Agency, 2009). A local drought emergency was enacted in SLO County from 2014 through 2017 that restricted water usage and required acquiring alternate water sources while reservoir levels were allowed to recover.

## 2. Water Supply

- a. While precipitation projections are less definitive than other climate variables, there is general consensus that precipitation in the Southwestern US will decline over the second half of the 21st Century (US Global Change Research Program, Climate Change Science Program, 2009).
- b. Water supply shortages are expected to worsen (GEOS Institute, 2010).
- c. Groundwater recharge is expected to decrease (GEOS Institute, 2010).
- d. Coastal aquifers will be subject to seawater intrusion, especially in aquifers with high pumping rates (California Department of Water Resources, 2008).
- e. Droughts are expected to be more severe and potentially more frequent (California Department of Water Resources, 2008), (California Natural Resources Agency, 2009).
- f. In sustained drought conditions, use of surface waters may be curtailed, requiring more consumption of groundwater and thus increasing vulnerability to water shortage (California Natural Resources Agency, 2009). Groundwater utilization is expected to increase based on projections to 2035 (2014 IRWMP, Section D). The region may see more severe storm events that result in quick pulses of heavy runoff. Infrastructure does not exist to capture the momentary surplus of water, and poor land use practices prevent much of the rain from infiltrating into the ground (GEOS Institute, 2010).
- g. The State Water Project (SWP) supply has been limited due to pumping restrictions on the Delta and may continue to require restrictions in the future (Carollo Engineers, 2012). A sustained drought may increase hardships on the water rights holders in the region (California Department of Water Resources, 2011).
- h. Changes in surface water supply, snowmelt patterns that affect SWP supply, and increasing demands may make it difficult to balance water needs. Vulnerabilities for ecosystems and municipal/agricultural water needs may be exacerbated by instream flow requirements that are not quantified, not accurate for ecosystem needs under multiple environmental

conditions including droughts, and not met by regional water managers (California Department of Water Resources, 2011).

- i. Aquatic species that are already vulnerable to periods of low flow may become increasingly more vulnerable as hydrologic patterns change. The shift in hydrologic flow patterns can disrupt necessary flows and cause biodiversity shifts, loss of habitat, and barriers to species migration (California Natural Resources Agency, 2009). Groundwater pumping leads to lowering of the water table, causing low flows and dry periods in rivers and streams, contraction of riparian areas and wetlands, and stress to aquatic organisms (GEOS Institute, 2010). Steelhead are very sensitive to weather events, sediment, and stream flow. With worsening conditions, steelhead in San Luis Obispo County could follow the pattern seen in other areas, where spawning no longer occurs (GEOS Institute, 2010). The region contains multiple fisheries and habitat for sensitive species that depend on stream flows. The Watershed Management Planning Project Report analyzed instream flow conditions, however, the need for further monitoring and data collection was identified to determine if flow has been insufficient for aquatic life (2014 IRWMP).

### 3. Water Quality

- a. Eutrophication is expected to occur more often in surface waters as water temperatures increase (California Department of Water Resources, 2008).
- b. Longer low-flow conditions may lead to higher contaminant concentrations (California Natural Resources Agency, 2009).
- c. High turbidity is expected to become more of a concern as storm severity increases and wildfires become more frequent (California Department of Water Resources, 2008).
- d. Increased sedimentation in rivers and streams is expected (GEOS Institute, 2010).
- e. Other water quality issues that typically accompany severe storms (such as spikes in *E. coli* or *cryptosporidium*) are expected to become more frequent (Bates, B.C., Z.W. Kundzewicz, S. Wu and J.P. Palutikof, Eds., 2008).
- f. Pollutant loads may increase with more intense storms (California Department of Water Resources, 2008).
- g. Increased salinity intrusion into estuaries and brackish environments as seasonal freshwater flows decrease and sea levels rise (California Department of Water Resources, 2008).
- h. Warming temperatures will result in lower dissolved oxygen levels in water bodies which also contributes to algal blooms and eutrophication (California Natural Resources Agency, 2009). Changes in streamflows and increased storm intensity that causes heavy runoff may alter pollutant concentrations in water bodies reducing water quality (California Natural Resources Agency, 2009).
- i. While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to increased erosion, which will increase turbidity in surface waters. Areas that already observe water quality responses to rainstorm intensity may be especially vulnerable (California Department of Water Resources, 2011).

### 4. Sea Level Rise

- a. Saltwater intrusion to coastal aquifers with shallow water tables will worsen with sea levels rise (GEOS Institute, 2010).
- b. Coastal erosion is expected to increase in severity in many locations (U.S. Environmental Protection Agency, 2009). Coastal erosion can cause severe damage to coastal developments and facilities (GEOS Institute, 2010). Beach erosion is expected to increase and may require more frequent sand replenishment (GEOS Institute, 2010).

- c. Coastal structures, especially earthen levees, are placed under additional stress and are more likely to fail as sea level rises (California Department of Water Resources, 2008), (California Natural Resources Agency, 2009).
  - d. Coastal flooding is more likely to inundate coastal infrastructure as base sea levels increase (California Department of Water Resources, 2008). Areas within the tidal reach may also be more susceptible to flooding. Tourism infrastructure including roads, buildings, harbors, and piers may be damaged by higher sea levels (GEOS Institute, 2010).
  - e. Low-lying coastal habitats that are particularly vulnerable to climate change include estuaries and coastal wetlands that rely on a delicate balance of freshwater and salt water (California Department of Water Resources, 2011).
5. Flooding
- a. Potential damage to agriculture systems (GEOS Institute, 2010).
  - b. Storms are expected to increase in intensity. The 2009 California Water Plan recommends that no new critical facilities (e.g., fire stations, hospitals, schools, emergency shelters) be built within a 200-year flood plain (California Department of Water Resources, 2008), (California Natural Resources Agency, 2009).
  - c. Higher volumes of floodwater are anticipated as more precipitation falls as rain (California Department of Water Resources, 2008).
  - d. Flooding is expected to cause beach erosion (GEOS Institute, 2010).
  - e. Reservoirs and other facilities with impoundment capacity may be insufficient for severe storms in the future. Facilities that have been insufficient in the past may be particularly vulnerable (California Department of Water Resources, 2011).
  - f. Wildfires alter the landscape and soil conditions, increasing the risk of flooding within the burn and downstream areas. Some areas are expected to become more vulnerable to wildfires over time.
6. Ecosystem and Habitat Vulnerability
- a. Sedimentation is likely to increase in marshes, estuaries and coastal streams (GEOS Institute, 2010).
  - b. Coastal birds may decline (GEOS Institute, 2010).
  - c. Saltwater is likely to intrude estuaries, creeks and wells along the coast (GEOS Institute, 2010).
  - d. Rare habitats could decline (GEOS Institute, 2010).
  - e. Marine and nearshore marine species are threatened by acidification of ocean water and changes in ocean currents (GEOS Institute, 2010).
  - f. Changes in fog could lead to loss of elfin forests (coastal oak forests) (GEOS Institute, 2010).
  - g. Sensitive species are at risk (GEOS Institute, 2010).
  - h. Lower average rainfall, higher evaporation and increased sedimentation are expected to have negative impacts on vernal pools, wetlands and riparian areas (GEOS Institute, 2010).
  - i. Changes in migration patterns and species distribution are anticipated (U.S. Environmental Protection Agency, 2009), (National Academy of Sciences, 2010).
  - j. Aquatic and terrestrial invasive species may spread in some areas (National Academy of Sciences, 2010).
  - k. Erosion is expected to increase with climate change, and sedimentation is expected to shift. Habitats sensitive to these events may be particularly vulnerable to climate change (California Department of Water Resources, 2011).
  - l. Some specific species are more sensitive to climate variations than others and may be especially vulnerable to climate change impacts (California Department of Water Resources, 2011). Saltbush (*Atriplex*) and other native shrubs are expected to decline with



climate change. Model projections show loss of appropriate conditions for temperate shrubland by mid-century. Shrubs could be impacted by increased drought and spread of fire with non-native grasses. Other species that may be affected include San Joaquin kit fox, LeConte’s thrasher, giant kangaroo rats, blunt-nosed leopard lizards, and California condor. Pronghorn and Tule elk might decline with decreased productivity of grasslands. Populations of these species are isolated and the topography of the Carrizo Plain and surrounding areas, making it difficult for them to move to new areas. The future climate may not be suitable for coniferous (pine) forests and woodlands (GEOS Institute, 2010).

m. Species that are already threatened or endangered may have a lowered capacity to adapt to climate change (California Department of Water Resources, 2011).

7. Hydropower

- a. Changing volumes of total snowpack and changing seasonal melting patterns of snow may require changes in reservoir management strategies. Depending on other reservoir release constraints (such as environmental flow release requirements), this could negatively impact hydropower generation (California Department of Water Resources, 2008).
- b. Increasing temperatures will also increase energy demands, especially during peak demand times (California Department of Water Resources, 2008).

**2.2 Climate Change Vulnerability Assessment Checklist**

Regional climate change impacts from Section 2.1.1 are considered at the subregional level in this section of the memo to establish a preliminary vulnerability assessment for seven water and climate change related categories recommended in the Climate Change Handbook. The 2014 IRWMP discusses prioritized vulnerabilities, but lacks a description of the decision-making process implemented to determine the prioritization of the vulnerabilities. A preliminary list of questions and considerations, or a “Checklist”, from the Climate Change Handbook Section 4.3 and Appendix B, is shown below with initial attempts to describe relevant impacts and considerations for each issue relevant to each subregion. These initial considerations are provided to encourage input from stakeholders about relevant key indicators of potential vulnerabilities in each subregion. Once these vulnerabilities are identified, a system will be applied to prioritize them.

**Water Demand**

**1. Are there major industries that require cooling/process water in your planning region?**

Several prominent industries in San Luis Obispo County require water for their operations. Notable industries include wineries, breweries, hospitals, energy production, hotels, and education. Additionally, agriculture is a major industry throughout the County and has a significant water demand for irrigation and other processes.

North Coast Subregion

Cuesta College requires water to maintain operations and serve its students and staff. Similarly, the California Men’s Colony requires water to serve its residents and maintain operations. Wineries along the North Coast also contribute to the industrial water demand in the subregion.

North Coast Subregion            Yes    No    Uncertain

North County Subregion

Wineries and vineyards throughout the North County have large water demands for growing and wine production. Another major industrial water use in the subregion is process water required by breweries. The Atascadero State Hospital and other hospitals are notable industrial water users in the subregion.

North County Subregion Yes No Uncertain

South County Subregion

The Diablo Canyon Power Plant requires cooling and process water for its operations. The Santa Maria Refinery in Nipomo is a major industrial water user. Cal Poly San Luis Obispo has a significant water demand to maintain operations and serve its students and staff. There are also several breweries throughout the South County Subregion that require water for the brewing process. Hospitals, including Sierra Vista Regional Medical Center and French Hospital Medical Center, are another prominent industry in the subregion that requires process water. The Arroyo Grande Oil Field uses large amounts of water during oil pumping.

South County Subregion Yes No Uncertain

**2. Does water use vary by more than 50% seasonally in parts of your region?**

North Coast Subregion

Seasonal water use is affected by tourism and agriculture in the North Coast Subregion. San Simeon CSD and Cambria CSD both have a noticeably higher water demand from June to October. Los Osos CSD has a significant difference in seasonal water demand, but it is not more than 50%.

North Coast Subregion Yes No Uncertain

North County Subregion

Seasonal water use is affected by agriculture in the North County Subregion. Templeton CSD, Atascadero MWC, and the City of Paso Robles all have significantly lower water demands during winter months.

North County Subregion Yes No Uncertain

South County Subregion

Seasonal water use is affected by agriculture and tourism in the South County Subregion. The City of Pismo Beach, Nipomo CSD, and Oceano CSD all have significantly lower water demands during winter months. During the summer, the City of San Luis Obispo experiences an increase in irrigation water use but a decrease in domestic water use with the absence of Cal Poly students. Overall, seasonal water use does not vary by more than 50%.

South County Subregion Yes No Uncertain

**3. Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?**

The highest ranked crops by dollar amount are grapes/wine, vegetables, strawberries, avocados, broccoli, and cattle/calves, all which are climate sensitive. The total value of agricultural production in 2016 was over \$900 million (County of SLO 6). A report by the USDA determined San Luis Obispo County had a high crop vulnerability ranking.

- While grapes are relatively drought tolerant crops, they are sensitive to temperature, frost, and other climate-related factors. The quality of wine grapes is especially sensitive to climate, so

increased temperatures could significantly reduce the quality and economic value of wine grapes (“Grapes” 1-2).

- Cattle production decreased 36% from 2015 to 2016 due largely to the decrease in rangeland caused by the drought (County of SLO 8). Changes in air temperature and decreased humidity can cause respiratory problems for cattle.
- Strawberries are extremely sensitive to soil salinity. Increasing salt levels in soil would decrease growth rate and fruit yield of strawberries as well as increase irrigation demands for soil leaching. Additionally, strawberries are sensitive to fungal diseases and unusually warm temperatures (“Strawberries” 1-2).
- Broccoli is moderately climate sensitive. Broccoli has a narrow temperature range of 60 to 65°F and is harmed by temperatures exceeding 80°F. The vegetable is also sensitive to invertebrate pests and bacterial and fungal diseases, which are likely to pose a greater risk with increased temperatures (“Broccoli” 1-2).
- Avocados are a highly climate sensitive crop requiring wet conditions. Avocados need large amounts of water and frequent irrigation, and their sensitivity to soil salinity could increase this already high water demand. The fruit is sensitive to cold weather and can die during a freeze, but increased fall temperatures could also decrease avocado yields (“Avocados” 1-2).

North Coast Subregion

Avocados, grapes, and berries are all grown in the North Coast Subregion.

North Coast Subregion            Yes    No    Uncertain

North County Subregion

The primary crop in the North County Subregion is wine grapes. The cattle industry is also prominent in this subregion.

North County Subregion            Yes    No    Uncertain

South County Subregion

Strawberries, avocados, and grapes are some of the major crops grown in the South County Subregion.

South County Subregion            Yes    No    Uncertain

**4. Do groundwater supplies in your region lack resiliency after drought events?**

North Coast Subregion

Multiple groundwater basins in the subregion (some of the largest/highest yield and storage capacity basins) have a Level I (2 basins) or Level III (2 basins) severity rating as assigned by the SLO County Planning Department. These basins experience reduced recharge and ability to meet demand during drought conditions. About 50% of the North Coast’s urban water supply is from groundwater (SLO 2014 IRWMP D-18). Drought conditions make groundwater basins more susceptible to salt water intrusion and often result in increased chloride levels. This has been witnessed in groundwater wells in Los Osos. San Simeon CSD is dependent on a single creek basin, which is susceptible to adverse effects of drought events.

North Coast Subregion            Yes    No    Uncertain

North County Subregion

The Paso Robles Basin, the largest and highest yielding basin in the subregion, is a critically over-drafted basin (DWR). The groundwater basins in this subregion have low storage and difficulty meeting demands especially during drought events (SLO 2014 IRWMP C-13). About 70% of the North County water supply is from groundwater (SLO 2014 IRWMP D-18).

North County Subregion Yes No Uncertain

South County Subregion

The Cuyama Valley Basin is a critically over-drafted basin, and the Santa Maria Valley Basin is a high priority basin (DWR). Droughts reduce basin recharging and the ability of the basin to meet demand. About 30% of the South County water demand is supplied by groundwater (SLO 2014 IRWMP D-18). However, Nipomo CSD is unique in that it obtains 50-100% of its water supply from groundwater.

South County Subregion Yes No Uncertain

**5. Are water use curtailment measures effective in your region?**

A local drought emergency was enacted in SLO County from 2014 through 2017 that restricted water usage and required acquiring alternate water sources while reservoir levels were allowed to recover.

North Coast Subregion

Los Osos CSD implemented a Water Shortage Contingency Plan during the recent drought, and water usage dropped to 50 gallons per day per capita.

North Coast Subregion Yes No Uncertain

North County Subregion

Efforts in the City of Paso Robles during the recent drought were effective in reducing per capita water use. The US-LT RCD developed the Agricultural Water Offset program, which limited the establishment of new irrigated lands in Paso Robles Groundwater Basin, but this did not necessarily prevent new groundwater pumping operations outside of the basin boundary.

North County Subregion Yes No Uncertain

South County Subregion

While curtailment measures in Nipomo were successful in reducing groundwater pumping by 50%, they did not result in a significant increase in the groundwater level. Restrictions on outdoor water use in the City of San Luis Obispo have been effective at reducing the city's water consumption. The City of Arroyo Grande successfully curtailed water use by 35% from 2013 to 2016.

South County Subregion Yes No Uncertain

**6. Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?**

A study completed by Stillwater Sciences in 2014 determined the minimum instream seasonal flow requirements needed to sustain basic aquatic systems for stream systems throughout the County. Central coast steelhead trout were used as the indicator species for this study. Based on a 2017 report by the Central Coast Salmon Enhancement, there are streams within all three subregions that did not meet these minimum flow requirements in the past two years. In 2016, only 14 percent of the sites

measured met spring flow requirements, and only 17 percent of measured sites met summer flow requirements (CCSE).

North Coast Subregion

North Coast Subregion      Yes    No    Uncertain

North County Subregion

North County Subregion      Yes    No    Uncertain

South County Subregion

South County Subregion      Yes    No    Uncertain

**Water Supply**

**1. Does a portion of the water supply in your region come from snowmelt?**

North Coast Subregion

The City of Morro Bay, California Men’s Colony, Cuesta College, and County Operations Center all receive water from the State Water Project (SWP).

North Coast Subregion      Yes    No    Uncertain

North County Subregion

Shandon has a water service amount of 100 AFY from the SWP.

North County Subregion      Yes    No    Uncertain

South County Subregion

The City of Pismo Beach, Oceano CSD, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, and San Luis Coastal USD all receive water from the SWP.

South County Subregion      Yes    No    Uncertain

**2. Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?**

See Question 1 above.

North Coast Subregion

North Coast Subregion      Yes    No    Uncertain

North County Subregion

North County Subregion      Yes    No    Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**3. Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?**

North Coast Subregion

The Pico Creek Valley, San Simeon Valley, Chorro Valley, Morro Valley, and Los Osos Valley Basins have all encountered sea water intrusion and are water supply sources for the subregion (SLO 2014 IRWMP).

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal aquifers in this subregion.

North County Subregion Yes No Uncertain

South County Subregion

The Avila Valley Sub-basin and Santa Maria Valley Basin have both experienced sea water intrusion and serve as water supply sources for the subregion (SLO 2014 IRWMP).

South County Subregion Yes No Uncertain

**4. Would your region have difficulty storing carryover supply surpluses from year to year?**

Surplus supplies of State Water can be stored via San Luis Reservoir, which is operated by DWR and the Central Valley Project. State water contracts limit the quantity of water allowed to be stored by each contractor, and stored water is subject to spills based on the amount of water in the SWP system.

North Coast Subregion

San Simeon has no way of carrying over supply surpluses.

North Coast Subregion Yes No Uncertain

North County Subregion

The Salinas Reservoir, overseen by the City of San Luis Obispo, is limited in its ability to store new inflow due to criteria set forth by the SWRCB which only allow for new inflow to be stored when there is a live stream in the Salinas River. Monterey County operates and maintains the Nacimiento Reservoir. The District and the contractors of Nacimiento Water have contracts for water but no rights to storage. Supply surpluses in Shandon are stored in San Luis Reservoir and experience significant losses through evaporation.

North County Subregion Yes No Uncertain

South County Subregion

It is possible to store carryover supplies in Lopez Reservoir but only when the water level reaches 40.5% capacity (20,000 AF). The Low Reservoir Response Plan (LRRP) allows agencies to carryover any of their unused annual entitlement for future use when reservoir levels are low. The LRRP allows for reduced entitlement deliveries as well as reduced downstream releases to preserve or stretch out supplies for up

to 2-3 years. When the LRRP is not in effect, agencies occasionally have access to surplus water but can only use it in that same year; they cannot store it for use in future years.

South County Subregion Yes No Uncertain

**5. Has your region faced a drought in the past during which it failed to meet local water demands?**

During water years 2014 and 2015, due to statewide drought conditions, the State Water Resources Control Board (SWRCB) curtailed post-1914 tributary water rights to the Sacramento-San Joaquin Delta. A local drought emergency was in effect from 2014-2017 during which time alternate water sources were needed.

North Coast Subregion

State Water Project water has experienced increased salt levels during drought conditions, which resulted in violation of water quality standards in the Chorro Valley Water System.

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

To ensure water demand could be met during drought conditions, the City of San Luis Obispo added water supply sources and long-standing water conservation programs. In Nipomo, recent drought conditions have contributed to groundwater levels at record lows.

South County Subregion Yes No Uncertain

**6. Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?**

The 2014 San Luis Obispo County Watersheds Management Plan determined that invasive species identification and assessment as a county-wide priority data gap. The California Invasive Plant Council has recognized areas of spreading invasive species in all three of the County's subregions, and there has already been a significant increase in the overall size of acres covered by invasive species in local watersheds. Yellow star thistle, veldt grass, and arundo are three invasive species with notable management issues in San Luis Obispo County. Additionally, invasive mussels in reservoirs and water management facilities are a concern. Mitigation sites are especially vulnerable to invasive species management issues.

North Coast Subregion

Cape Ivy in the Morro Bay watershed has been an invasive species of special concern.

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**Water Quality**

**1. Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?**

According to the Cal-Adapt Wildfire: Fire Risk Map, the SLO County IRWM Planning Region may experience a slight increase in annual mean hectares burned by wildfire (Cal Fire).

North Coast Subregion

The risk of wildfires near Whale Rock Reservoir are a significant contamination risk to the water supply (“Whale Rock” 18). The major source of contamination for the water body is sedimentation from erosion, which would be exacerbated by wildfires in the nearby area (“Whale Rock” 1). Dead trees and large areas of dry bush create a wildfire threat to water bodies throughout the North Coast Subregion – not just Whale Rock Reservoir.

North Coast Subregion Yes No Uncertain

North County Subregion

The Nacimiento Reservoir is in an area with a high risk of wildfires, and possible wildfires pose a threat to the water quality in the reservoir (“Nacimiento Reservoir” 1). Similarly, wildfires are a risk in the nearby areas of the Salinas Reservoir and threaten water quality (Cal Fire).

North County Subregion Yes No Uncertain

South County Subregion

Large amounts of dry brush have been noted throughout the Lopez Lake watershed and contribute to the significant risk of potential contamination due to wildfires (“Lopez Lake” 2). Wildfires would lead to increased sedimentation and add stress to other water quality concerns within the reservoir.

South County Subregion Yes No Uncertain

**2. Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?**

North Coast Subregion

The San Simeon, Cayucos Creek, and Morro Bay Watersheds all have low dissolved oxygen, among other water quality issues (SLO 2014 IRWMP). Bacteria impairment can be exacerbated by warm temperatures, which accelerates the growth of bacteria. Water bodies with bacteria impairment include Morro bay estuary, Chorro Creek, Los Osos Creek and Warden Creek. Cattle grazing in the Whale Rock Reservoir watershed has been linked to increased turbidity and nutrient levels in the area’s water bodies (“Whale Rock” 1). These conditions encourage algal blooms and are worsened in times of drought and high temperatures.

North Coast Subregion Yes No Uncertain



North County Subregion

Middle Salinas-Atascadero and Cholame Creek Watersheds have low dissolved oxygen (SLO 2014 IRWMP). The Nacimiento Reservoir has a recent trend of high algal levels in summer months. Increased erosion, drought conditions, and high temperatures all contribute to harmful levels of algae growth in the reservoir (“Nacimiento Reservoir” 27-28). Similarly, the recent drought conditions resulted in record high levels of nutrients in the Salinas Reservoir, which has contributed to a trend of high algae levels in warm summer and fall months (“Salinas Reservoir” 12).

North County Subregion                    Yes    No    Uncertain

South County Subregion

San Luis Obispo Creek and Pismo Creek Watersheds have low dissolved oxygen. San Luis Obispo Creek and Santa Maria River have chlorpyrifos and other water quality issues (SLO 2014 IRWMP). The Lopez Lake Reservoir experienced harmful algal blooms during the recent drought conditions and has a recorded trend of algae spikes during warm summer months (“Lopez Lake” 14).

South County Subregion                    Yes    No    Uncertain

**3. Are seasonal low flows decreasing for some waterbodies in your region? If so, are the reduced low flows limiting the waterbodies’ assimilative capacity?**

A 2017 report by Central Coast Salmon Enhancement showed that stream systems throughout the County have recently experienced decreased seasonal low flows. During these low flow periods, water quality and ecosystem processes are highly sensitive to minor alterations and contamination.

North Coast Subregion

North Coast Subregion                    Yes    No    Uncertain

North County Subregion

North County Subregion                    Yes    No    Uncertain

South County Subregion

South County Subregion                    Yes    No    Uncertain

**4. Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?**

Beneficial uses are identified by the Watershed Management Planning Project Report for all but one of the watersheds in the region.

North Coast Subregion

Swimming and oyster harvesting in the Morro Bay watershed have been limited in the past due to bacteria levels.

North Coast Subregion                    Yes    No    Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**5. Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?**

Runoff into Whale Rock Reservoir (Cayucos Water Treatment Plant) and Lopez Lake (Lopez Water Treatment Plant) brings sediment into the reservoirs causing turbidity levels to rise. This can dramatically affect the treatability of the water source and increase the risk of exposure to water borne illnesses due to Cryptosporidium, Giardia, and E. Coli as chlorine and filtration demands are elevated during these times. It typically takes several big storms to see such a result in water quality at the water treatment plants, and it can take days for the turbid water to reach the end of the reservoir where water is distributed to the water treatment plants. Fortunately, County facilities can handle these changes to the water source and have not had a violation because of turbidity breakthrough or low chlorine after such rain events.

Storm runoff similarly affects Nacimiento Lake and Salinas Reservoir and treatment facilities in the City of Paso Robles and City of San Luis Obispo, respectively, must respond to the water quality shifts.

North Coast Subregion

Heavy rains in San Simeon forced the community to add a well filtration system to handle increased contamination.

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**Sea Level Rise**

**1. Has coastal erosion already been observed in your region?**

North Coast Subregion

Coastal erosion has been observed within the North Coast Subregion; however, the shoreline trends vary across the region and over time. A USGS study found that in the short-term over 80% of the subregion is experiencing net erosion (Hapke 50). San Simeon has been forced to add armoring to the shoreline to protect beach access and the waste water treatment plant.

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal areas in this subregion.

North County Subregion Yes No Uncertain

South County Subregion

The South County Subregion has experienced notable coastal erosion. Coastal bluffs in Pismo Beach are experiencing erosion rates of six to eight inches per year, which resulted in the construction of a sea wall in 2017 (LA District US Army Corps of Engineers 17). Avila Beach is also using a sea wall to protect roads and infrastructure from coastal erosion (Wallace Group).

South County Subregion Yes No Uncertain

**2. Are there coastal structures, such as levees or breakwaters, in your region?**

North Coast Subregion

Coastal structures along the North Coast include the San Simeon Pier, Cayucos Pier, and Morro Bay breakwaters.

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal areas in this subregion.

North County Subregion Yes No Uncertain

South County Subregion

The Arroyo Grande Creek Channel Levee located in the South County Subregion is intended to mitigate flooding. Other notable coastal structures along the South Coast include the Port San Luis breakwater, Harford Pier, Unocal Pier, Avila Beach Pier, and Pismo Beach Pier.

South County Subregion Yes No Uncertain

**3. Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation at less than six feet above mean sea level in your region?**

*San Luis Obispo County Planning Department is currently working on a study that will provide information about specific infrastructure at risk from sea level rise.*

North Coast Subregion

Based off the NOAA Sea Level Rise Viewer, roads and infrastructure within areas of San Simeon, San Simeon Ranch, Morro Bay, Morro Bay State Park, and Los Osos would be impacted by six feet of sea level rise.

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal areas in this subregion.

North County Subregion Yes No Uncertain

South County Subregion

Based off the NOAA Sea Level Rise Viewer, roads and infrastructure near Pismo State Beach and in Oceano would be impacted by six feet of sea level rise. Specifically, the South SLO County Wastewater Treatment Plant is at risk of sea level rise impacts.

South County Subregion Yes No Uncertain

**4. Are there climate-sensitive low-lying coastal habitats in your region?**

North Coast Subregion

The US Fish and Wildlife Service has designated several Critical Habitats throughout the North Coast Subregion; these federally recognized areas are considered essential for the survival of an endangered or threatened species. Critical Habitats along the North Coast have been recognized for the following species: Steelhead, California red-legged frog, Banded dune snail, Western snowy plover, Morro Bay kangaroo rat, and Tidewater goby. Morro Bay Estuary, in particular, is home to multiple fully protected species and is one of 28 areas protected through the EPA’s National Estuary Program.

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal habitats in this region.

North County Subregion Yes No Uncertain

South County Subregion

The coastal area of the South County Subregion also contains several Critical Habitats. Endangered and threatened species dependent on coastal habitats along the South Coast include Tidewater goby, Steelhead, La Graciosa thistle, and Western snowy plover (“ECOS”). Pismo Beach is also home to a Monarch Butterfly Grove – a species which is currently under review for protection under the Endangered Species Act (“Monarch butterfly”).

South County Subregion Yes No Uncertain

**5. Are there areas in your region that currently flood during extreme high tides or storm surges?**

North Coast Subregion

During king tides, the water level in Morro Bay is just inches below docks and waterfront restaurants. Many popular coastal areas in Morro Bay State Park are completely underwater during king tides. Communities in Los Osos have also experienced flooding during king tides. During previous storm surges, Pico Creek lagoon has experienced salt water intrusion.

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal areas in this subregion.

North County Subregion Yes No Uncertain

South County Subregion

Pismo Beach experienced flooding during storm surges in 2016 that resulted in closing the pier (KSBY). During king tides, beaches and coastal habitats in Pismo Beach experience flooding. In the past, storm events have caused flooding of the Oceano Lagoon and Highway 1 in Oceano.

South County Subregion Yes No Uncertain

**6. Is there land subsidence in the coastal areas of your region?**

The only land subsidence that has been observed in the coastal areas of San Luis Obispo County occurred in and around Oceano due to the December 2003 San Simeon Earthquake. The land subsidence was a result of liquefaction during shaking by the earthquake.

North Coast Subregion

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**7. Do tidal gauges along the coastal parts of your region show an increase over the past several decades?**

North County Subregion

It can be assumed that sea level trends in the North County Subregion are similar to those studied at Port San Luis and other surrounding areas. Nearby studies indicate the mean sea level is increasing along California’s central coast (“Sea Level Trends”).

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal areas in this subregion.

North County Subregion Yes No Uncertain

South County Subregion

According to NOAA’s Tides and Currents Sea Level Trends gauge for Port San Luis, the change in mean sea level is 0.84 mm/year with a 95% confidence interval. This calculation is based off data from 1945 to 2016 and is equivalent to a change of 0.28 feet in 100 years (“Sea Level Trends”).

South County Subregion Yes No Uncertain

## Flooding

### **1. Does critical infrastructure in your region lie within the 200-year floodplain? DWR's best available floodplain maps are available at:**

[http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best\\_available\\_maps/](http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/).

No areas in the region are within the 200-year floodplain.

#### North Coast Subregion

North Coast Subregion      Yes    No    Uncertain

#### North County Subregion

North County Subregion      Yes    No    Uncertain

#### South County Subregion

South County Subregion      Yes    No    Uncertain

### **2. Does part of your region lie within the Sacramento-San Joaquin Drainage District (SSJDD)?**

No areas in the region are within the SSJDD.

#### North Coast Subregion

North Coast Subregion      Yes    No    Uncertain

#### North County Subregion

North County Subregion      Yes    No    Uncertain

#### South County Subregion

South County Subregion      Yes    No    Uncertain

### **3. Does aging critical flood protection infrastructure exist in your region?**

#### North Coast Subregion

Two 1940-era Chorro Creek bridges within the California Men's Colony (CMC) are susceptible to collapse and/or obstruction from high water flows and flood debris leading to flooding and restricted access to the West Facility of CMC. Additionally, the Chorro Dam and spillway are aging.

North Coast Subregion      Yes    No    Uncertain

#### North County Subregion

Old and damaged drainage projects and flood protection infrastructure are present throughout the North County Subregion leaving the area vulnerable to flooding.

North County Subregion      Yes    No    Uncertain

South County Subregion

Much of the City of San Luis Obispo’s downtown corridor has creeks and waterways with aging infrastructure. The Arroyo Grande Creek Channel Levee was constructed in 1961 to reduce flooding in the area (SLO Flood Control District). The Diablo Canyon Nuclear Power Plant located along the coast has critical flood protection infrastructure. The flood control gates on Oceano Lagoon are aging.

South County Subregion                    Yes    No    Uncertain

**4. Have flood control facilities (such as impoundment structures) been insufficient in the past?**

North Coast Subregion

Flood control and drainage studies were completed by RMC, Inc. for several communities in the North Coast Subregion in 2004. The study in Cambria revealed there were insufficient underground drainage facilities and improved organization and maintenance of the area’s flood control facilities was necessary (“Cambria” i). In Cayucos, a lack of initial drainage infrastructure when development began was identified as a major reason for the lack of necessary drainage facilities and frequent street flooding (“Cayucos” i). Another study done in 1997 determined that development in Los Osos without rerouting of drainage facilities had led to poor flood control in the area (Engineering Development Associates ES-1). San Simeon lacks an adequate storm drainage system; private storm drains currently provide most of the flood protection.

North Coast Subregion                    Yes    No    Uncertain

North County Subregion

A study by RMC, Inc. showed that the railroad in San Miguel was preventing runoff to the Salinas River and causing flooding (“San Miguel” ii). Additionally, a lack of curbs and gutter systems were contributing to road flooding (“San Miguel” i). In Santa Margarita, inadequate culverts and drainage structures blocked by sedimentation and debris resulted in flood risks (“Santa Margarita” i). The Templeton Drainage and Flood Control Study completed in 2014 identified several insufficient flood control facilities, including culverts along Highway 101, Main Street, and Arizona Crossing as well as restricted conveyance capacity in the Toad Creek Channel due to vegetation and sedimentation (13-16).

North County Subregion                    Yes    No    Uncertain

South County Subregion

RMC, Inc. performed flood control and drainage studies in 2004 for several communities in the South County Subregion. The Nipomo study revealed Mesa area flooding was due to development locking existing runoff flow paths and flooding in Olde Towne was the result of insufficient culverts (“Nipomo” i-ii). In Oceano, the study found stormwater was not considered during the community’s initial development and that resulted in insufficient drainage facilities and frequent flooding of roads (“Oceano” i). Additionally, the Arroyo Grande Creek Channel Levee was breached in 2001 and hundreds of acres were flooded (SLO Flood Control District).

South County Subregion                    Yes    No    Uncertain

**5. Are wildfires a concern in parts of your region?**

There are areas within all three subregions determined as Very High Fire Hazard Severity Zones by Cal Fire. Additionally, the Region does not have an adequate system for clearing dead trees, snags, piles of limbs, wood chips, etc.

North Coast Subregion

San Simeon lacks adequate fire protection for homes and businesses. There is not enough water storage nor fire flow to protect structures. The West Facility of the California Men’s Colony is a 1940-era Army Hospital composed of highly flammable wooden materials and is located adjacent to areas susceptible to wildfire.

North Coast Subregion            Yes    No    Uncertain

North County Subregion

North County Subregion            Yes    No    Uncertain

South County Subregion

South County Subregion            Yes    No    Uncertain

**Ecosystem and Habitat Vulnerability**

**1. Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?**

Increased sedimentation has been witnessed throughout the County and can cause shallower and warmer water, and in some cases, loss of estuaries.

North Coast Subregion

The Morro Bay estuary salt marsh is a critical habitat that has already been impacted by sedimentation and effects will likely be complicated by sea level rise. Morro Bay shorebird habitats and eelgrass beds have been identified as at-risk of these disrupting effects. Many species including snowy plovers, least terns, brown pelicans, and brant are expected to lose habitat and resources (Koopman 31). Additionally, Steelhead, California red-legged frog, Morro shoulderband snail, and Morro kangaroo rat Critical Habitats in the North Coast are vulnerable to the effects of erosion and sedimentation (“ECOS”).

North Coast Subregion            Yes    No    Uncertain

North County Subregion

The Salinas River has already been impacted by increased sedimentation (Koopman 31). This sedimentation has degraded riparian habitats including areas designated as a Critical Habitat for Steelhead and California red-legged frog and supports numerous other special status species (“ECOS”).

North County Subregion            Yes    No    Uncertain

South County Subregion

Increased sedimentation and coastal erosion could disrupt Critical Habitats for Steelhead, California red-legged frogs, Western snowy plover, and La Graciosa thistle in the South County (Koopman 31). The Pismo Beach area is especially at risk of coastal erosion and flooding.

South County Subregion            Yes    No    Uncertain



**2. Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?**

North Coast Subregion

Morro Bay Estuary is an important coastal habitat supporting a diverse community of species, many of which have special species status, and is dependent on seasonal flow patterns (US-LT RCD). Morro Bay estuary is impacted by changes in freshwater flow. Understanding of specific impacts is limited, but the Morro Bay National Estuary Program is currently researching and monitoring impacts on eelgrass. Several other river and stream mouths along the North Coast are dependent on seasonal flow patterns.

North Coast Subregion            Yes    No    Uncertain

North County Subregion

There are no coastal areas in this subregion.

North County Subregion            Yes    No    Uncertain

South County Subregion

San Luis Obispo Creek, Pismo Creek, and Arroyo Grande Creek all form estuarine habitats dependent on seasonal flows and that support federally protected species (US-LT RCD).

South County Subregion            Yes    No    Uncertain

**3. Do climate-sensitive fauna or flora populations live in your region?**

North Coast Subregion

The elfin forests and estuary in Morro Bay are sensitive to climate change impacts, such as changes in fog, sea level rise, sedimentation, and drought (Koopman 31). These areas support various special status species that are at great risk of climate change impacts. Pine forests and woodlands along the North Coast are at risk of changing conditions that could make current habitats unsuitable, and their isolation from other suitable areas makes them especially vulnerable (Koopman 35). Steelhead trout are sensitive to increased sedimentation and declining stream flows.

North Coast Subregion            Yes    No    Uncertain

North County Subregion

Carrizo Plain supports several climate-sensitive species, such as Pronghorn and Tule elk, which are at risk of declining grassland productivity and isolation from other suitable habitats (Koopman 37). The North County Subregion is also home to various endangered and threatened species that are at high risk of climate change impacts; these species include Steelhead, California tiger salamander, California red-legged frog, Longhorn fairy shrimp, Vernal pool fairy shrimp, Purple amole, and California condor (“ECOS”).

North County Subregion            Yes    No    Uncertain

South County Subregion

Steelhead and other protected species found in the coastal areas of the subregion are at risk of various climate change impacts that threaten the conditions required for suitable habitat (“ECOS”). Additionally, climate change effects could put new species at risk. For instance, higher temperatures and poor water quality could cause sea lions to be more susceptible to diseases (Koopman 31).

South County Subregion Yes No Uncertain

**4. Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?**

North Coast Subregion

*Endangered Species:* Smith’s butterfly, Chorro Creek bog thistle, California clapper rail, Morro Bay kangaroo rat, Morro shoulderband snail, Tidewater goby, California seablite, Indian Knob mountain-balm, Marsh sandwort, Salt marsh bird’s-beak, Southern Steelhead (US-LT RCD).

*Threatened Species:* Steelhead, California red-legged frog, Monterey spineflower, California black rail (CA), Beach spectaclepod (CA), Morro manzanita, Western snowy plover, Southern sea otter (US-LT RCD).

North Coast Subregion Yes No Uncertain

North County Subregion

*Endangered Species:* Blunt-nosed leopard lizard, Giant kangaroo rat, San Joaquin kit fox, Camatta Canyon amole, Kern mallow, Least Bell’s vireo, California condor, California jewel-flower, San Joaquin woollythreads, Longhorn fairy shrimp, Tipton kangaroo rat, Bald Eagle (CA), Santa Lucia mint (CA) (US-LT RCD).

*Threatened Species:* Bank swallow (CA), Swainson’s hawk (CA), California red-legged frog, Vernal pool fairy shrimp, Spreading navarretia, Nelson’s antelope squirrel (CA), California tiger salamander, Kern primrose sphinx moth, Camatta Canyon amole, Santa Lucia purple amole (CA), Steelhead (US-LT RCD).

North County Subregion Yes No Uncertain

South County Subregion

*Endangered Species:* California least tern, Tidewater goby, Gambel’s water cress, La Graciosa thistle, Marsh sandwort, Nipomo Mesa lupine, Pismo clarkia, California condor, Blunt-nosed leopard lizard, Giant kangaroo rat, Longhorn fairy shrimp, San Joaquin kit fox, California jewel-flower, Kern mallow, San Joaquin woollythreads, Chorro Creek bog thistle, Indian Knob mountain-balm, Pismo clarkia (US-LT RCD).

*Threatened Species:* California black rail (CA), California red-legged frog, California tiger salamander, Steelhead, Western snowy plover, Beach spectaclepod (CA), Surf thistle, Kern primrose sphinx moth, Nelson’s antelope squirrel (CA), Swainson’s hawk (CA), Vernal pool fairy shrimp, Western snowy plover, Morro manzanita, Surf thistle (US-LT RCD).

South County Subregion Yes No Uncertain

**5. Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?**

In 2015, the commercial fishing industry in San Luis Obispo County had a total revenue of \$10 million (County of SLO).

North Coast Subregion

Morro Bay State Park, Montana de Oro State Park, San Simeon Beach, and other coastal areas attract tourists, support water-related recreation, and are threatened by sea level rise. Morro Bay economic

activities include oyster farming (2 oyster farms), recreational and commercial fishing, fishing-related, fish markets and restaurants that sell local fish. There are two shops in Morro Bay dedicated to stand-up paddling, as well as numerous kayak rentals shops and three bay tour boat operators. There is a growing number of charter boats that do private sailing and fishing charters. Wildlife viewing also generates economic activity, such as the Morro Bay Winter Bird Festival. Whale Rock and Chorro Reservoirs also support fishing and other recreation activities.

North Coast Subregion Yes No Uncertain

North County Subregion

Santa Margarita Lake supports water recreation activities. The Salinas River and other riparian habitats also support tourism and water recreation.

North County Subregion Yes No Uncertain

South County Subregion

Avila Beach, Pismo Beach, Oceano Dunes, and other coastal regions in the South County have a strong tourism industry. Whale Rock Reservoir also supports water-related recreation.

South County Subregion Yes No Uncertain

**6. Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?**

Stillwater Sciences completed an evaluation in 2014 of minimum instream seasonal flows required to sustain aquatic habitats for steelhead. This study determined minimum seasonal flow values required to support Steelhead habitats at 63 different analysis points across the Region (Stillwater Sciences 23-24).

North Coast Subregion

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**7. Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?**

Coastal storms bringing storm surges, waterspouts, and flooding are all possible and occur somewhat regularly along the San Luis Obispo County coastline. These events are often linked to atmospheric rivers.

North Coast Subregion

Areas at risk: Estero Bluffs State Park, Morro Bay National Estuary, Morro Bay State Park, William Randolph Hearst Memorial State Beach, San Simeon State Beach, Moonstone Beach, Cayucos Beach, Cayucos State Beach, Morro Strand State Beach, Harmony Headlands State Beach (SLO 2014 IRWMP).

North Coast Subregion Yes No Uncertain

North County Subregion

There are no coastal areas in this subregion.

North County Subregion Yes No Uncertain

South County Subregion

Areas at risk: Montana de Oro State Park, Port San Luis Pier and Beach, Avila State Beach, Pismo State Beach, Oceano Dunes State Vehicles Recreation Area, Guadalupe-Nipomo Dunes wetland complex (SLO 2014 IRWMP).

South County Subregion Yes No Uncertain

**8. Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change**

<https://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/ThreatsForestHealth/Climates/CI-Endangered%20Species%20Coalition%20Top%20Ten.pdf>

The Region does not include any of the Top 10 Places from this article.

North Coast Subregion

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**9. Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?**

North Coast Subregion

Santa Rosa Creek experiences fish passage barriers due to infrastructure changes (SLO 2014 IRWMP). There are many fish passage barriers in the Morro Bay watershed, including the South Bay Boulevard bridge. The Chorro Reservoir Dam is a fish passage barrier impacting steelhead. Additionally, other infrastructure throughout Chorro Creek creates barriers to fish passage.

North Coast Subregion Yes No Uncertain

North County Subregion

The Salinas and Estrella Rivers are important corridors for aquatic and riparian species movement but can be disrupted by declining seasonal low flows.

North County Subregion Yes No Uncertain

South County Subregion

Arroyo Grande Creek experiences fish passage barriers, and Nipomo-Suey Creeks have habitat fragmentation due to development (SLO 2014 IRWMP).

South County Subregion Yes No Uncertain

**Hydropower**

**1. Is hydropower a source of electricity in your region?**

Hydropower is not a source of electricity for San Luis Obispo County.

North Coast Subregion

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

South County Subregion Yes No Uncertain

**2. Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?**

North Coast Subregion

North Coast Subregion Yes No Uncertain

North County Subregion

North County Subregion Yes No Uncertain

South County Subregion

The City of San Luis Obispo is exploring options for hydropower.

South County Subregion Yes No Uncertain

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**J.2 CLIMATE CHANGE ADAPTATION AND MITIGATION MEMORANDUM**

## San Luis Obispo County IRWMP Climate Change Update – Adaptation and Mitigation Memorandum

*This draft technical memo was prepared by County of San Luis Obispo Public Works staff in collaboration with Water Systems Consulting, Inc (WSC) to develop the climate change vulnerability assessment for the 2018 IRWM Plan update. The Department of Water Resources (DWR) awarded grant funding from Proposition 1 to support this planning effort.*

### 1 Purpose

The purpose of this memorandum (memo) is to provide information relevant to climate change adaptation and mitigation as part of the San Luis Obispo County (County) Integrated Regional Water Management (IRWM) Plan (IRWMP) climate change update. Water Systems Consulting, Inc. (WSC) worked with the County and the IRWM Regional Water Management Group (RWMG) to identify data and recommended strategies to satisfy the requirements of the California Department of Water Resources’ (DWR’s) 2016 IRWM Grant Program Guidelines (1) and the Climate Change Handbook for Regional Water Planning (Climate Change Handbook), Section 4 and Appendix B (2). This memo builds on the Climate Change Vulnerability Assessment document developed by WSC and the County. This document was distributed on January 4, 2018 as a companion document to both the vulnerability assessment survey and the workshop materials for the January 31, 2018 RWMG meeting. Furthermore, this memo builds on the prioritized vulnerabilities (Table A-1) established by the RWMG in the January 31, 2018 and March 7, 2018 workshops.

**Table A-1. Prioritized Climate Change Vulnerabilities**

Category	Identified Vulnerability	Priority
Water Demand 1	Water-dependent industries	High
Water Demand 2	Seasonal water demand	Medium
Water Demand 3	Climate-sensitive crops	Medium
Water Demand 4	Drought-sensitive groundwater basins	Very High
Water Demand 5	Communities with water curtailment efforts	Medium
Water Demand 6	Insufficient instream flows	Very High
Water Supply 1	Water supply from snowmelt	Low
Water Supply 2	Water supply from coastal aquifers	Very High
Water Supply 3	Inability to store carryover supply surpluses	High
Water Supply 4	Drought-sensitive water systems	Very High
Water Supply 5	Invasive species management issues	Medium
Water Quality 1	Water bodies in areas at risk of wildfire	High
Water Quality 2	Water bodies impacted by eutrophication	High
Water Quality 3	Declining seasonal low flows	Very High
Water Quality 4	Water bodies with restricted beneficial uses	Medium
Water Quality 5	Water quality impacted by rain events	High
Sea Level Rise 1	Coastal erosion	Medium
Sea Level Rise 2	Coastal structures	Low
Sea Level Rise 3	Coastal infrastructure in low-lying areas	Medium
Sea Level Rise 4	Low-lying coastal habitats	Medium
Sea Level Rise 5	Flooding due to high tides and storm surges	Medium
Sea Level Rise 6	Coastal land subsidence	Low

Category	Identified Vulnerability	Priority
Sea Level Rise 7	Rising sea levels	Medium
Flooding 1	Aging flood protection infrastructure	High
Flooding 2	Insufficient flood control facilities	High
Flooding 3	Increased flood risk due to wildfires	Very High
Ecosystem and Habitat 1	Aquatic habitats at risk of erosion and sedimentation	Medium
Ecosystem and Habitat 2	Estuarine habitats dependent on freshwater flow patterns	High
Ecosystem and Habitat 3	Climate-sensitive fauna and flora	Medium
Ecosystem and Habitat 4	Changes in species distributions	High
Ecosystem and Habitat 5	Aquatic habitats used for economic activities & recreation	Low
Ecosystem and Habitat 6	Environmental flow requirements	High
Ecosystem and Habitat 7	Exposed coastal ecosystems	Low
Ecosystem and Habitat 8	Fragmented aquatic habitats	Medium
Hydropower 1	Future hydropower plans	Low

It is anticipated that the County and RWMG will use this memo to inform updates to various sections of the IRWMP including, but not limited to: Section E Goals and Objectives, Section F Resource Management Strategies, and Section G Project Solicitation and Prioritization.

## 2 Adaptation and Mitigation Strategies

### 2.1 Objectives to Address Climate Change

As required by the Prop 1 IRWM Program Guidelines, the IRWM Plan must include consideration of objectives and performance measures that address the potential effects of climate change. The following five (5) climate change adaptation and mitigation requirements are addressed by plan objectives and corresponding performance measures as shown in

Table A-2 and Table A-3.

1. Address adaptation to changes in the amount, intensity, timing, quality, and variability of runoff and recharge.
2. Consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.
3. Reduce energy consumption, especially the energy embedded in water use, and ultimately reducing greenhouse gases (GHG) emissions.
4. Consider, where practical, the strategies adopted by California Air Resources Board (CARB) in its AB 32 Scoping Plan, when evaluating different ways to meet IRWM plan objectives.
5. Consider options for carbon sequestration and using renewable energy where such options are integrally tied to supporting IRWM Plan objectives.

The objectives must be measurable by some practical means so achievement can be monitored. Quantitative and qualitative measurements for the IRWM Plan objectives are discussed in IRWMP Section E Goals and Objectives. The plan objectives and corresponding measures shown in

Table A-2 directly address climate change.

Table A-2. Climate Change Objectives and Measures<sup>1</sup>

OBJECTIVES	QUALITATIVE MEASUREMENT	QUANTITATIVE MEASUREMENT
<i>Water Supply Objective #8:</i> Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.		Existence of County-wide planning studies that identify greenhouse gas emission sources and regional vulnerabilities, and forecast the required changes in water supplies and water supply infrastructure as a result of climate change.
<i>Ecosystem and Watershed Objective #7:</i> Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region’s watersheds and ecosystems.	Existence of monitoring and research programs that identify the long-term effects of climate change and greenhouse gas emissions on the Region’s watersheds and ecosystems.	

<sup>1</sup>

Table A-2 is adapted from 2014 IRWMP Tables E-6 and E-7

In addition to the two direct climate change objectives above, the five (5) climate change adaptation and mitigation requirements are addressed by plan objectives described in Table A-3 below. Qualitative and quantitative measurements for each plan objective are described in IRWMP Section E.4 Goals and Objectives Metrics.

Table A-3. Plan Objectives Related to Climate Change Requirements

Climate Change Adaptations and Mitigation Requirements <sup>1</sup>		Adapting to changes in runoff and recharge	Consider the effects of sea level rise on water supply conditions	Reduce energy consumption	Strategies of CARB Scoping Plan <sup>3</sup>	Options for carbon sequestration and renewable energy
Water Supply	Maximize accessibility of water			●		●
	Adequate water supply		●	●		●
	Sustainable potable water for rural	●	●		●	
	Sustainable water for agriculture	●	●		●	
	Water system WQ improvements		●			
	Implement water management Plans	●	●	●	●	●

Climate Change Adaptations and Mitigation Requirements <sup>1</sup>		Adapting to changes in runoff and recharge	Consider the effects of sea level rise on water supply conditions	Reduce energy consumption	Strategies of CARB Scoping Plan <sup>3</sup>	Options for carbon sequestration and renewable energy
	Conservation/water use efficiency	●	●	●	●	●
	Plan for vulnerabilities of water supply	●	●	●	●	●
	Diverse supply (recycled, desalination)	●	●	●	●	
	Support Watershed Enhancement	●	●			
Ecosystem and Watersheds	Understand watershed needs	●	●			●
	Conserve balance of ecosystem	●	●			●
	Reduce contaminants	●	●			
	Public involvement and stewardship		●			●
	Protect endangered species		●			●
	Reduce impacts of invasive species	●	●			●
	Climate change in ecosystems	●	●	●	●	●
Groundwater	Understand GW issues and conditions	●	●		●	
	Support local GW management	●	●	●	●	●
	Further local basin management objectives	●	●		●	●
	CASGEM Program	●	●			
	Groundwater recharge	●	●			
	Protect and improve GW quality	●	●			
Flood Management	Understand flood management needs	●	●			
	Promote low impact development	●		●	●	●
	Enhance natural recharge	●		●	●	●
	Improve infrastructure and operations	●	●	●	●	
	Implement multiple-benefit projects	●	●	●	●	●
	Restore streams, rivers and floodplains	●	●			●
	Support DAC flood protection	●	●			
Water Resources Management	Public outreach on IRWM implementation		●	●	●	
	Funding for IRWM implementation	●	●	●	●	
	Support local control			●	●	
	Consider property owner rights					
	Agency alignment on water resource efforts	●	●	●	●	●
	Collaboration between urban, rural, and ag	●	●	●	●	●
	DAC support and education		●	●	●	
	Promote public education programs	●		●	●	

- Notes:
1. Abbreviated requirements from Prop 1 IRWM Guidelines are described above.
  2. Each row represents an abbreviated Objective.
  3. The Global Warming Solutions Act of 2006 (Assembly Bill 32) authorized the CARB to develop a plan that includes 18 strategies for reducing carbon emissions statewide. The Scoping Plan addresses water management activities that require energy use and GHG emissions. The goals of the Scoping Plan include developing more reliable water supplies provided by a sustainably managed water system with GHG reductions, water conservation, energy efficiency, and increasing renewable energy.

The County has prioritized vulnerabilities through stakeholder surveys, summarized in Table A-1. The County identified objectives that address vulnerabilities ranked “Very High” in

Table A-4.

Table A-4. Plan Objectives Related to Climate Change Requirements

IRWM Plan Objectives <sup>2</sup>		Top Prioritized Vulnerabilities <sup>1</sup>					
		Drought-sensitive groundwater basins	Insufficient instream flows	Water supply from coastal aquifers	Drought-sensitive water systems	Declining seasonal low flows	Increased flood risk due to wildfires
Water Supply	Maximize accessibility of water	●	●	●	●	●	
	Adequate water supply	●	●	●	●	●	
	Sustainable potable water for rural	●	●	●	●	●	
	Sustainable water for agriculture	●	●		●	●	
	Water system WQ improvements	●	●	●			
	Implement water management Plans	●	●	●	●	●	
	Conservation/water use efficiency	●	●	●	●	●	
	Plan for vulnerabilities of water supply	●	●	●	●	●	●
	Diverse supply (recycled, desalination)	●	●	●	●	●	
	Support Watershed Enhancement	●	●	●	●	●	●
Ecosystem and Watersheds	Understand watershed needs	●	●	●	●	●	●
	Conserve balance of ecosystem	●	●	●	●	●	●
	Reduce contaminants	●	●	●	●		
	Public involvement and stewardship				●		●
	Protect endangered species		●	●			●
	Reduce impacts of invasive species						●
	Climate change in ecosystems	●	●	●	●	●	●
Groundwater	Understand GW issues and conditions	●	●	●	●	●	
	Support local GW management	●	●	●	●	●	
	Further local basin management objectives	●	●	●	●	●	●
	CASGEM Program	●	●	●	●	●	
	Groundwater recharge/banking	●	●	●	●	●	
	Protect and improve GW quality	●	●	●	●	●	
Flood Management	Understand flood management needs		●				●
	Promote low impact development	●		●	●	●	●
	Enhance natural recharge	●		●	●	●	
	Improve infrastructure and operations	●	●	●	●	●	●
	Implement multiple-benefit projects	●	●	●	●	●	●
	Restore streams, rivers and floodplains	●	●	●	●	●	●
	Support DAC flood protection						●
Water Resources Management	Public outreach on IRWM implementation	●	●	●	●	●	●
	Funding for IRWM implementation	●	●	●	●	●	●
	Support local control				●		●
	Consider property owner rights	●	●	●			●
	Agency alignment on water resource efforts	●	●	●	●	●	●
	Collaboration between urban, rural, and ag	●	●	●	●	●	●
	DAC support and education	●	●	●	●	●	●
	Promote public education programs	●	●	●	●	●	●

Notes: 1. Prioritized vulnerabilities ranked “Very High” by stakeholder surveys shown in Table A-1.  
 2. Each row represents an abbreviated Objective.

### 3 Resource Management Strategies

The Prop 1 IRWM guidelines require consideration of the California DWR resource management strategies (RMS) in selecting water management projects. RMS are defined by the California Water Plan (CWP) as a project, program, or policy that local agencies can implement to manage water and related resources to meet integrated plan objectives. RMS that meet the region’s objectives have been selected and aligned with a list of IRWM Plan Water Management Strategies (WMS) as part of the IRWMP Section F. Because the WMS and RMS are aligned, they are collectively referred to as RMS in the remainder of this memo. Section F of the IRWMP describes how each RMS, addresses the plan objectives. As shown in IRWMP Table F-2, many of the RMS that were included in the County’s IRWMP apply to various objectives, shown in Table A-3, addressing climate change vulnerability adaptation and mitigation.

### **3.1 Additional RMS**

The California Water Plan (CWP) 2013 Update includes three additional RMS that will be considered for climate change adaptation and mitigation strategies. The additional RMS are discussed below as they relate to climate change vulnerabilities. Further information and guidance for implementing these strategies can be found in the CWP 2013 Update Volume 3 (3).

#### *Sedimentation Management*

Sedimentation management is expected to become increasingly challenging as climate change causes shifts in storm events, vegetative species, soil exposure, and flooding. Sea level rise will cause increased erosion and coastal flooding. Sediment management can improve resiliency and protect the regions vulnerable resources. Recommended project elements include: floodplain restoration, replenishing soil for eroding beaches, marshes, and agricultural lands, storm surge protection, landscape and vegetation management (3).

Sedimentation management can result in high GHG emissions and provides an opportunity to use renewable energy in sediment management operations to mitigate GHG emissions. There is also potential for sequestrations in the reuse of dredged sediment in habitat restoration (3).

#### *Outreach and Engagement*

Climate change can be a polarizing and confusing topic for communities. Communicating about climate change is necessary for making informed local water and land use planning decisions to protect the community’s vulnerable resources. Outreach and engagement can improve communication with the public, governmental agencies, industry, businesses, and nonprofit organizations about the vulnerability of the County’s resources to climate change. The goal of this strategy is to educate and build community commitment to decisions that address climate change. Recommended project elements include: an outreach and education program, building community relationships, solicit community input, improve accessibility of information, and improve monitoring.

Mitigation is supported by educating the public on mitigation strategies for climate change and the importance of reducing their community’s carbon footprint. Education has a central role in mitigating climate change. Public awareness, exchange of information, and education will foster empowerment and ownership among the public and convey the importance of their role in mitigating climate change. Developing K-12 outreach programs to educate local youth to form lasting behaviors and awareness can also play a key role in mitigation (3).

#### *Water and Culture*



Climate change impacts are expected to affect water-dependent resources that currently support cultural activities. Changes to water resources and ecosystems will affect recreation and spiritual practices associated with water as well as historic preservation, with important cultural sites at greatest risk. Cultural practices, including historic concepts of water rights, dependence on fossil fuels, and other lifestyle practices have an impact on water management and the ability to adapt and mitigate climate change. Healthy and resilient ecosystems can reduce impacts of climate change. Recommended project elements include: high-elevation meadow restoration, managing stormwater, groundwater management, and floodplain restoration. Projects should consider the values and needs of tribal and cultural groups that rely on water resources for their cultural and spiritual practices.

Mitigation can be improved by providing outreach, financial and technical assistance to protect cultural resources and by increasing understanding of carbon sequestration, water conservation and water use efficiency. Other items that could be considered include ways to:

- Reduce GHG emissions related to water project impacts on cultural resources.
- Identify tribal opportunities for water recycling and renewable energy and promote understanding of cultural practices.
- Provide benefits and incentives for tribal water and energy-use efficiency projects (3).

### 3.2 Adaptation Strategies

Table A-5 summarizes the ability of WMS to address climate change vulnerabilities from Table A-1. The WMS that are applicable to climate change adaptation are described fully in IRWMP Section F.

Table A-5. Applicability of RMS to Climate Change Adaptation to Vulnerabilities

2014 IRWM Resource Management Strategies	Vulnerabilities						
	Water Demand	Water Supply	Water Quality	Sea Level Rise	Flooding	Ecosystem and Habitat	Hydropower
Ecosystem restoration			•	•	•	•	
Drinking water treatment and distribution	•	•	•	•		•	
Improve flood management				•	•	•	
Conjunctive management and groundwater storage	•	•	•	•			
Pollution prevention		•	•		•	•	
Agricultural water use efficiency	•	•				•	
Urban water use efficiency	•	•				•	
Matching water quality to use			•	•	•	•	
Salt and salinity management			•	•		•	
Recycle municipal water		•					
Desalination		•		•			
Water transfers		•					

Land use planning and management	•		•	•	•	•	
Surface storage – CALFED/State	•	•					
Surface storage – Regional/Local	•	•					
Watershed management	•	•	•	•	•	•	
Water transfers		•					
Conveyance – Regional/Local	•	•					
System reoperation	•	•	•	•	•	•	•
<b>Resource Management Strategies Excluded from 2014 IRWM</b>	<b>Water Demand</b>	<b>Water Supply</b>	<b>Water Quality</b>	<b>Sea Level Rise</b>	<b>Flooding</b>	<b>Ecosystem and Habitat</b>	<b>Hydropower</b>
Conveyance – Delta		•					
Precipitation enhancement		•					
Groundwater remediation/aquifer remediation		•	•	•			
Urban stormwater runoff management		•	•		•	•	
Agricultural lands stewardship	•		•		•	•	
Forest management		•	•		•	•	
Recharge area protection		•	•		•		
Economic incentives	•	•				•	
Water-dependent recreation		•	•		•	•	
Crop idling for water transfers	•	•	•				
Irrigated land retirement		•	•				
<b>California Water Plan 2013 Update RMS</b>	<b>Water Demand</b>	<b>Water Supply</b>	<b>Water Quality</b>	<b>Sea Level Rise</b>	<b>Flooding</b>	<b>Ecosystem and Habitat</b>	<b>Hydropower</b>
Sediment management		•	•	•	•	•	
Outreach and engagement	•		•			•	•
Water and culture	•		•			•	

### 3.3 Mitigation Strategies

Table A-6 summarizes the ability of WMS to address mitigation of GHG. The WMS that are applicable to climate change mitigation are described fully in IRWMP Section F. The major components of climate change mitigation strategies are improving energy efficiency, reducing emissions and carbon sequestration.

Table A-6. Applicability of RMS to GHG Mitigation

2014 IRWM Resource Management Strategies	GHG Mitigation		
	Energy Efficiency	Emissions Reduction	Carbon Sequestration
Ecosystem restoration			●
Drinking water treatment and distribution	●	●	●
Improve flood management			●
Conjunctive management and groundwater storage			
Pollution prevention		●	●
Agricultural water use efficiency	●	●	
Urban water use efficiency	●	●	
Matching water quality to use	●		●
Salt and salinity management		●	
Recycle municipal water	●	●	
Desalination			
Water transfers	●	●	
Land use planning and management	●	●	●
Surface storage – CALFED/State		●	
Surface storage – Regional/Local		●	
Watershed management	●	●	●
Drinking water treatment and distribution	●	●	●
Water transfers			
Conveyance – Regional/Local	●	●	
System reoperation	●	●	
<b>Resource Management Strategies Excluded from 2014 IRWM</b>	<b>Energy Efficiency</b>	<b>Emissions Reduction</b>	<b>Carbon Sequestration</b>
Conveyance – Delta	●	●	
Precipitation enhancement		●	
Groundwater remediation/aquifer remediation			
Urban stormwater runoff management	●	●	
Agricultural lands stewardship	●	●	●
Forest management			●
Recharge area protection			●
Economic incentives	●	●	●
Water-dependent recreation		●	
Crop idling for water transfers		●	
Irrigated land retirement			
<b>California Water Plan 2013 Update RMS</b>	<b>Energy Efficiency</b>	<b>Emissions Reduction</b>	<b>Carbon Sequestration</b>
Sediment management		●	●
Outreach and engagement		●	
Water and culture	●	●	●

## 4 Project Review Process

### 4.1 Climate Change Adaptation and Mitigation as Part of the Project Review Process

The requirements of the 2016 IRWM Guidelines include consideration of projects' contribution to climate change adaptation and mitigation, through reducing GHGs, compared to project alternatives as detailed below.

***Consider a project's contribution to climate change adaptation.***

- *Include potential effects of Climate Change on the region and consider if adaptations to the water management system are necessary.*
- *Consider the contribution of the project to adapting to identified system vulnerabilities to climate change effects on the region.*
- *Consider changes in the amount, intensity, timing, quality and variability of runoff and recharge.*
- *Consider the effects of sea level rise on water supply conditions and identify suitable adaptation measures.*

***Contribution of project in reducing GHGs compared to project alternatives.***

- *Consider the contribution of the project in reducing GHG emissions as compared to project alternatives*
- *Consider a project's ability to help the IRWM region reduce GHG emissions as new projects are implemented over the 20-year planning horizon.*
- *Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.*

It is anticipated that the IRWMP project review process described in IRWMP Section G will be amended to describe how the climate change vulnerabilities (Table A-1) as well as adaptation and mitigation strategies discussed in Section O will be considered when reviewing projects. WSC proposes updating the 2014 IRWMP climate change adaptation and mitigation ranking methodology by clarifying scoring criteria and addressing 2016 IRWM Guideline requirements as described in the remainder of Section O. The consideration of a project's contribution to climate change adaptation can be quasi-quantitatively evaluated (Section O) by assigning weighted points for the project's potential to adapt to vulnerabilities identified in Table A-1. The contribution of projects to climate change mitigation, specifically in reducing GHGs compared to project alternatives, can be quasi-quantitatively evaluated (Section O) by assigning weighted points for projects' potential to have a positive, neutral, or negative impact on climate change mitigation. As shown in Figure A-1, the scores for adaptation and mitigation could contribute to an overall climate change ranking for projects, which can then be incorporated into the overall scoring criteria for ranking projects (e.g., technical feasibility, ability to meet IRWMP goals and objectives, readiness to proceed, etc.).

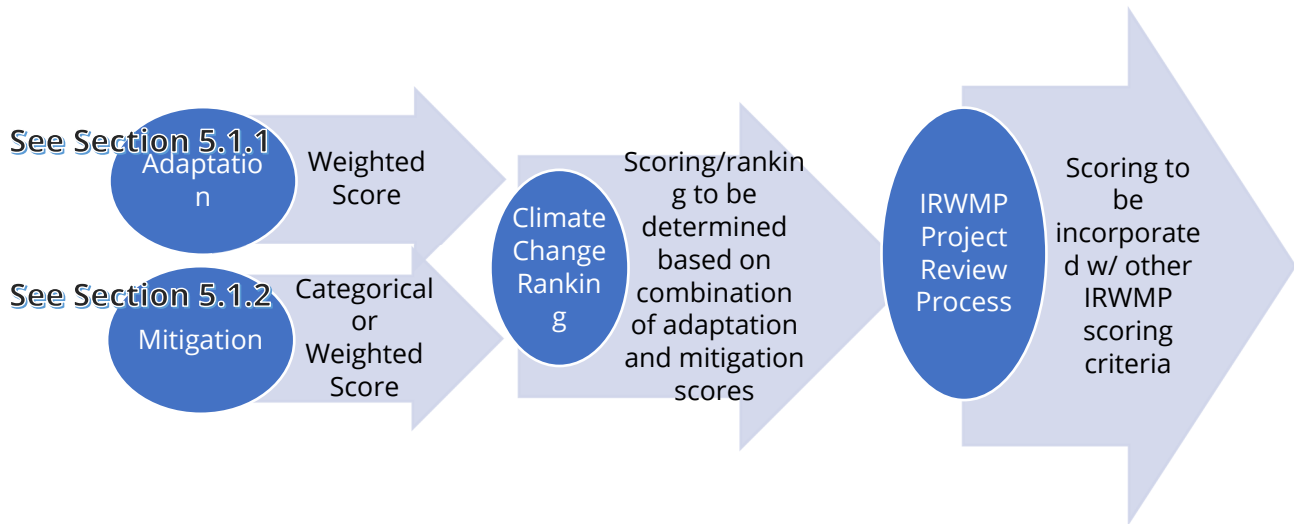


Figure A-1. Climate Change Ranking in Project Review Process

*Potential Climate Change Adaptation Scoring Framework*

WSC proposes the following methodology framework for the County to develop a flexible questionnaire and form as well as a revised project scoring process to meet the climate change adaptation requirements described in Section 0.

A potential climate change scoring framework could be developed by adapting the 2014 IRWMP process. For example, the “adaptation potential” could be assessed by assigning weighted points for each prioritized vulnerability. Each vulnerability could have its own weight (e.g., Very High[4], High[3], Medium[2], Low[1]), and the project could be assigned an adaptation potential score for each vulnerability (High[3 pt], Medium [2pt], Low[1 pt]). Then, the vulnerability weighting would be multiplied by the adaptation potential score to yield potential adaptation points. The scores for all projects could then be compared and ranked based on percentile placement. The points or ranking placement could be weighted and combined with a score from the mitigation scoring framework (Section 0) to establish an overall climate change ranking or score that could be weighted and incorporated with the other IRWMP project review process scoring criteria. See Figure A-2 for an illustration of this process.

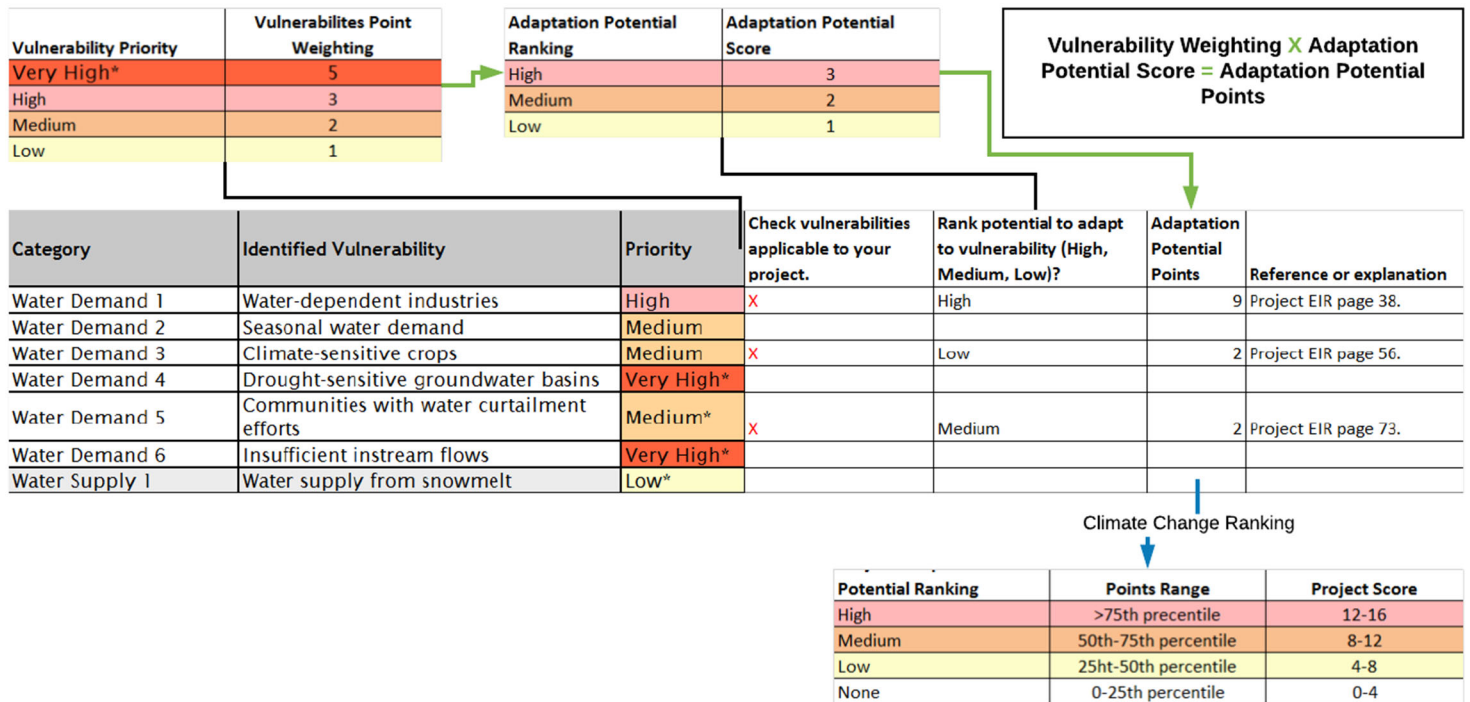


Figure A-2. Potential Methodology for Rating Climate Change Adaptation Scores for Projects

### Potential Climate Change Mitigation Scoring Framework

The 2014 IRWMP qualitatively considered GHG emissions mitigation potential through categorical assignments of “neutral”, “positive” and “negative” scores for mitigation. It is unclear how these categorizations contributed to a point score for the “Climate Change Rank” in IRWMP Table P-9. A potential climate change scoring framework could be developed by adapting the 2014 IRWMP process. The revised methodology should allow for the following:

1. Project proponents with little or no quantitative data can provide qualitative answers to questions.
2. Project proponents with some water usage data, but without energy intensity data, can use default energy intensity values for applicable steps of the water cycle.
3. Project proponents with agency-specific energy intensity data will be able to input their data to estimate GHG impacts. This is further described in the following sections.

WSC proposes the following methodology framework for the County to develop a flexible questionnaire and form as well as a revised project scoring process to meet the climate change mitigation requirements described in Section 0 and identified below in ***bold italic font***.

### 2016 IRWM Requirement: ***Consider the contribution of the project in reducing GHG emissions as compared to project alternatives***

WSC recommends addressing the project alternatives consideration by asking project applicants to consider alternatives when they are filling in project information. Additionally, applicants could provide information about a “baseline”, or no project, scenario. Comparison between projects within the region is inherent in the project review process already, but could be improved with a quantitative methodology as shown below in Section 0.

**IRWM Requirement: *Consider a project’s ability to help the IRWM region reduce GHG emissions as new projects are implemented over the 20-year planning horizon.***

WSC recommends addressing the 20-year requirement by asking project applicants to consider a 20-year planning horizon when filling in GHG information. Additionally, applicants could indicate if they anticipate GHGs emissions to differ over the 20-year period. If so, they could provide qualitative or quantitative descriptions of anticipated changes or use default tools and data. A potential framework to obtain this information is shown below.

1. County would add a narrative descriptor to the project solicitation form asking project proponents to consider a 20-year planning horizon when filling in GHG information.
2. Qualitative Assessment Questions/Actions for Applicants
  - a. Do you anticipate increases or decreases to GHGs within 20 years or beyond 20 years?
    - i. (Y/N)
    - ii. (Option Box for description)
3. Quantitative Assessment Questions/Actions for Applicants
  - a. Please provide quantified changes to GHGs if available from own sources or using default values (See Section 0)
  - b. other
4. Other Option for Applicants
  - a. Please provide additional relevant information (e.g. renewable energy, wetlands, reforestation, LID project reduction to peak stormwater flows to pumping station, thereby reducing embedded energy, etc.).

**IRWM Requirement: *Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.***

WSC recommends addressing the embedded energy requirement by asking project applicants to consider changes to embedded energy when entering information. Additionally, applicants could indicate if water use, energy efficiency, and/or GHG emissions are increased or decreased by the project. Applicants could indicate project increases or decreases groundwater production, local surface water, or SWP water from a “baseline” or “status quo” in order to determine some estimated increase or decrease in embedded energy/GHG with standardized metrics like those provided in Section 0. Applicants could also indicate information about renewable energy generation and any other GHG mitigation that is included in the project. A potential framework to obtain this information is shown below.

1. County would add a narrative descriptor to project solicitation form asking project proponents to consider changes to embedded energy when entering information
2. Qualitative Assessment Questions/Actions for Applicants
  - a. Do you anticipate increases or decreases to embedded energy due to your project as compared to the status quo?
    - i. (Y/N)
    - ii. (Option Box for description)
3. Quantitative Assessment Questions/Actions for Applicants
  - a. Please provide quantified changes to embedded energy if available from own sources or using default values (See Section 0)
4. Other option

- a. If previous do not apply or there are additional project components that will increase or decrease GHGs, please provide additional relevant information (e.g. renewable energy, wetlands, reforestation, LID project reduction to peak stormwater flows to pumping station, thereby reducing embedded energy, etc.).

*Energy Intensity and Embedded Energy Overview*

As mentioned in Section 0, project proponents could estimate changes to embedded energy and resulting GHG emissions using agency-specific data or default values. An overview of how embedded energy interacts with the water cycle is provided in the remainder of this section. A methodology to use agency or default data to assess energy intensity and GHG emissions is provided in Section 0.

The 2016 IRWM Guidelines include consideration of energy efficiency and reduction of GHG emissions, especially the energy embedded in water use. Reducing water usage and/or utilizing less energy-intensive water supplies will reduce embedded energy use, which can have a significant impact on reducing GHG emissions.

Figure A-3 provides an overview of the water cycle. Energy is used throughout the water cycle to extract, convey, treat and distribute water. Energy is also used to collect and treat wastewater, and to produce and distribute recycled water. The amount of energy required to accomplish each of the steps on a per-unit basis is called energy intensity. Energy use in the water sector is predominantly in the form of electricity; thus this discussion and subsequent analysis is focused on electrical energy intensity (e.g. kilowatt-hours per acre-ft [kWh/AF]). Energy intensity is calculated for each facility but can be aggregated to estimate the total energy intensity of water and wastewater services. Energy intensity can vary significantly from agency to agency, and even within an agency; thus utilizing appropriate facility-specific and/or agency-specific energy intensity values will provide the most accurate estimate of embedded energy use.

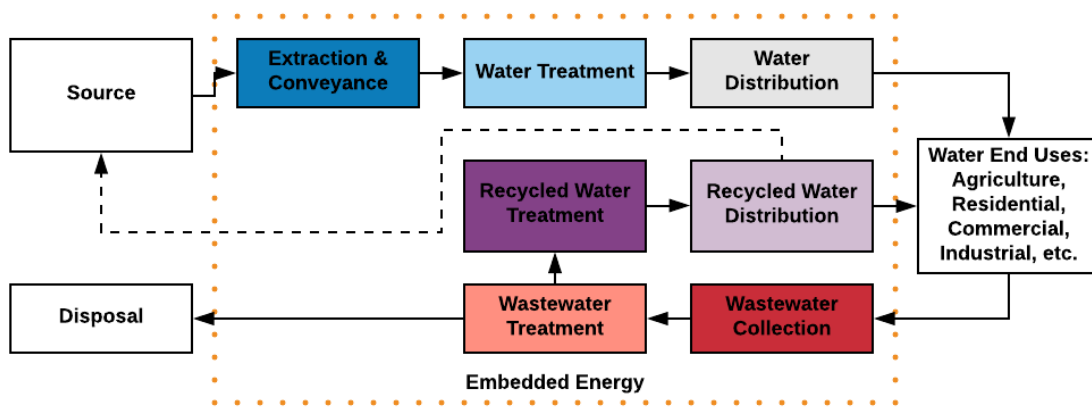


Figure A-3. California Water Cycle and Embedded Energy

Reducing water usage results in embedded energy savings in the water and wastewater systems. By using less water, less energy needs to be expended throughout the water cycle from extraction through wastewater treatment. There is also typically a reduction in end-use energy (defined as energy used on the customer’s side of the meter), but this is not typically included in the embedded energy analysis conducted by water and wastewater agencies.



In addition to embedded energy savings through reduced water usage, energy savings can also be achieved by reducing energy intensity through energy efficiency, renewable generation, and/or change in water supplies.

#### *Embedded Energy GHG Calculation Methodology*

WSC has developed a draft methodology to support project proponents with quantifying GHG emissions associated with embedded energy. This allows the GHG emissions of the baseline and project to be compared, and also allows any additional project components that increase or decrease GHGs to be incorporated. Figure A-4 provides an overview of the methodology. A draft worksheet for data collection and analysis is provided as Figure A-5 includes default energy intensity values for each step of the water cycle based on statewide and Central Coast average energy intensity data (4) (5).

Incorporated within the worksheet are GHG emissions factors which convert energy intensity (kWh/AF) to associated GHG emissions (lbsCO<sub>2</sub>e/AF). For State Water, a GHG emissions factor of 0.437 MTCO<sub>2</sub>e/MWh (equivalent to 0.963 lbsCO<sub>2</sub>e/kWh) is recommended for use; this is based on the wholesale power purchases for the State Water Project as described in DWR's Climate Action Plan (6). For all other sources and steps of the water cycle, electricity is assumed to be provided by Pacific Gas and Electric Company (PG&E). The most recent emissions factor for PG&E of 0.196 MTCO<sub>2</sub>e/MWh (equivalent to 0.432 lbsCO<sub>2</sub>e/kWh) is recommended for use; this corresponds to the electricity provided by PG&E in 2015 and aligns with the emissions factors used in the County's EnergyWise Plan.

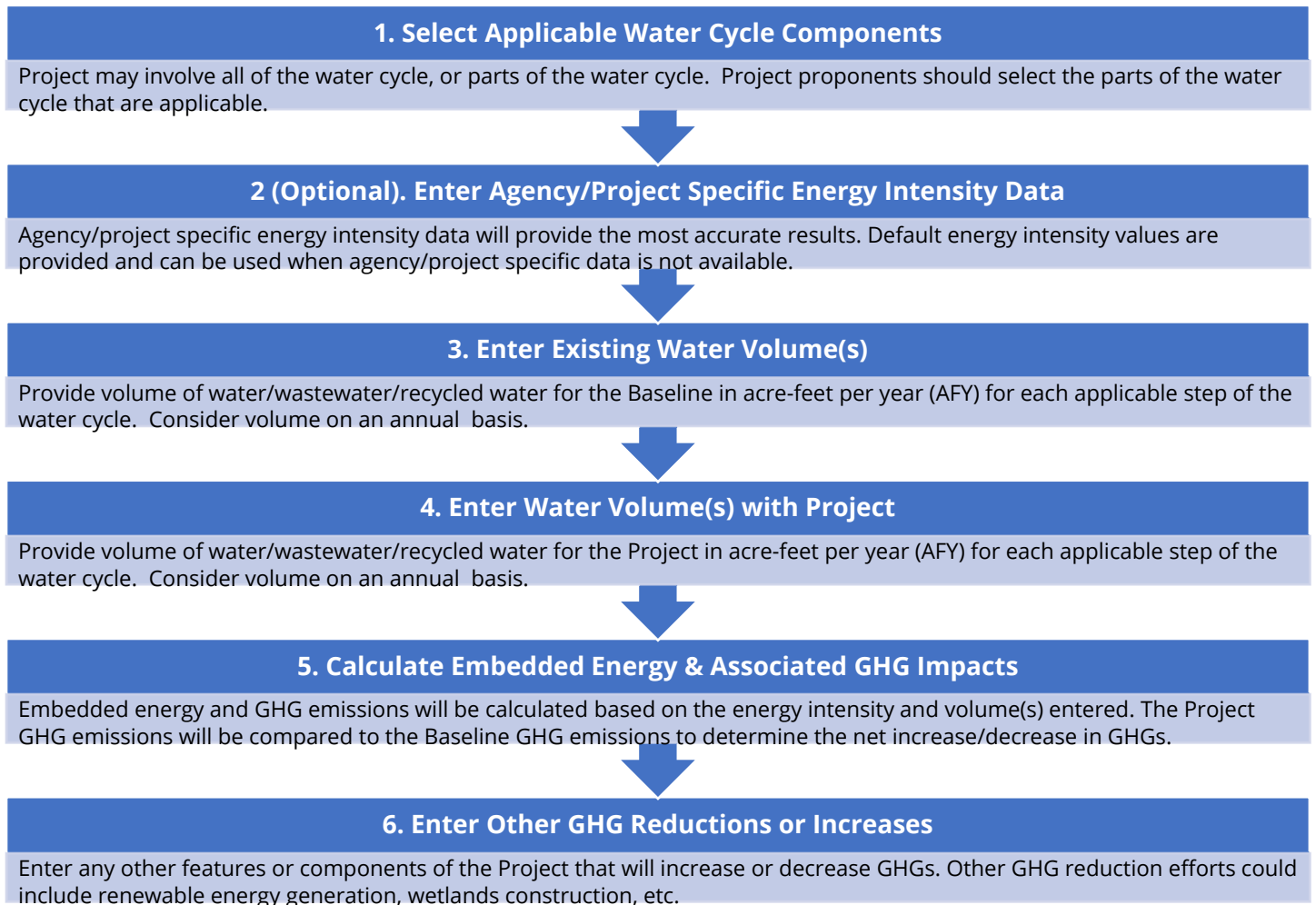


Figure A-4. Overview of Quantitative Approach for Calculating GHGs Associated with Embedded Energy

1. Select Applicable Water Cycle Components

2(Optional). Enter Agency/Project Specific Energy Intensity Data

3. Enter Existing Water Volume(s)

4. Enter Water Volume(s) with Project

5. Calculate Embedded Energy & Associated GHG Impacts

	Reference Intensity Factors			Baseline Data		Project Data		Project Mitigation
Optional Input Cells Calculated Cells Reference Cells	Default Energy Intensity (kWh/AF)	Optional Agency /Project Specific Energy Intensity (kWh/AF)	Associated GHG Emissions (lbs CO2e/AF)	Existing Volume(s) per Year (AFY)	Existing GHG (lbs CO2e)	Volume(s) with Project per Year (AFY)	GHG with Project (lbs CO2e)	GHG Change with Project (lbs CO2e)
<b>Extraction and Conveyance</b>								
Groundwater	471							
State Water	2,155							
Local Deliveries	10							
Brackish Desalination	461							
Ocean Desalination	342							
<b>Water Treatment</b>								
Conventional Potable Treatment	144							
Chlorination	3							
Brackish Desalination	2715							
Ocean Desalination	4546							
<b>Water Distribution</b>								
Flat	18							
Moderate	163							
Hilly	318							
<b>Wastewater Collection</b>								
Wastewater Collection	74							
<b>Wastewater Treatment</b>								
Primary + Secondary	344							
Primary + Secondary + Tertiary	915							
<b>Recycled Water Treatment</b>								
Tertiary Treatment + Disinfection	521							
Membrane Treatment	1,303							
<b>Recycled Water Distribution</b>								
Flat	18							
Moderate	163							
Hilly	318							
<b>Total</b>								
Total								
<b>Total Change in GHG Emissions Associated with Embedded Energy</b>								
<b>Other GHG Reductions or Increases (e.g., renewable energy, wetlands, trees, etc.) - Please List</b>								
1								
2								
3								
4								
5								
<b>Net Change in GHG Emissions with Project (lbs CO2e)</b>								

6. Enter Other GHG Reductions or Increases Below Table

Figure A-5. Steps to Estimate Embedded Energy and GHG Emissions

As described in Section 0, the contribution of projects to climate change mitigation, specifically in reducing GHGs compared to project alternatives, can be quasi-quantitatively evaluated by assigning weighted points for projects’ potential to have a positive, neutral, or negative impact on climate change mitigation as shown in Figure A-6. As shown in Figure A-1, the scores for adaptation and mitigation could contribute to an overall climate change ranking for projects that could be incorporated into the overall scoring criteria for ranking projects (e.g., technical feasibility, ability to meet IRWMP goals and objectives, readiness to proceed, etc.).

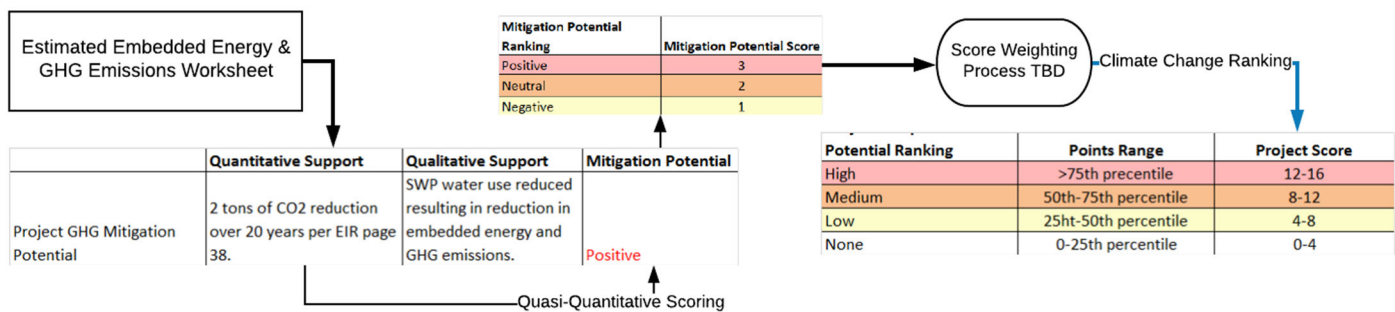


Figure A-6. Potential Methodology for Rating Climate Change Mitigation Scores for Projects

## 5 References

1. California Department of Water Resources. 2016 Integrated Regional Water Management Grant Program Guidelines Volume 1 - Grant Program Processes. July 2016.
2. CDM. Climate Change Handbook for Regional Water Planning. November 2011.
3. Resources, California Department of Water. California Water Plan Update. 2013.
4. Navigant Consulting, Inc. Navigant 2015 Water/Energy Cost-Effectiveness Analysis: Revised Final Report Prepared for the California Public Utilities Commission. Sacramento, CA : s.n., 2015.
5. —. Navigant 2015 Water/Energy Cost-Effectiveness Analysis: Errata to the Revised Final Report Prepared for the California Public Utilities Commission. Sacramento, CA: : s.n., 2015.
6. California Department of Water Resources. California Department of Water Resources 2012 Climate Action Plan Phase 1: Greenhouse Gas Emissions Reduction Plan. Sacramento, CA: : s.n., 2012.

**J.3 NOTICE OF PUBLIC MEETING**

# SAN LUIS OBISPO COUNTY INTEGRATED REGIONAL WATER MANAGEMENT (IRWM)

*Creating a united framework among San Luis Obispo County Stakeholders for sustainable water resource management*

## IRWM CLIMATE CHANGE WORKSHOP

Wednesday Jan. 31, 2018  
9 am to 12 pm  
San Luis Obispo Library  
Community Room  
995 Palm St, San Luis Obispo

### WORKSHOP OVERVIEW

- Review of IRWM guidelines and adaptive management
- Presentation on survey results and climate vulnerabilities in SLO County
- Stakeholder involvement in vulnerability prioritization
- Evaluate feasibility of our Region to address identified vulnerabilities

### TOPICS

Water demand, water supply, water quality, flooding; sea level rise, ecosystem and habitat vulnerability

### WHY IS THE WORKSHOP BEING HELD?

SLO County is updating the climate change section of the IRWM Plan to comply with new state guidelines.

### WHO SHOULD COME?

Regional Water Management Group (RWMG) agencies & organizations; city & county planners; utility managers; water purveyors; conservation organizations; stakeholders with agricultural, development, & environmental interests

### STAKEHOLDER CLIMATE VULNERABILITY SURVEY

Survey will be sent out Jan. 5th.  
Subscribe to IRWM stakeholder email mailing list to receive survey:  
[slocountywater.org/irwm](http://slocountywater.org/irwm)

Jan. 5 - Jan. 19      Online survey is live

Jan. 24                Survey results sent out to RWMG

Can't come to the workshop?  
Be sure to fill out the survey!



### Please RSVP for the workshop:

Mladen Bandov, County of SLO Public Works  
[mbandov@co.slo.ca.us](mailto:mbandov@co.slo.ca.us)  
(805) 781-5116



# J.4 OUTREACH MATERIALS



**San Luis Obispo County Region**  
Integrated Regional Water Management (IRWM)

**IRWM Climate Change Workshop**  
**AGENDA**

Date: January 31, 2018  
Time: 9:00 AM – 12:00 PM  
Location: San Luis Obispo Library Community Room  
995 Palm Street, San Luis Obispo, CA 93401

1. Introductions and Overview of Workshop (*20 minutes*)
2. IRWM Guidelines (*25 minutes*)
  - a. Presentation on new IRWM Plan Standards and update process
  - b. Review of survey results

--- Break (*10 minutes*) ---
3. Vulnerability Prioritization – Part I (*45 minutes*)  
*Part I: Water Demand, Water Supply, and Water Quality*
  - a. Presentation on vulnerability indicator questions and discussion of the priority designation for each vulnerability
  - b. Activity: Vulnerability Prioritization Worksheet

--- Break (*10 minutes*) ---
4. Vulnerability Prioritization – Part II (*45 minutes*)  
*Part II: Sea Level Rise, Flooding, Ecosystems and Habitats, and Hydropower*
  - a. Presentation on vulnerability indicator questions and discussion of the priority designation for each vulnerability
  - b. Activity: Vulnerability Prioritization Worksheet
5. IRWM Plan Update and Next Actions (*20 minutes*)
  - a. Review of climate change objectives, mitigation and adaptation strategies, project review process, and policies and procedures for adaptive management
6. Wrap-up (*5 minutes*)

For more information, please contact  
Mladen Bandov, County of San Luis Obispo Public Works  
[mbandov@co.slo.ca.us](mailto:mbandov@co.slo.ca.us)  
(805) 781-5116  
[www.slocountywater.org/irwm](http://www.slocountywater.org/irwm)

<p><u>Next RWMG Meetings:</u> February 7, 2018 March 7, 2018</p>
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**REMINDER: Please return completed worksheet by the end of the workshop.**

**IRWM Climate Change Workshop  
Vulnerability Prioritization Worksheet**

Name: \_\_\_\_\_

Organization/Affiliation: \_\_\_\_\_

City/Town: \_\_\_\_\_

County Public Works staff held an online survey (January 4-19, 2018) about the regional water resources that are vulnerable to the effects of climate change. Twenty-two (22) RWMG members and stakeholders responded to the vulnerability assessment. Thirty-five (35) vulnerabilities were identified within these categories: **water demand (WD)**, **water supply (WS)**, **water quality (WQ)**, **sea level rise (SLR)**, **flooding (FL)**, **ecosystem and habitat vulnerability (EH)**, and **hydropower (HP)**.

The following three characteristics were used to help prioritize the vulnerabilities:

Exposure – the extent (e.g., percentage) that a resource/asset/system could be subject to climate change effects

Sensitivity – the degree to which small variations of climate change effects could impact a resource/asset/system

Likelihood – the probability that a resource/asset/system could be impacted *due to lack of adaptive capacity*

Each vulnerability was evaluated using the following scale and averaged for all survey responses.

	1	2	3	4	5
<b>Exposure</b>	Not Exposed	Somewhat Exposed	Exposed	Very Exposed	Completely Exposed
<b>Sensitivity</b>	Not Sensitive	Somewhat Sensitive	Sensitive	Very Sensitive	Extremely Sensitive
<b>Likelihood</b>	Unlikely	Somewhat Likely	Likely	Very Likely	Extremely Likely

Each vulnerability was scored using the following equation:

$$Exposure \times Sensitivity \times Likelihood = Score$$

Scores were assigned a high, medium, or low priority based on this table (to the right)

Priority	Score
High	> 27.0
Medium	20.8 - 27.0
Low	< 20.8

**RWMG Members:** Please write **yes or no** if you agree or disagree with the recommended priority. If you disagree, please suggest otherwise (High, Medium, or Low).

ID	Vulnerability	Exposure	Sensitivity	Likelihood	Score	Priority	Agree? Y/N If no, High/Med/Low
WD 1	Water-dependent industries	3.11	2.81	3.24	28.31	High	
WD 2	Seasonal water demand	3.17	2.50	3.00	23.78	Medium	
WD 3	Climate-sensitive crops	3.18	2.82	2.73	24.48	Medium	
WD 4	Drought-sensitive groundwater basins	3.81	3.47	3.67	48.52	High	
WD 5	Communities with water curtailment efforts	2.85	2.54	2.75	19.91	Low	
WD 6	Insufficient instream flows	3.77	3.54	3.62	48.31	High	
WS 1	Water supply from snowmelt	3.00	2.83	2.83	24.03	Medium	
WS 2	Water supply from coastal aquifers	3.54	3.23	3.42	39.10	High	

ID	Vulnerability	Exposure	Sensitivity	Likelihood	Score	Priority	Agree? Y/N If no, High/Med/Low
WS 3	Inability to store carryover supply surpluses	3.00	2.82	2.80	23.69	Medium	
WS 4	Drought-sensitive water systems	3.91	3.45	3.55	47.89	High	
WS 5	Invasive species management issues	2.90	2.67	2.60	20.13	Low	
WQ 1	Water bodies in areas at risk of wildfire	3.09	3.00	3.00	27.81	High	
WQ 2	Water bodies impacted by eutrophication	3.09	3.00	3.00	27.81	High	
WQ 3	Declining seasonal low flows	3.63	3.50	3.38	42.94	High	
WQ 4	Water bodies with restricted beneficial uses	2.89	2.67	2.78	21.45	Medium	
WQ 5	Water quality impacted by rain events	2.92	2.67	2.67	20.82	Medium	
SLR 1	Coastal erosion	3.00	2.70	2.80	22.68	Medium	
SLR 2	Coastal structures	2.40	2.20	2.30	12.14	Low	
SLR 3	Coastal infrastructure in low-lying areas	2.60	2.50	2.60	16.90	Low	
SLR 4	Low-lying coastal habitats	2.50	2.40	2.60	15.60	Low	
SLR 5	Flooding due to high tides and storm surges	2.60	2.50	2.40	15.60	Low	
SLR 6	Coastal land subsidence	1.63	1.50	1.50	3.67	Low	
SLR 7	Rising sea levels	2.13	2.00	2.13	9.07	Low	
FL 1	Aging flood protection infrastructure	3.44	3.11	3.11	33.27	High	
FL 2	Insufficient flood control facilities	3.30	3.10	3.20	32.74	High	
FL 3	Increased flood risk due to wildfires	3.55	3.36	3.36	40.08	High	
EH 1	Aquatic habitats at risk of erosion and sedimentation	2.90	3.00	2.80	24.36	Medium	
EH 2	Estuarine habitats dependent on freshwater flow patterns	3.00	3.09	3.09	28.64	High	
EH 3	Climate-sensitive fauna and flora	3.00	2.90	3.00	26.10	Medium	
EH 4	Changes in species distributions	3.18	3.09	3.09	30.36	High	
EH 5	Aquatic habitats used for economic activities & recreation	2.82	2.55	2.64	18.98	Low	
EH 6	Environmental flow requirements	3.36	3.27	3.09	33.95	High	
EH 7	Exposed coastal ecosystems	2.64	2.64	2.64	18.40	Low	
EH 8	Fragmented aquatic habitats	3.00	2.70	2.80	22.68	Medium	
HP 1	Future hydropower plans	1.78	1.67	1.89	5.62	Low	

**REMINDER: Please return completed worksheet by the end of the workshop.**

**IRWM Climate Change Workshop  
Climate Change Vulnerability Assessment Worksheet**

**Name:** \_\_\_\_\_

**Organization/Affiliation:** \_\_\_\_\_

**City/Town:** \_\_\_\_\_

*The draft answers in this handout come from a draft technical memo prepared by County of San Luis Obispo Public Works staff in collaboration with Water Systems Consulting, Inc (WSC) to develop the climate change vulnerability assessment for the 2018 IRWM Plan update.*

This document is designed for the IRWM Climate Change Workshop to collect comments/responses from stakeholders. Copies of this handout will be available at the workshop.

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**Water Demand**

**1. Are there major industries that require cooling/process water in your planning region?**

Several prominent industries in San Luis Obispo County require water for their operations. Notable industries include wineries, breweries, hospitals, energy production, and education. Additionally, agriculture is a major industry throughout the County and has a significant water demand for irrigation and other processes.

North Coast Subregion

Cuesta College requires water to maintain operations and serve its students and staff. Similarly, the California Men’s Colony requires water to serve its residents and maintain operations. Wineries along the North Coast also contribute to the industrial water demand in the subregion.

North County Subregion

Wineries and vineyards throughout the North County have large water demands for growing and wine production. Another major industrial water use in the subregion is process water required by breweries. The Atascadero State Hospital and other hospitals are notable industrial water users in the subregion.

South County Subregion

The Diablo Canyon Power Plant requires cooling and process water for its operations. The Santa Maria Refinery in Nipomo is a major industrial water user. Cal Poly San Luis Obispo has a significant water demand to maintain operations and serve its students and staff. There are also several breweries throughout the South County Subregion that require water for the brewing process. Hospitals, including Sierra Vista Regional Medical Center and French Hospital Medical Center, are another prominent industry in the subregion that requires process water.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you agree think should be included in the final responses to the indicator questions.**

- The hotel industry is major water user requiring water for laundry facilities.
- The Arroyo Grande Oil Field uses large amounts of water during oil pumping.
- Details about the agricultural water use in each subregion should be added.
- Mission Linen, Culligan, and Casa de Flores are notable industrial water users in Morro Bay.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## **2. Does water use vary by more than 50% seasonally in parts of your region?**

### North Coast Subregion

Seasonal water use is affected by tourism and agriculture in the North Coast Subregion. San Simeon CSD and Cambria CSD both have a noticeably higher water demand from June to October.

### North County Subregion

Seasonal water use is affected by agriculture in the North County Subregion. Templeton CSD, Atascadero MWC, and the City of Paso Robles all have significantly lower water demands during winter months.

### South County Subregion

Seasonal water use is affected by agriculture and tourism in the South County Subregion. The City of Pismo Beach, City of Arroyo Grande, and Oceano CSD all have significantly lower water demands during winter months. In the City of San Luis Obispo, seasonal water demand is impacted by the fluctuating student population at Cal Poly.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Nipomo CSD has a significantly lower water demand in winter months.
- Arroyo Grande has less than a 15% difference in water use between summer and winter.
- San Simeon CSD water usage varies by 50% or more seasonally due to tourism.
- Los Osos CSD has a significant difference in seasonal water demand, but it is not more than 50%.
- During the summer, the City of San Luis Obispo experiences an increase in irrigation water use but a decrease in domestic water use with the absence of Cal Poly students. Overall, seasonal water use does not vary by more than 50%.
- As a whole, water use in the North County Subregion is significantly lower during the winter season.

Please provide any additional suggestions to revise, add to, or update the draft response:

### 3. Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?

The highest ranked crops by dollar amount are grapes/wine, vegetables, strawberries, avocados, broccoli, and cattle/calves, all which are climate sensitive. The total value of agricultural production in 2016 was over \$900 million. A report by the USDA determined San Luis Obispo County had a high crop vulnerability ranking.

- While grapes are relatively drought tolerant crops, they are sensitive to temperature and other climate-related factors. The quality of wine grapes is especially sensitive to climate, and increased temperatures could significantly reduce the quality and economic value of wine grapes.
- Cattle production decreased 36% from 2015 to 2016 due largely to the decrease in rangeland caused by the drought.
- Strawberries are extremely sensitive to soil salinity. Increasing salt levels in soil would decrease growth rate and fruit yield of strawberries as well as increase irrigation demands for soil leaching. Additionally, strawberries are sensitive to fungal diseases and unusually warm temperatures.
- Broccoli is moderately climate sensitive. Broccoli has a narrow temperature range of 60 to 65°F and is harmed by temperatures exceeding 80°F. The vegetable is also sensitive to invertebrate pests and bacterial and fungal diseases, which are likely to pose a greater risk with increased temperatures.
- Avocados are a highly climate sensitive crop requiring wet conditions. Avocados need large amounts of water and frequent irrigation, and their sensitivity to soil salinity could increase this already high water demand. The fruit is sensitive to cold weather and can die during a freeze, but increased fall temperatures could also decrease avocado yields.

#### North Coast Subregion

Avocados, grapes, and berries are all grown in the North Coast Subregion.

#### North County Subregion

The primary crop in the North Coast Subregion is wine grapes. The cattle industry is also prominent in this subregion.

#### South County Subregion

Strawberries and grapes are some of the major crops grown in the South County Subregion.

*Note: Some members of the San Luis Obispo County Farm Bureau reviewed this draft answer and generally considered it to be sufficient, including some of the comments below.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Grapes are extremely sensitive to frost and cold temperatures.
- Changes in air temperature and decreased humidity can cause respiratory problems for cattle.
- Avocados should be included as a prominent crop in the South County Subregion.
- While other changes could be stressful, increased air temperature could be beneficial for avocados.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

#### **4. Do groundwater supplies in your region lack resiliency after drought events?**

##### North Coast Subregion

Multiple groundwater basins in the subregion (some of the largest/highest yield and storage capacity basins) have a Level I (2 basins) or Level III (2 basins) severity rating as assigned by the SLO County Planning Department. These basins experience reduced recharge and ability to meet demand during drought conditions. About 50% of the North Coast’s urban water supply is from groundwater (2014 IRWMP).

##### North County Subregion

The Paso Robles Basin, the largest and highest yielding basin in the subregion, is a critically over-drafted basin. The groundwater basins in this subregion have low storage and difficulty meeting demands especially during drought events (2014 IRWMP). About 70% of the North County water supply is from groundwater (2014 IRWMP).

##### South County Subregion

The Cuyama Valley Basin is a critically over-drafted basin, and the Santa Maria Valley Basin is a high priority basin (DWR). Droughts reduce basin recharging and the ability of the basin to meet demand. About 30% of the South County water demand is supplied by groundwater (2014 IRWMP).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Drought conditions make groundwater basins more susceptible to salt water intrusion and often result in increased chloride levels. This has been witnessed in groundwater wells in Los Osos.
- Nipomo CSD is unique in that it obtains 50-100% of its water supply from groundwater.
- San Simeon CSD is dependent on a single creek basin, which is susceptible to adverse effects of drought events.
- The City of San Luis Obispo does not rely heavily upon groundwater to meet water demand.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Are water curtailment measures effective in your region?**

A local drought emergency was enacted in SLO County from 2014 through 2017 that restricted water usage and required acquiring alternate water sources while reservoir levels were allowed to recover. *More information is needed about curtailment measures and their results.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- While curtailment measures in Nipomo were successful in reducing groundwater pumping by 50%, they did not result in a significant increase in the groundwater level.
- The US-LT RCD developed the Agricultural Water Offset program, which limited the establishment of new irrigated lands in Paso Robles Groundwater Basin, but this did not necessarily prevent new groundwater pumping operations outside of the basin boundary.
- Efforts in the City of Paso Robles during the recent drought were effective in reducing per capita water use.
- Los Osos CSD implemented a Water Shortage Contingency Plan during the recent drought, and water usage dropped to 50 gallons per day per capita.
- Restrictions on outdoor water use in the City of San Luis Obispo have been effective at reducing the city's water consumption.
- The City of Arroyo Grande successfully curtailed water use by 35% from 2013 to 2016.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**6. Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?**

A study completed by Stillwater Sciences in 2014 determined the minimum instream seasonal flow requirements needed to sustain basic aquatic systems for stream systems throughout the County. Central coast steelhead trout were used as the indicator species for this study. Based on a 2017 report by the Central Coast Salmon Enhancement, there are streams within all three subregions that did not meet these minimum flow requirements in the past two years. In 2016, only 14 percent of the sites measured met spring flow requirements, and only 17 percent of measured sites met summer flow requirements (CCSE).

Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.

- Some river and stream systems experience extended periods of no surface flow making steelhead swimming and spawning impossible. An alternate method for determining instream flow requirements may need to be developed for these water bodies.
- Instream flow conditions could be doubly impacted by climate change as streamflow is affected by changes in precipitation patterns as well as by changes in water use.

Please provide any additional suggestions to revise, add to, or update the draft response:

## Water Supply

**1. Does a portion of the water supply in your region come from snowmelt? Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?**

North Coast Subregion

The City of Morro Bay, California Men’s Colony, Cuesta College, and County Operations Center all receive water from the State Water Project (SWP).

North County Subregion

Shandon has a water service amount of 100 AFY from the SWP.

South County Subregion

The City of Pismo Beach, Oceano CSD, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, and San Luis Coastal USD all receive water from the SWP.

Please provide any additional suggestions to revise, add to, or update the draft response:

**2. Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?**

North Coast Subregion

The Pico Creek Valley, San Simeon Valley, Chorro Valley, Morro Valley, and Los Osos Valley Basins have all encountered sea water intrusion and are water supply sources for the subregion (SLO 2014 IRWMP).

North County Subregion



There are no coastal aquifers in this subregion.

#### South County Subregion

The Avila Valley Sub-basin and Santa Maria Valley Basin have both experienced sea water intrusion and serve as water supply sources for the subregion (SLO 2014 IRWMP).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

### **3. Would your region have difficulty storing carryover supply surpluses from year to year?**

Surplus supplies of State Water can be stored via San Luis Reservoir, which is operated by DWR and the Central Valley Project. State water contracts limit the quantity of water allowed to be stored by each contractor, and stored water is subject to spills based on the amount of water in the SWP system.

#### North County Subregion

The Salinas Reservoir, overseen by the City of San Luis Obispo, is limited in its ability to store new inflow due to criteria set forth by the SWRCB which only allow for new inflow to be stored when there is a live stream in the Salinas River. Monterey County operates and maintains the Nacimiento Reservoir. The District and the contractors of Nacimiento Water have contracts for water but no rights to storage.

#### South County Subregion

It is possible to store carryover supplies in Lopez Reservoir but only when the water level reaches 40.5% capacity (20,000 AF). The Low Reservoir Response Plan (LRRP) allows agencies to carryover any of their unused annual entitlement for future use when reservoir levels are low. The LRRP allows for reduced entitlement deliveries as well as reduced downstream releases to preserve or stretch out supplies for up to 2-3 years. When the LRRP is not in effect, agencies occasionally have access to surplus water but can only use it in that same year; they cannot store it for use in future years.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- San Simeon has no way of carrying over supply surpluses.
- Supply surpluses in Shandon are stored in San Luis Reservoir and experience significant losses through evaporation.
- Groundwater storage is the only possible storage option in Nipomo.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**4. Has your region faced a drought in the past during which it failed to meet local water demands?**

During water years 2014 and 2015, due to statewide drought conditions, the State Water Resources Control Board (SWRCB) curtailed post-1914 tributary water rights to the Sacramento-San Joaquin Delta. A local drought emergency was in effect from 2014-2017 during which time alternate water sources were needed.

*More information is needed about sub-regional drought impacts.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Even during droughts, San Simeon has never exceeded 70% of our available Pico Creek Basin capacity.
- In Nipomo, recent drought conditions have contributed to groundwater levels at record lows.
- State Water Project water has experienced increased salt levels during drought conditions, which resulted in violation of water quality standards in the Chorro Valley Water System.
- To ensure water demand could be met during drought conditions, the City of San Luis Obispo has added water sources and long-standing water conservation programs.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?**

The 2014 San Luis Obispo County Watersheds Management Plan determined that invasive species identification and assessment as a county-wide priority data gap. The California Invasive Plant Council has recognized areas of spreading invasive species in all three of the County's subregions. Yellow star thistle, veldt grass, and arundo are three invasive species with notable management issues in San Luis Obispo County. Mitigation sites are especially vulnerable to invasive species management issues.

*More information about invasive species management is currently being obtained from the County of SLO Environmental Division.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- There has been a significant increase in the overall size of acres covered by invasive species in local watersheds.
- Chorro Reservoir is at risk of arundo management issues.
- Invasive mussels in reservoirs are a concern.
- Cape Ivy in the Morro Bay watershed has been an invasive species of special concern.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## Water Quality

### **1. Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?**

According to the Cal-Adapt Wildfire: Fire Risk Map, the SLO County IRWM Planning Region may experience a slight increase in annual mean hectares burned by wildfire (Cal Fire).

#### North Coast Subregion

The risk of wildfires near Whale Rock Reservoir are a significant contamination risk to the water supply (“Whale Rock” 18). The major source of contamination for the water body is sedimentation from erosion, which would be exacerbated by wildfires in the nearby area (“Whale Rock” 1).

#### North County Subregion

The Nacimiento Reservoir is in an area with a high risk of wildfires, and possible wildfires pose a threat to the water quality in the reservoir (“Nacimiento Reservoir” 1). Similarly, wildfires are a risk in the nearby areas of the Salinas Reservoir and threaten water quality (Cal Fire).

#### South County Subregion

Large amounts of dry brush have been noted throughout the Lopez Lake watershed and contribute to the significant risk of potential contamination due to wildfires (“Lopez Lake” 2). Wildfires would lead to increased sedimentation and add stress to other water quality concerns within the reservoir.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Dead trees and large areas of dry bush create a wildfire threat to water bodies throughout the North Coast Subregion – not just Whale Rock Reservoir.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**2. Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?**

North Coast Subregion

The San Simeon, Cayucos Creek, and Morro Bay Watersheds all have low dissolved oxygen, among other water quality issues (SLO 2014 IRWMP). Cattle grazing in the Whale Rock Reservoir watershed has been linked to increased turbidity and nutrient levels in the area's water bodies ("Whale Rock" 1). These conditions encourage algal blooms and are worsened in times of drought and high temperatures.

North County Subregion

Middle Salinas-Atascadero and Cholame Creek Watersheds have low dissolved oxygen (SLO 2014 IRWMP). The Nacimiento Reservoir has a recent trend of high algal levels in summer months. Increased erosion, drought conditions, and high temperatures all contribute to harmful levels of algae growth in the reservoir ("Nacimiento Reservoir" 27-28). Similarly, the recent drought conditions resulted in record high levels of nutrients in the Salinas Reservoir, which has contributed to a trend of high algae levels in warm summer and fall months ("Salinas Reservoir" 12).

South County Subregion

San Luis Obispo Creek and Pismo Creek Watersheds have low dissolved oxygen. San Luis Obispo Creek and Santa Maria River have chlorpyrifos and other water quality issues (SLO 2014 IRWMP). The Lopez Lake Reservoir experienced harmful algal blooms during the recent drought conditions and has a recorded trend of algae spikes during warm summer months ("Lopez Lake" 14).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Bacteria impairment can be exacerbated by warm temperatures, which accelerates the growth of bacteria. Water bodies with bacteria impairment include Morro bay estuary, Chorro Creek, Los Osos Creek and Warden Creek.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**3. Are seasonal low flows decreasing for some water bodies in your region? If so, are the reduced low flows limiting the water bodies' assimilative capacity?**

*More information is needed about assimilative capacity.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- There is a declining trend in seasonal low flows throughout the County. During these low flow periods, water quality and ecosystem processes are highly sensitive to minor alterations.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**4. Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?**

Beneficial uses are identified by the Watershed Management Planning Project Report for all but one of the watersheds in the region. It is unclear if these beneficial uses are unable to be met due to water quality issues (SLO 2014 IRWMP).

*More information is needed about any disruptions to beneficial uses.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Swimming and oyster harvesting in the back bay of the Morro Bay watershed have been limited in the past due to bacteria levels.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?**

Runoff into Whale Rock Reservoir (Cayucos Water Treatment Plant) and Lopez Lake (Lopez Water Treatment Plant) brings sediment into the reservoirs causing turbidity levels to rise. This can dramatically affect the treatability of the water source and increase the risk of exposure to water borne illnesses due to Cryptosporidium, Giardia, and E. Coli as chlorine and filtration demands are elevated during these times. It typically takes several big storms to see such a result in water quality at the water treatment plants, and it can take days for the turbid water to reach the end of the reservoir where

water is distributed to the water treatment plants. Fortunately, County facilities can handle these changes to the water source and have not had a violation because of turbidity breakthrough or low chlorine after such rain events.

Storm runoff similarly affects Nacimiento Lake and Salinas Reservoir and treatment facilities in the City of Paso Robles and City of San Luis Obispo, respectively, must respond to the water quality shifts.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Heavy rains in San Simeon led to the addition of a filtration system to handle increased contamination.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## Sea Level Rise

### 1. Has coastal erosion already been observed in your region?

#### North Coast Subregion

Coastal erosion has been observed within the North Coast Subregion; however, the shoreline trends vary across the region and over time. A USGS study found that in the short-term over 80% of the subregion is experiencing net erosion (Hapke 50).

#### North County Subregion

There are no coastal areas in this subregion.

#### South County Subregion

The South County Subregion has experienced notable coastal erosion. Coastal bluffs in Pismo Beach are experiencing erosion rates of six to eight inches per year, which resulted in the construction of a sea wall in 2017 (LA District US Army Corps of Engineers 17). Avila Beach is also using a sea wall to protect roads and infrastructure from coastal erosion (Wallace Group).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- San Simeon has been forced to add armoring to the shoreline to protect beach access and the waste water treatment plant.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**2. Are there coastal structures, such as levees or breakwaters, in your region?**

North Coast Subregion

Coastal structures along the North Coast include the San Simeon Pier, Cayucos Pier, and Morro Bay breakwaters.

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

The Arroyo Grande Creek Channel Levee located in the South County Subregion is intended to mitigate flooding. Other notable coastal structures along the South Coast include the Port San Luis breakwater, Harford Pier, Unocal Pier, Avila Beach Pier, and Pismo Beach Pier.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**3. Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation at less than six feet above mean sea level?**

San Luis Obispo County Planning Department is currently working on a study that will provide information about specific infrastructure at risk from sea level rise.

North Coast Subregion

Based off the NOAA Sea Level Rise Viewer, roads and infrastructure within areas of San Simeon, San Simeon Ranch, and Los Osos would be impacted by six feet of sea level rise.

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

Based off the NOAA Sea Level Rise Viewer, roads and infrastructure near Pismo State Beach would be impacted by six feet of sea level rise.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Morro Bay harbor and Embarcadero area and Morro Bay State Park should be added to the North Coast Subregion description.
- The South SLO County Wastewater Treatment Plant and the railroad should be added to the South County Subregion description.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**4. Are there climate-sensitive low-lying coastal habitats in your region?**

North Coast Subregion

The US Fish and Wildlife Service has designated several Critical Habitats throughout the North Coast Subregion; these federally recognized areas are considered essential for the survival of an endangered or threatened species. Critical Habitats along the North Coast have been recognized for the following species: Steelhead, California red-legged frog, Banded dune snail, Western snowy plover, Morro Bay kangaroo rat, and Tidewater goby. Morro Bay Estuary, in particular, is home to multiple fully protected species and is one of 28 areas protected through the EPA’s National Estuary Program.

North County Subregion

There are no coastal habitats in this region.

South County Subregion

The coastal area of the South County Subregion also contains several Critical Habitats. Endangered and threatened species dependent on coastal habitats along the South Coast include Tidewater goby, Steelhead, La Graciosa thistle, and Western snowy plover (“ECOS”). Pismo Beach is also home to a Monarch Butterfly Grove – a species which is currently under review for protection under the Endangered Species Act (“Monarch butterfly”).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Are there areas in your region that currently flood during extreme high tides or storm surges?**

*More information is needed about sub-regional historic flooding.*

South County Subregion



Pismo Beach experienced flooding during storm surges in 2016 that resulted in closing the pier (KSBY).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- During previous storm surges, Pico Creek lagoon has experienced salt water intrusion.
- In the past, storm events have caused flooding of the Oceano Lagoon and Highway 1 in Oceano.
- During king tides, the water level in Morro Bay is just inches below docks and waterfront restaurants. Additionally, many popular coastal areas in Morro Bay State Park are completely underwater.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**6. Is there land subsidence in the coastal areas of your region?**

The only land subsidence that has been observed in the coastal areas of San Luis Obispo County occurred in and around Oceano due to the December 2003 San Simeon Earthquake. The land subsidence was a result of liquefaction during shaking by the earthquake.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**7. Do tidal gauges along the coastal parts of your region show an increase over the past several decades?**

North County Subregion

It can be assumed that sea level trends in the North County Subregion are similar to those studied at Port San Luis and other surrounding areas. Nearby studies indicate the mean sea level is increasing along California’s central coast (“Sea Level Trends”).

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

According to NOAA’s Tides and Currents Sea Level Trends gauge for Port San Luis, the change in mean sea level is 0.84 mm/year with a 95% confidence interval. This calculation is based off data from 1945 to 2016 and is equivalent to a change of 0.28 feet in 100 years (“Sea Level Trends”).

Please provide any additional suggestions to revise, add to, or update the draft response:

## Flooding

### 1. Does aging critical flood protection infrastructure exist in your region?

*More information is needed about aging flood protection infrastructure.*

#### South County Subregion

The Arroyo Grande Creek Channel Levee was constructed in 1961 to reduce flooding in the area (SLO Flood Control District). The Diablo Canyon Nuclear Power Plant located along the coast has critical flood protection infrastructure.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The flood control gates on Oceano Lagoon are aging.
- Old and damaged drainage projects and flood protection infrastructure are present throughout the North County Subregion leaving the area vulnerable to flooding.
- Much of the City of San Luis Obispo’s downtown corridor has creeks and waterways with aging infrastructure.
- The Chorro Dam and spillway should be added to the North Coast Subregion description.
- Two 1940-era Chorro Creek bridges within the California Men’s Colony (CMC) are susceptible to collapse and/or obstruction from high water flows and flood debris leading to flooding and restricted access to the West Facility of CMC.

Please provide any additional suggestions to revise, add to, or update the draft response:

### 2. Have flood control facilities (such as impoundment structures) been insufficient in the past?

#### North Coast Subregion

Flood control and drainage studies were completed by RMC, Inc. for several communities in the North Coast Subregion in 2004. The study in Cambria revealed there were insufficient underground drainage facilities and improved organization and maintenance of the area’s flood control facilities was necessary (“Cambria” i). In Cayucos, a lack of initial drainage infrastructure when development began was identified as a major reason for the lack of necessary drainage facilities and frequent street flooding

("Cayucos" i). The study showed that the railroad in San Miguel was preventing runoff to the Salinas River and causing flooding ("San Miguel" ii). Additionally, a lack of curbs and gutter systems were contributing to road flooding ("San Miguel" i). In Santa Margarita, inadequate culverts and drainage structures blocked by sedimentation and debris resulted in flood risks ("Santa Margarita" i). Another study done in 1997 determined that development in Los Osos without rerouting of drainage facilities had led to poor flood control in the area (Engineering Development Associates ES-1).

#### North County Subregion

The Templeton Drainage and Flood Control Study completed in 2014 identified several insufficient flood control facilities, including culverts along Highway 101, Main Street, and Arizona Crossing as well as restricted conveyance capacity in the Toad Creek Channel due to vegetation and sedimentation (13-16).

#### South County Subregion

RMC, Inc. performed flood control and drainage studies in 2004 for several communities in the South County Subregion. The Nipomo study revealed Mesa area flooding was due to development locking existing runoff flow paths and flooding in Olde Towne was the result of insufficient culverts ("Nipomo" i-ii). In Oceano, the study found stormwater was not considered during the community's initial development and that resulted in insufficient drainage facilities and frequent flooding of roads ("Oceano" i). Additionally, the Arroyo Grande Creek Channel Levee was breached in 2001 and hundreds of acres were flooded (SLO Flood Control District).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Floodplains throughout the County lack protective infrastructure and have a history of flooding.
- San Simeon lacks an adequate storm drainage system. Private storm drains currently provide most of the flood protection.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

### **3. Are wildfires a concern in parts of your region?**

There are areas within all three subregions determined as Very High Fire Hazard Severity Zones by Cal Fire.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- San Simeon lacks adequate fire protection for homes and businesses. There is not enough water storage nor fire flow to protect structures.

- Our community does not do a good job clearing dead trees, snags, piles of limbs, wood chips, etc.
- The West Facility of the California Men’s Colony is a 1940-era Army Hospital composed of highly flammable wooden materials and is located adjacent to areas susceptible to wildfire.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## Ecosystems and Habitats

### **1. Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?**

#### North Coast Subregion

Increased sedimentation can cause shallower and warmer water, and in some cases, loss of estuaries. Morro Bay shorebird habitats have been identified as at-risk of these disrupting effects. Many species including snowy plovers, least terns, brown pelicans, and brant are expected to lose habitat and resources (Koopman 31). Additionally, Steelhead, California red-legged frog, Morro shoulderband snail, and Morro kangaroo rat Critical Habitats in the North Coast are vulnerable to the effects of erosion and sedimentation (“ECOS”).

#### North County Subregion

The Salinas River has already been impacted by increased sedimentation (Koopman 31). This sedimentation has degraded riparian habitats including areas designated as a Critical Habitat for Steelhead and California red-legged frog and supports numerous other special status species (“ECOS”).

#### South County Subregion

Increased sedimentation and coastal erosion could disrupt Critical Habitats for Steelhead, California red-legged frogs, Western snowy plover, and La Graciosa thistle in the South County (Koopman 31). The Pismo Beach area is especially at risk of coastal erosion and flooding.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The Morro Bay estuary salt marsh is a critical habitat that has already been impacted by sedimentation and effects will likely be complicated by sea level rise.
- Eelgrass beds are another Morro Bay habitat that can be adversely impacted by increased sedimentation. Eelgrass beds are critical fish habitats and contribute to cleaner, clearer water in the bay.
- Chorro Reservoir’s sedimentation has impacted habitats in and near the reservoir, including the Morro Bay Estuary.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**2. Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?**

North Coast Subregion

Morro Bay Estuary is an important coastal habitat supporting a diverse community of species, many of which have special species status, and is dependent on seasonal flow patterns (US-LT RCD). Several other river and stream mouths along the North Coast are dependent on seasonal flow patterns.

North County Subregion

There are no coastal areas in this subregion.

South County Subregion

San Luis Obispo Creek, Pismo Creek, and Arroyo Grande Creek all form estuarine habitats dependent on seasonal flows and that support federally protected species (US-LT RCD).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Non-point and point sources of watershed pollution result in fecal coliform and other forms of contamination in estuaries.
- Morro Bay estuary is impacted by changes in freshwater flow. Understanding of specific impacts is limited, but the Morro Bay National Estuary Program is currently researching and monitoring impacts on eelgrass.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**3. Do climate-sensitive fauna or flora populations live in your region?**

North Coast Subregion

The elfin forests and estuary in Morro Bay are sensitive to climate change impacts, such as changes in fog, sea level rise, sedimentation, and drought (Koopman 31). These areas support various special status species that are at great risk of climate change impacts. Pine forests and woodlands along the North Coast are at risk of changing conditions that could make current habitats unsuitable, and their isolation from other suitable areas makes them especially vulnerable (Koopman 35).

### North County Subregion

Carrizo Plain supports several climate-sensitive species, such as Pronghorn and Tule elk, which are at risk of declining grassland productivity and isolation from other suitable habitats (Koopman 37). The North County Subregion is also home to various endangered and threatened species that are at great risk of climate change impacts; these species include Steelhead, California tiger salamander, California red-legged frog, Longhorn fairy shrimp, Vernal pool fairy shrimp, Purple amole, and California condor (“ECOS”).

### South County Subregion

Steelhead and other protected species found in the coastal areas of the subregion are at risk of various climate change impacts that threaten the conditions required for suitable habitat (“ECOS”). Additionally, climate change effects could put new species at risk. For instance, higher temperatures and poor water quality could cause sea lions to be more susceptible to diseases (Koopman 31).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- Steelhead should be added as climate-sensitive fauna in the North Coast Subregion.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## **4. Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?**

### North Coast Subregion

Endangered Species: Smith’s butterfly, Chorro Creek bog thistle, California clapper rail, Morro Bay kangaroo rat, Morro shoulderband snail, Tidewater goby, California seablite, Indian Knob mountain-balm, Marsh sandwort, Salt marsh bird’s-beak, Southern Steelhead (US-LT RCD).

Threatened Species: Steelhead, California red-legged frog, Monterey spineflower, California black rail (CA), Beach spectaclepod (CA), Morro manzanita, Western snowy plover (US-LT RCD).

### North County Subregion

Endangered Species: Blunt-nosed leopard lizard, Giant kangaroo rat, San Joaquin kit fox, Camatta Canyon amole, Kern mallow, Least Bell’s vireo, California condor, California jewel-flower, San Joaquin wollythreads, Longhorn fairy shrimp, Tipton kangaroo rat, Bald Eagle (CA), Santa Lucia mint (CA) (US-LT RCD).

Threatened Species: Bank swallow (CA), Swainson’s hawk (CA), California red-legged frog, Vernal pool fairy shrimp, Spreading navarretia, Nelson’s antelope squirrel (CA), California tiger salamander, Kern primrose sphinx moth, Camatta Canyon amole, Santa Lucia purple amole (CA), Steelhead (US-LT RCD).

### South County Subregion

Endangered Species: California least tern, Tidewater goby, Gambel’s water cress, La Graciosa thistle, Marsh sandwort, Nipomo Mesa lupine, Pismo clarkia, California condor, Blunt-nosed leopard lizard, Giant kangaroo rat, Longhorn fairy shrimp, San Joaquin kit fox, California jewel-flower, Kern mallow, San Joaquin woollythreads, Chorro Creek bog thistle, Indian Knob mountain-balm, Pismo clarkia (US-LT RCD).  
Threatened Species: California black rail (CA), California red-legged frog, California tiger salamander, Steelhead, Western snowy plover, Beach spectaclepod (CA), Surf thistle, Kern primrose sphinx moth, Nelson’s antelope squirrel (CA), Swainson’s hawk (CA), Vernal pool fairy shrimp, Western snowy plover, Morro manzanita, Surf thistle (US-LT RCD).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- California red-legged frog and Southern sea otter should be added to the North Coast Subregion description.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**5. Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?**

In 2015, the commercial fishing industry in San Luis Obispo County had a total revenue of \$10 million (County of SLO).

*More information is needed about the economic activities that depend on aquatic habitats.*

North Coast Subregion

Morro Bay and Montana de Oro State Parks and other coastal areas attract tourists and support water-related recreation. Similarly, Whale Rock Reservoir supports fishing and other recreation activities.

North County Subregion

Santa Margarita Lake supports water recreation activities. The Salinas River and other riparian habitats also support tourism and water recreation.

South County Subregion

Avila Beach, Pismo Beach, Oceano Dunes, and other coastal regions in the South County have a strong tourism industry. Whale Rock Reservoir also supports water-related recreation.

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The beach access stairway in San Simeon could be impacted by rising sea levels.

- Morro Bay economic activities include oyster farming (2 oyster farms), recreational and commercial fishing, fishing-related, fish markets and restaurants that sell local fish. There are now two shops in Morro Bay dedicated to stand-up paddling, as well as numerous kayak rentals shops and three bay tour boat operators. There is a growing number charter boats that do private sailing and fishing charters. Wildlife viewing also generates economic activity, such as the Morro Bay Winter Bird Festival.
- Chorro Reservoir supports recreation and other economic activities.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**6. Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?**

Stillwater Sciences completed an evaluation in 2014 of minimum instream seasonal flows required to sustain aquatic habitats for steelhead. This study determined minimum seasonal flow values required to support Steelhead habitats at 63 different analysis points across the Region (Stillwater Sciences 23-24).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**7. Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?**

Coastal storms bringing storm surges, waterspouts, and flooding are all possible and occur somewhat regularly along the San Luis Obispo County coastline. These events are often linked to atmospheric rivers.

North Coast Subregion

Areas at risk: Estero Bluffs State Park, Morro Bay National Estuary, Morro Bay State Park, William Randolph Hearst Memorial State Beach, San Simeon State Beach, Moonstone Beach, Cayucos Beach, Cayucos State Beach, Morro Strand State Beach, Harmony Headlands State Beach (SLO 2014 IRWMP).

North County Subregion

There are no coastal areas in this subregion.



South County Subregion

Areas at risk: Montana de Oro State Park, Port San Luis Pier and Beach, Avila State Beach, Pismo State Beach, Oceano Dunes State Vehicles Recreation Area, Guadalupe-Nipomo Dunes wetland complex (SLO 2014 IRWMP).

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**8. Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?**

*More information is needed about the fragmentation of aquatic habitats.*

North Coast Subregion

Santa Rosa Creek experiences fish passage barriers due to infrastructure changes (SLO 2014 IRWMP).

South County Subregion

Arroyo Grande Creek experiences fish passage barriers, and Nipomo-Suey Creeks have habitat fragmentation due to development (SLO 2014 IRWMP).

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The Salinas and Estrella Rivers are important corridors for aquatic and riparian species movement.
- There are many fish passage barriers in the Morro Bay watershed, including the South Bay Boulevard bridge.
- The Chorro Reservoir Dam is a fish passage barrier impacting steelhead. There is other infrastructure throughout Chorro Creek that creates barriers to fish passage.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

## Hydropower

**1. Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in you region?**

*More information is needed about sub-regional future energy plans.*

**Comments submitted through the online survey have been paraphrased and included below. Please check the box beside any comments you think should be included in the final responses to the indicator questions.**

- The City of San Luis Obispo is examining options for hydropower facilities.

**Please provide any additional suggestions to revise, add to, or update the draft response:**

**San Luis Obispo County IRWM**  
**Climate Change Vulnerability Prioritization – DRAFT 2/7/2018**

RWMG members and stakeholders provided input from the January 4-19, 2018 online survey (22 responded) and January 31, 2018 public workshop (34 participated) about the regional water resources that are vulnerable to the effects of climate change. For the survey, the vulnerabilities were evaluated using exposure, sensitivity, and likelihood of impact to climate change effects, resulting in a prioritization score. During the workshop, participants discussed the assigned priority and provided input on a worksheet. The following table includes the results of those two efforts to prioritize the identified regional climate change vulnerabilities:

<b>Category</b>	<b>Identified Vulnerability</b>	<b>Priority</b>
Water Demand 1	Water-dependent industries	High
Water Demand 2	Seasonal water demand	Medium
Water Demand 3	Climate-sensitive crops	Medium
Water Demand 4	Drought-sensitive groundwater basins	Very High*
Water Demand 5	Communities with water curtailment efforts	Medium*
Water Demand 6	Insufficient instream flows	Very High*
Water Supply 1	Water supply from snowmelt	Low*
Water Supply 2	Water supply from coastal aquifers	Very High*
Water Supply 3	Inability to store carryover supply surpluses	High*
Water Supply 4	Drought-sensitive water systems	Very High*
Water Supply 5	Invasive species management issues	Medium*
Water Quality 1	Water bodies in areas at risk of wildfire	High
Water Quality 2	Water bodies impacted by eutrophication	High
Water Quality 3	Declining seasonal low flows	Very High*
Water Quality 4	Water bodies with restricted beneficial uses	Medium
Water Quality 5	Water quality impacted by rain events	High*
Sea Level Rise 1	Coastal erosion	Medium
Sea Level Rise 2	Coastal structures	Low
Sea Level Rise 3	Coastal infrastructure in low-lying areas	Medium*
Sea Level Rise 4	Low-lying coastal habitats	Medium*
Sea Level Rise 5	Flooding due to high tides and storm surges	Medium*
Sea Level Rise 6	Coastal land subsidence	Low
Sea Level Rise 7	Rising sea levels	Medium*
Flooding 1	Aging flood protection infrastructure	High
Flooding 2	Insufficient flood control facilities	High
Flooding 3	Increased flood risk due to wildfires	Very High*
Ecosystem and Habitat 1	Aquatic habitats at risk of erosion and sedimentation	Medium
Ecosystem and Habitat 2	Estuarine habitats dependent on freshwater flow patterns	High
Ecosystem and Habitat 3	Climate-sensitive fauna and flora	Medium
Ecosystem and Habitat 4	Changes in species distributions	High
Ecosystem and Habitat 5	Aquatic habitats used for economic activities & recreation	Low
Ecosystem and Habitat 6	Environmental flow requirements	High
Ecosystem and Habitat 7	Exposed coastal ecosystems	Low
Ecosystem and Habitat 8	Fragmented aquatic habitats	Medium
Hydropower 1	Future hydropower plans	Low

\* indicates that the priority was changed from the worksheet used during the workshop

## J.5 2018 CLIMATE CHANGE WORKSHOP ATTENDEES



San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**Climate Change Workshop - January 31, 2018**

Signing-in is voluntary. You may attend the meeting regardless of whether you sign-in.

NAME	COMMUNITY/AGENCY	EMAIL
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San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**Climate Change Workshop - January 31, 2018**

Signing-in is voluntary. You may attend the meeting regardless of whether you sign-in.

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San Luis Obispo County  
 Integrated Regional Water Management (IRWM) Program  
**Climate Change Workshop - January 31, 2018**

Signing-in is voluntary. You may attend the meeting regardless of whether you sign-in.

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Patricia Wilmore	Paso Robles Wine Country Alliance	pwilmore@pasowine.com
AARON FLOYD	CITY OF SLO	afloyd@slocity.org

# **APPENDIX K – DISADVANTAGED COMMUNITY NEEDS ASSESSMENT**

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Once the Disadvantaged Community Needs Assessment is completed it will be added as Appendix K.



# **APPENDIX L – STATE GUIDELINES REQUIREMENT TABLE**

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<b>IRWM Plan Standard: Governance</b>				<b>Overall Standard Sufficient</b>	<b>No</b>
<b>Requirement</b>		<b>Included</b>	<b>Evidence of Plan Sufficiency</b>		<b>Sufficient</b>
<b>From IRWM 2016 Guidelines</b>	<b>IRWM 2016 Guidelines Page Number</b>	<b>y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.</b>	<b>Location of Standard in Grantee IRWM Plan</b>	<b>Brief Qualitative Evaluation</b>	<b>y/n</b>
The RWMG and individual project proponents who adopted the Plan	37	y	1.1.3 2.1.1 Appendix A Appendix B	Members adopted to be added after adoption	
A description of the IRWM governance structure including a discussion of whether or how Native American tribes will participate in the RWMG.	37	y	2.1.8 2.2.1 Figure 2-2 Appendix B	2.1.8 Discusses California Native American Tribes participation and coordination with the RWMG. Figure 2-2 depicts governance structure.	
A description of how the chosen form of governance addresses and insures:					
Public outreach and involvement processes	37	y	2.1.8 2.3 Appendix C Appendix D	Section 2.3 discusses the stakeholder involvement and public outreach process. Appendices C and D include the materials.	
Effective decision making	37	y	2.2.2 Figure 2-2	-1.1.2 identifies the use of a planning grant from DWR to develop the 2019 IRWM Plan. -RWMG Working Group and Workshops -Public Outreach to Disadvantaged Communities (DACs)	
Balanced access and opportunity for participation in the IRWM process	37	y	2.2.1 Figure 2-2	The Governance structure shows four levels of participation involving all stakeholders and interested groups.	
Effective communication – both internal and external to the IRWM region	37	y	2.3 13.2	2.3 describes internal communication 13.2 describes external communication	

Long term implementation of the IRWM Plan	37	y	2.5.1 2.5.2	Discusses the long-term implementation of the Plan. Also, IRWM Plan implementation will be monitored as discussed in Section J, Plan Performance and Monitoring.	
Coordination with neighboring IRWM efforts and State and federal agencies	37	y	13.2 13.3	Discusses the coordination efforts with neighboring IRWMs and state and federal agencies. They participate in the Roundtable of Regions meeting conference calls, and meet with neighboring IRWMs that overlap and have similar water-related concerns. They coordinate with USACE, RWQCB, SWB, and DWR.	
The collaborative process(es) used to establish plan objectives	38	y	4.3	Section 4.3 discusses the collaboration efforts and processes that were used to vet and establish Plan Objectives. Section 4.3 specifically discusses the process and determination of the goals and objectives and how they were envisioned and developed with stakeholder input throughout the process.	
How interim changes and formal changes to the IRWM Plan will be performed	38	y	2.5.2	Section 15 discusses how interim and formal changes to the IRWM Plan will be performed, including the process for updating the lists of projects.	
Updating or amending the IRWM Plan	38	y	2.5.2	Figure 15 illustrates the Plan Update schedule and shows the activities that require Plan re-adoption	

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

IRWM Plan Standard: Region Description			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
If applicable, describe and explain how the plan will help reduce dependence on the Delta supply regionally.	38	y	3.9.7 5.3.5.1 5.3.20.1	Prioritization of alternative water sources and water conservation measures taken to reduce dependence are discussed in 3.9.7 and 5.3.20.1. Impacts on region regarding new storage reservoirs north of the Delta are discussed in 5.3.5.1	
Describe watersheds and water systems	38	y	3.5 3.6 3.9 3.10	Major infrastructure that provides water throughout the San Luis Obispo is described in 3.9. 3.10 provides information on the 25 defined watersheds within the San Luis Obispo Region. 3.5 describes groundwater infrastructure 3.6 focuses on wastewater systems in the area.	
Describe internal boundaries	38	y	3.3 3.4 3.7	Sections 3.3 and 3.4 describe the Region's division into sub-regional planning areas and into Water Planning Areas. Section 3.7 describes the boundaries of the Flood Control District in the Region.	
Describe water supplies and demands for minimum 20 year planning horizon	38	y	Appendix E	Appendix E provides a discussion of the current and projected water supply and demand for the SLO Region through 2040.	
Describe social and cultural makeup, including specific information on DACs and tribal communities in the region and their water challenges.	38	y	3.15 3.16	Section 3.15 describes DACs and their respective water issues. 3.16 describes tribal communities in SLO County.	
Describe major water related objectives and conflicts (1).	38	y	3.14 4.4 Table 4-2 4.6 Table 4-3 to Table 4-7	3.14 discusses the water challenges for all three sub-regions. Sub-region priorities are set by the local objectives. 4.4 and 4.6 and their respective tables discuss plan objectives.	

Explain how IRWM regional boundary was determined and why region is an appropriate area for IRWM planning.	38	y	3.2	Defining the IRWM region as the County has enabled them to use existing infrastructure management systems, funding mechanisms, partnerships, and planning documents, and seems to have made it more efficient overall.	
Describe neighboring and/or overlapping IRWM efforts	38	y	13.2	Section 13.2 explains the coordination, agreements, and partnerships between the SLO Region and surrounding regions under the same Central Coast funding area	
Explain how opportunities are maximized (e.g. people at the table, natural features, infrastructure) for integration of water management activities	38	y	13.1	Use of the IRWM's existing outreach program as a means to keep agencies and interest groups informed and therefore maximize opportunities is explained in this section.	
Describe water quality conditions. If the IRWM region has areas of nitrate, arsenic, perchlorate, or hexavalent chromium contamination, the Plan must include a description of location, extent, and impacts of the contamination; actions undertaken to address the contamination, and a description of any additional actions needed to address the contamination <b>(2)</b> .	38	y	3.11 3.13.1 to 3.13.3	Section 3.11 provides water quality evaluation and analysis for all AB 1249 contaminants and the actions taken or needed to address any identified contamination in the Region. Sections 3.13.1 to 3.13.3 describe water quality conditions in the three sub-regions.	
Describe likely Climate Change impacts on their region as determined from the vulnerability assessment.	38	y	13.13 14.8	Section 14.8 provides an overview of regional climate change impacts.	

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10541 (e)(3).

(2) Requirement must be addressed per CWC §10541 (e)(14).

IRWM Plan Standard: Plan Objectives			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Through the objectives or other areas of the plan, the 7 items on pg 49 of GL are addressed <b>(1)</b> .	49	y	4.2.2 Table 4-1 4.4 Figure 4-4	Table 4-1 outlines specific California water code requirements and consistency with the IRWM plan. Figure 4-4 provides a summary of IRWM goals, objectives, and sub-region priorities.	
Describe the collaborative process and tools used to establish objectives: - How the objectives were developed - What information was considered (i.e., water management or local land use plans, etc.) - What groups were involved in the process - How the final decision was made and accepted by the IRWM effort	48 - 50	y	4.3	Section 4.3 describes the Region-wide surveys, formation of working groups, and other approaches taken by the Region to establish the 2018 objectives.	
Identify quantitative or qualitative metrics and measureable objectives: Objectives must be measurable - there must be some metric the IRWM region can use to determine if the objective is being met as the IRWM Plan is implemented. Neither quantitative nor qualitative metrics are considered inherently better <b>(2)</b> .	49	y	4.6 Table 4-3 to Table 4-7	Section 4.6 provides the intended qualitative and quantitative metrics, as appropriate and practical, for each objective. The qualitative and quantitative measurements for each of the objectives is shown in Tables 4-3 through 4-7, broken down by the 5 Plan Goals.	
Explain how objectives are prioritized or reason why the objectives are not prioritized	50	y	4.3.2	The RWMG has decided not to prioritize the IRWM Plan Objectives on a regional level, but to prioritize locally driven objectives that are tied to the IRWM Plan's Objectives at the designated sub-regional level.	
Reference specific overall goals for the region: RWMGs may choose to use goals as an additional layer for organizing and prioritizing objectives, or they may choose to not use the term at all.	50	y	4-4 Figure 4-4	Section 2.3 discusses the stakeholder involvement and public outreach process. Appendices C and D include the materials.	

Address adapting to changes in the amount, intensity, timing, quality and variability of runoff and recharge.	39	y	4.4.4 14.7 14.12.6	-1.1.2 identifies the use of a planning grant from DWR to develop the 2019 IRWM Plan. -RWMG Working Group and Workshops -Public Outreach to Disadvantaged Communities (DACs)
Consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.	39	y	4.3.4 14.6 14.12.5	Section 4.3.4 describes the climate change vulnerability assessment the Region has conducted, which include SLR as an effect of climate change. Section 14.6 is dedicated to SLR, it's causes and estimates for projected rises based on various scenarios. Section 14.12.5 focuses on future data gathering and analysis related to SLR.
Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.	39	y	14.13.2	This section focuses on climate change mitigation analysis for each of the implementation projects. Considerations in the analysis include reduction in GHG emissions, and reduction in energy consumption.
In evaluating different ways to meet IRWM plan objectives, where practical, consider the strategies adopted by CARB in its AB 32 Scoping Plan1.	39	y	14.11 Table 14.10	Table 14.10 presents plan objectives related to climate change requirements, including strategies of CARB's scoping plan.
Consider options for carbon sequestration and using renewable energy where such options are integrally tied to supporting IRWM Plan objectives.	39	y	Table 14-10 Table 14.12	Table 14.10 presents plan objectives related to climate change requirements, including options for carbon sequestration and renewable energy. Table 14.12 presents resource management strategies related to mitigation strategies, including carbon sequestration.

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

- (1) Requirement must be addressed per CWC §10540 (c).
- (2) Requirement must be addressed per CWC §10541 (e).

IRWM Plan Standard: Resource Management Strategies (RMS)			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Address which RMS will be implemented in achieving IRWM Plan Objectives (1).	39	y	5.2 Table 5-1	Table 5-1 provides the list of RMS adopted by the Region.	
Identify RMS incorporated in the IRWM Plan: Consider all California Water Plan (CWP)RMS criteria (29) listed in Table 3 from the CWP Update 2013	39	y	5.2 Table 5-2	Table 5-2 presents the DWR management objectives, the applicable RMS, and the corresponding the Region's IRWM objectives.	
Consideration of climate change effects on the IRWM region must be factored into RMS. Identify and implement, using vulnerability assessments and tools such as those provided in the Climate Change Handbook, RMS and adaptation strategies that address region-specific climate change impacts. • Demonstrate how the effects of climate change on its region are factored into its RMS. • Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions. • An evaluation of RMS and other adaptation strategies and ability of such strategies to eliminate or minimize those vulnerabilities, especially those impacting water infrastructure systems (2).	39	y	Table 5-2 5.2.2 5.3.5 5.3.12 5.3.16 5.3.21 5.3.22 14.11	Climate change is referenced throughout the RMS section in discussing project elements. Table 5-2 includes climate change as part of the RMS evaluation.	



IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

- (1) Requirement must be addressed per CWC §10540 (e)(1).
- (2) Requirement must be addressed per CWC §10540 (e)(10).



IRWM Plan Standard: Integration			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Contains structure and processes for developing and fostering integration <sup>1</sup> : - Stakeholder/institutional - Resource - Project implementation	39	y	2.4 5.3.20 5.3.22 6.6	Section 2.4 contains information on stakeholder and institutional integration Section 5.3.20 and 5.3.22 contain information on resource integration Section 6.6 contains information on project implementation	

1. If not included as an individual section use Governance, Project Review Process, and Data Management Standards per 2016 IRWM Guidelines, p. 52

IRWM Plan Standard: Project Review Process			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Process for projects included in IRWM plan must address 3 components: - procedures for submitting projects - procedures for reviewing projects - procedures for communicating lists of selected projects	39 - 40	y	6.2 6.5	Section 6.2 describes the criteria, process, and development of the full project list including submittal and review of projects. Section 6.5 describes procedures for project list communication and updates.	
Does the project review process in the plan incorporate the following factors:					
How a project contributes to plan objectives	40	y	6.3.2 Table 6-4	The table presents scoring guidelines for each project, that includes scoring for how many plan objectives a project contributes to.	
How a project is related to Resource Management Strategies identified in the plan.	40	y	6.3.2 Table 6-4	The table presents scoring guidelines for each project, guidelines include scoring for how many Resource Management Strategies a project includes.	
The technical feasibility of a project.	40	y	6.3.2 Table 6.4	The table presents the implementation list scoring rubric. One of the criteria included is technical feasibility of the project.	
A projects specific benefits to a DAC water issue.	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes project's ability to address critical water issues of a DAC.	
Environmental Justice considerations.	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes project's consideration of environmental justice.	
Project costs and financing	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes project costs and financing.	
Address economic feasibility	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes economic feasibility.	
Project status	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes project status and readiness of project to proceed.	

Strategic implementation of plan and project merit	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes strategic considerations for IRWM Plan Implementation.
Status of the Project Proponent's IRWM plan adoption	40	y	6.2.1 Table 6-1	This table presents the full project screening criteria with one of the criteria being plan adoption.
Project's contribution to reducing dependence on Delta supply (for IRWM regions receiving water from the Delta).	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes a project's ability to reduce dependence on the Delta.
Project's contribution to climate change adaptation. •Include potential effects of Climate Change on the region and consider if adaptations to the water management system are necessary <b>(1)</b> . •Consider the contribution of the project to adapting to identified system vulnerabilities to climate change effects on the region. •Consider changes in the amount, intensity, timing, quality and variability of runoff and recharge. •Consider the effects of SLR on water supply conditions and identify suitable adaptation measures.	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes scoring on a project's ability to mitigate and adapt to climate change including, how many climate vulnerabilities are addressed, sea level rise, and addressing runoff and recharge.
Contribution of project in reducing GHGs compared to project alternatives. •Consider the contribution of the project in reducing GHG emissions as compared to project alternatives •Consider a project's ability to help the IRWM region reduce GHG emissions as new projects are implemented over the 20-year planning horizon. •Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.	40	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes scoring on a project's ability to mitigate and adapt to climate change including, if the project reduces GHG emissions compared to other projects, if energy consumption is reduced, and if GHGs are reduced on a 20-year planning horizon.
Specific benefits to critical water issues for Native American tribal communities.	53	y	6.3.2 Table 6-4	The table presents the implementation list scoring rubric. Criteria includes scoring on a project's consideration of environmental justice issues, including scoring specific to addressing critical water issues of Native American Tribal communities.

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10540 (e)(10).

IRWM Plan Standard: Impact and Benefit			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Discuss potential impacts and benefits of plan implementation within IRWM region, between regions, with DAC/EJ concerns and Native American Tribal communities	40	y	7.2 Table 7-6 to Table 7-10	Tables 7-6 through 7-10 identify the general benefits and impacts project proponents should be aware of, benefits and impacts concerning DAC, EJ, and Native American Tribal communities are included in the tables.	
State when a more detailed project-specific impact and benefit analysis will occur (prior to any implementation activity)	55	y	7.5	Section 7.5 contains tables with the benefits and impacts of implementation list projects.	
Review and update the impacts and benefits section of the plan as part of the normal plan management activities	55 - 56	y	7 (intro.) 8.1	The intro of section 7 explains how the impacts and benefits section of the plan will be reviewed and updated. Section 8.1 describes the IRWM plan monitoring and performance strategy, including reviews and updates throughout the plan.	

IRWM Plan Standard: Plan Performance and Monitoring			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Contain performance measures and monitoring methods to ensure that IRWM objectives are met <b>(1)</b> .	40	y	8.2 Table 8-1 to Table 8-5	Section 8 discusses the Goals and Objectives of the Plan and provide a quantitative or qualitative performance measure to assess the Objectives. Section 8.2 and Tables 8-1 through 8-5 combine the measures and discuss the monitoring methodology for each objective.	
Contain a methodology that the RWMG will use to oversee and evaluate implementation of projects.	40	y	8.4 8.4.2	Section 8.4 describes the District's responsibility in working with the RWMG, stakeholders, and monitoring agencies to oversee and evaluate implementation of projects.	
Each project in the IRWM Plan is monitored to comply with all applicable rules, laws, and permit requirements.	58	y	8.5	Section 8.5 describes the quarterly reporting required of implementing agencies. Quarterly reports include reporting of compliance with rules, laws and permit requirements.	
Contain policies and procedures that promote adaptive management and, as more effects of Climate Change manifest, new tools are developed, and new information becomes available, adjust IRWM plans accordingly.	40	y	8.4.5	Section 8.4.5 describes the regular review and updates of the IRWM Plan by the RWMG. The reviews are conducted annually and dedicated to climate change evaluation.	

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10541 (e)(7).

IRWM Plan Standard: Data Management			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Describe data needs within the IRWM region	59 - 60	y	9.3	Section 9.3 describes the data needs for the Region, the source that will supply it, how it is collected, and its applicability for upload to a state or federal database system.	
Describe typical data collection techniques	59 - 60	y	9.4 Table 9-2	Table 9-2 presents the data needs of the plan and the data collection descriptions associated with each.	
Describe stakeholder contributions of data to a data management system	59 - 60	y	9.6.2	Section 9.6.2 describes the future use of a GIS web-enabled tool for collecting, sharing, and storing of data in the SLO region. Tool will be used by the District and stakeholders.	
Describe the entity responsible for maintaining data in the data management system	59 - 60	y	9.4.1	San Luis Obispo County Flood Control and Water Conservation District (District)	
Describe the QA/QC measures for data	59 - 60	y	9.5 9.7.1.1	Section 9.5 describes the quality assurance and quality control measures used in completing tasks related to data management. Section 9.7.1 describes the requirement for MS4 permittees to develop a Monitoring and Reporting Plan (MRP) for Regional Water Board Approval.	
Explain how data collected will be transferred or shared between members of the RWMG and other interested parties throughout the IRWM region, including local, State, and federal agencies (1).	59 - 60	y	9.6 9.7.1	Section 9.6 explains the anticipated new GIS tool that will allow data to be transferred and shared between the RWMG, stakeholders and local, state, and federal agencies. Section 9.7.1 explains the possibility of using a Coordinated Integrated Monitoring Program as a shared approach to data management.	
Explain how the Data Management System supports the RWMG's efforts to share collected data	59 - 60	y	9.6 9.7.1	The data management system has features that allow the RWMG and stakeholders to input, share and access data in a secure and confidential manner. A coordinated (CIMP) program allows a shared approach to sampling, laboratory analysis, data management, and compliance reporting.	

Outline how data saved in the data management system will be distributed and remain compatible with State databases including CEDEN, Water Data Library (WDL), CASGEM, California Environmental Information Catalog (CEIC), and the California Environmental Resources Evaluation System (CERES).	59 - 60	y	9.7.1	The District currently participates in state data management programs (e.g., CASGEM groundwater elevations, GeoTracker local remedial clean-up sites, etc.).	
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(1) Requirement must be addressed per CWC §10541 (e)(12).

IRWM Plan Standard: Finance			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Include a programmatic level (i.e. general) plan for implementation and financing of identified projects and programs <b>(1)</b> including the following:	41	y	Section 10	Section 10 provides an overview of Federal, State and local fundings for the long-term development and funding of the IRWM Plan implementation.	
List known, as well as, possible funding sources, programs, and grant opportunities for the development and ongoing funding of the IRWM Plan.	41	y	10.3 Table 10-4	Table 10-4 describes the funding opportunity resources. Resources include SWRCB Grants and Loans, DWR Grants and Loans, CNRA Grants, CNRA Statewide Bonds, Grants.gov, and SAM.gov	
List the funding mechanisms, including water enterprise funds, rate structures, and private financing options, for projects that implement the IRWM Plan.	41	y	10.2	See Table 10-2	
An explanation of the certainty and longevity of known or potential funding for the IRWM Plan and projects that implement the Plan.	41	y	10.1.1	See Table 10-2	
An explanation of how operation and maintenance (O&M) costs for projects that implement the IRWM Plan would be covered and the certainty of operation and maintenance funding.	41	y	10.1.1 10.2	See Table 10-2	

(1) Requirement must be addressed per CWC §10541 (e)(8).



IRWM Plan Standard: Technical Analysis			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Document the data and technical analyses that were used in the development of the plan (1).	41	y	Section 11	This section provides a discussion of the technical analysis of technical information sources and data sets, how the information represents current conditions, and any data gaps in information along with how the Plan will bridge the data gaps.	

(1) Requirement must be addressed per CWC §10541 (e)(11).

IRWM Plan Standard: Relation to Local Water Planning			Overall Standard Sufficient	No	
Requirement		Included	Evidence of Plan Sufficiency	Sufficient	
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Identify a list of local water plans used in the IRWM plan	41	y	12.2 Table 12-1	Table 12-1 presents the major planning documents utilized for IRWM planning and their relation to the IRWM Plan. Section 12.2 explains linkages with general plans, UWMPs, Master Plans, etc.	
Describe the dynamics between the IRWM plan and other planning documents	41	y	Table 12-2 12.2	Table 12-2 presents the IRWM Plan water management strategies contained in planning documents. Section 12.2 explains the linkages between the IRWM Plan and the other plans used.	
Describe how the RWMG will coordinate its water mgmt planning activities	41	y	12.6.3 Table 12-5	Local agencies and stakeholders are being asked to make changes in their planning policies and heighten the importance of their technical reporting requirements to adhere to local, state, and federal policies and requirements. Table 12-5 provides a short list of the IRWM Plan's needs and methods of communication.	

<p>Discuss how the plan relates to these other planning documents and programs. Same as 2012 GL with the following addition: "It should be noted that Water Code § 10562 (b)(7) requires the development of a stormwater resource plan and compliance with these provisions to receive grants for stormwater and dry weather runoff capture projects. Upon development of the stormwater resource plan, the RWMG shall incorporate it into IRWM plan. The IRWM Plan should discuss the processes that it will use to incorporate such plans." Minor wording differences - e.g. Groundwater Sustainability Plan example in the 2016 Guidelines instead of Groundwater Management Plan in the 2012 Guidelines.</p>	<p>63 - 64</p>	<p>y</p>	<p>12.4 12.4.3</p>	<p>12.4 discusses the use of a Data Enhancement Plan, Flood Management Plan, Groundwater Banking Plan, and Regional Permitting Plan and their relation to the IRWM plan. 12.4.3 identifies the relation between the plan and the Stormwater Resource Plan.</p>	
<p>Consider and incorporate water management issues and climate change adaptation and mitigation strategies from local plans into the IRWM Plan.</p>	<p>63 - 64</p>	<p>y</p>	<p>Table 12-2 12.2.4</p>	<p>Table 12-2 presents the IRWM Plan water management strategies contained in planning documents. Section 12.2.4 describes the Plan's linkages with Urban Water Management Plans to assess water supply needs.</p>	



IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

IRWM Plan Standard: Relation to Local Land Use Planning			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Document current relationship between local land use planning, regional water issues, and water management objectives	41	y	Section 12	The IRWM Plan integrates land use planning strategies into the strategic mix for water resource management and relies on close collaboration and coordination with the region's land use planning agencies.	
Document future plans to further a collaborative, proactive relationship between land use planners and water managers	41	y	12.3 12.5 12.6 12.6.3	Section 12.3 includes examples where local planning documents and policies satisfy the IRWM Planning Goals. Section 12.5 includes the relationship between the IRWM Plan and its consistency with local land use plans and its support through local decisions. Sections 12.6 and 12.6.3 describe the IRWM Plan as an extension to local land use plans in an effort to resolve potential conflicts through consensus-based solutions between RWMG and local water planning leaders.	
Demonstrate information sharing and collaboration with regional land use planning in order to manage multiple water demands throughout the state, adapt water management systems to climate change, and potentially offset climate change impacts to water supply in California.	41	y	12.2 12.2.4 Table 12-1 Table 12-2	Sections 12.2 and 12.2.4 include discussion on linkage of the Plan with local water and land planning studies. Tables 12-1 and 12-2 include planning documents used for the IRWM Plan. Documents contain information on climate change adaption and its relation to water supply in California.	



IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

IRWM Plan Standard: Stakeholder Involvement				Overall Standard Sufficient	No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Discuss involvement of DACs and tribal communities in the IRWM planning effort	41 - 42	y	2.1.8 2.3.3 2.3.4 Appendix D	Section 2.1.8 is dedicated to RWMG coordination with Native American Tribes in the region. Section 2.3.3 describes DAC involvement and 2.3.4 discusses Native American Tribes Outreach. Appendix D is dedicated to Tribal outreach.	
Describe decision-making process and roles that stakeholders can occupy	41 - 42	y	2.2.2	Decisions are made by simple majority vote at the RWMG meetings and then elevated to the Lead Agency Board of Supervisors as needed for final approval and coordination with DWR. Section 2.2.2 discusses the decision making process in more detail.	
Discuss how stakeholders are necessary to address objectives and RMS	41 - 42	y	2.3	Stakeholder involvement ensures education, awareness, balanced opportunity to participate, and clear communication conduits.	
Discuss how a collaborative process will engage a balance in interest groups	41 - 42	y	2.1	Governance determines the processes and organization used to exercise power, make decisions, and hold the decision-makers accountable throughout the implementation and updating of the IRWM plan. Native American Tribe and stakeholder involvement as well as public outreach and participation are essential for successful governance.	
Contain a public process that provides outreach and opportunity to participate in the IRWM plan (1). Per 2016 GL: "Native American tribes – It should be noted that tribes are sovereign nations, and as such coordination with tribes is on a government-to-government basis."	41 - 42	y	2.1.8 2.3 Appendix C Appendix D	Section 2.3 discusses the stakeholder involvement and public outreach process. Appendices C and D include the materials.	

Identify process to involve and facilitate stakeholders during development and implementation of IRWM plan regardless of ability to pay; include description of any barriers to involvement <b>(2)</b> . "Stakeholder Involvement" in the 2012 GL is referred to "Native American Tribe and Stakeholder Involvement" in the 2016 GL and Tribes are referred to specifically.	41 - 42	y	1.1.2 2.1.3 2.3	-1.1.2 identifies the use of a planning grant from DWR to develop the 2019 IRWM Plan. -RWMG Working Group and Workshops -Public Outreach to Disadvantaged Communities (DACs)	
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IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

- (1) Requirement must be addressed per CWC §10541 (g).
- (2) Requirement must be addressed per CWC §10541 (h)(2).

IRWM Plan Standard: Coordination			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	
Identify the process to coordinate water management projects and activities of participating local agencies and stakeholders to avoid conflicts and take advantage of efficiencies (1).	42	y	13.1 13.2 13.5	The Plan discusses pre-project coordination and early engagement in addition to the the IRWM Plan's outreach program to avoid conflicts.	
Identify neighboring IRWM efforts and ways to cooperate or coordinate, and a discussion of any ongoing water management conflicts with adjacent IRWM efforts	42	y	13.2 13.5	Section 13.2 identifies activity coordinatiton strategy with the central coast funding area and adjacent areas. 13.5 describes the various cooperative agreements and other inter-agency coordination efforts related to water supply throughout the IRWM region.	
Identify areas where a state agency or other agencies may be able to assist in communication or cooperation, or implementation of IRWM Plan components, processes, and projects, or where State or federal regulatory decisions are required before implementing the projects.	42	y	13.3 Table 13-1 13.4 Table 13-2	Section 13.3 details coordination with federal and state agencies. Table 13-1 presents the agencies, the interest of the agency and the coordination with the agency. Section 13.4 describes project coordination with federal and state agencies. Table 13-2 identifies areas where federal and state agencies may be able to assist in communicaaion, cooperation, or implementation of projects or programs.	

(1) Requirement must be addressed per CWC §10541 (e)(13).

IRWM Plan Standard: Climate Change			Overall Standard Sufficient		No
Requirement		Included	Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.	Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Contain a plan, program, or methodology for further data gathering and analysis of prioritized vulnerabilities.	42 - 44	y	14.12	Section 14.12 outlines future data gathering and analysis regarding climate change.	
Include climate change as part of the project review process.	42 - 44	y	Table 6-2 to Table 6-4 Appendix F	Projects were awarded additional points for addressing prioritized vulnerabilities and implementing various climate change adaptation and mitigation strategies	
Evaluate IRWM region's vulnerabilities to climate change and potential adaptation responses based on vulnerabilities assessment in the DWR Climate Change Handbook for Regional Water Planning (1). Addition in 2016 GL - "At a minimum, the vulnerability evaluation must be equivalent to the vulnerability assessment contained in the Climate Change Handbook for Regional Water Planning, Section 4 and Appendix B."	42 - 44	y	14.9	Section 14.9 describes the vulnerability assessment conducted in the Region. The assessment was completed following the Climate Change handbook. The region identified and described the regional water resources-related vulnerabilities.	
Provide a process that considers GHG emissions when choosing between project alternatives (1). Addition in 2016 GL - "At a minimum, that process must determine a project's ability to help the IRWM region reduce GHG emissions as new projects are implemented over a 20-year planning horizon and consider energy efficiency and reduction of GHG emissions when choosing between project alternatives."	42 - 44	y	6.3.2 Table 6-2 to Table 6-4 14.3.2	Section 6.3.2 contains tables 6-2 to 6-4 which describe the project review process and include GHG emissions consideration as criteria for evaluation of projects. Section 14.3.2 describes applying climate change downscaled global datasets to the IRWM Region.	
Include a list of prioritized vulnerabilities based on the vulnerability assessment and the IRWM's decision making process. Addition in 2016 GL - "A list of prioritized vulnerabilities which includes a determination regarding the feasibility for the RWMG to address the priority vulnerabilities."	42 - 44	y	14.10 14.11 Table 4-9 to 4-11	Section 14.10 describes the vulnerability prioritization based on the vulnerability assessment and the Regions decision making process. Section 14.11 describes the adaptation and mitigation strategies with regards to climate change. Tables 4-9 to 4-11 present the identified vulnerabilities and their prioritization level.	



<p>Address adapting to changes in the amount, intensity, timing, quality, and variability of runoff and recharge.</p>	<p>42 - 44</p>	<p>y</p>	<p>14.5.5 14.7 14.11 Table 14-10 to Table 14-12</p>	<p>Section 14.5.5 presents daily climate change results expressed as degree days and precipitation. 14.7 addresses flooding due to climate change and extreme precipitation events in the Region. 14.11 describes the adaptation and mitigation strategies adopted to address the climate change vulnerabilities identified in the vulnerability assessment. Tables 14-10 to 14-12 present plan objectives and resource management strategies related to climate change.</p>	
<p>Areas of the State that receive water imported from the Sacramento-San Joaquin River Delta, the area within the Delta, and areas served by coastal aquifers must also consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.</p>	<p>42 - 44</p>	<p>y</p>	<p>14.12.5 Table 14-10 to Table 14-12</p>	<p>14.12.5 describes the data collection and tracking/reporting of SLR in the Region. Tables 14-10 through 14-12 contain SLR in the objectives and resource management strategies presented to address and mitigate climate change.</p>	

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10541 (e)(9).