



## Section M. Technical Analysis

**M**

Technical Analysis



# Section M. Technical Analysis

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## Section M. Technical Analysis

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This section provides a discussion of:

- The technical information sources and/or data sets used to develop the water management needs in the IRWM Plan, explaining why this technical information is representative or adequate for developing the IRWM Plan
- How the technical information represents the current conditions, the scope of historic highs and lows, or the best forecast for future years, etc.
- Data gaps where additional monitoring or studies are needed, and how the Plan will help bridge these data gaps

This section does not include the description of all technical analysis, information, and literature undertaken and reviewed in the IRWM Plan development, knowing that certain data sets used in the IRWM Plan are from studies, historical records, monitoring activities, or ongoing investigations. The distinction is the need for this section to fully develop the technical basis for its conclusions on the need for water resources management actions, including implementation of projects and programs.

The November 2012 State Guidelines require summary information such as what the particular technical analysis does to support the required management actions and the level of certainty (or uncertainty) involved in the analysis. More importantly, any data used in the findings of needed management actions is required to be current and complete to the maximum extent practical. Data gaps where additional monitoring or planning studies can further substantiate the need for management actions are described, where and if possible. In addition, methodologies utilized for the technical analysis are described within each technical document, where available. Primary data sources (e.g., rainfall, stream flows, etc.) stemming from data collection and reporting efforts are described in **Section K – Data Management**.

### M.1 TECHNICAL INFORMATION SOURCES AND DATA USED

This section is based on much of the work and presentation of material in other sections of the IRWM Plan. Most important is the general format of the IRWM Plan and the need to describe the various sources of technical information by Sub-Region. **Section E – Goals and Objectives**, provides the definition and list of the Sub-Region Priorities. These priorities target the specific water resources action needs of each Sub-Region based on conclusions made by stakeholders and technical experts in each region following several outreach efforts. The Sub-Regions are described in detail by watershed in **Section C – Region Description** and **Section D – Water**

**Supply, Demand, and Water Budget.** Throughout the IRWM Plan, there are key references to the differentiators that exist between the Sub-Regions, most importantly in **Section P – Climate Change** where vulnerabilities to climate change are broken down by Sub-Region.

The organization of technical information sources includes the title of the source, the website where the source can be located (as of January 2014), the information used from each source, and where applicable, the Sub-Region benefitting from the source. The list of sources is organized by regional sources and then by Sub-Region sources in alphabetical order.

The criterion for selecting each source is its applicability in current-day conditions and the availability of the source information through the internet to ensure the ease in accessibility to the reader. In cases where no direct internet link is available, the value of the resource to describing the management needs of the IRWM plan may outweigh the need for an internet address. In addition, all hyperlinks are subject to change over time. The resource list will be updated with each five year update of the IRWM Plan to maintain a current resource list with useable hyperlinks.

### ***M.1.1 Resource Documents***

- ✓ San Luis Obispo County (SLOC), 2012 Master Water Report Volume I  
[http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/pdf/Vol\\_I\\_MWR%20final.pdf](http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/pdf/Vol_I_MWR%20final.pdf)
  - Provides the latest background information on water resources management efforts taking place by Water Planning Area
  - Includes a full description of current data collection efforts throughout the county
- ✓ San Luis Obispo County, 2012 SLOC Master Water Report Volume II  
[http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/pdf/Vol\\_II\\_MWR%20final.pdf](http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/pdf/Vol_II_MWR%20final.pdf)
  - Provides a detailed description of each groundwater basin by WPA, who is using the basin, the approximate storage capacity, and ongoing challenges facing the basin, including groundwater management activities
  - Overview of surface water supplies, contract types, surface water reservoirs, and other supply sources such recycled water and desalinization
  - Creates a detailed accounting of all water supplies and demands for each WPA, including an understanding of the various water supply agencies and the rural and ag water sectors. In many cases assumptions had to be made due to insufficient data and resources to fully study certain water and land use categories
  - Water quality challenges are described with each WPA
  - Provides the criteria used to determine whether a supply shortfall exists and how well the region's Water Management Strategies address the shortfall
  - Considers the feasibility of groundwater recharge/banking

- ✓ San Luis Obispo County, 2012 SLOC Master Water Report Volume III  
[http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/pdf/Vol\\_III\\_MWR%20final.pdf](http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/pdf/Vol_III_MWR%20final.pdf)
  - Provides an understanding of the relationship for the Master Water Report to various other water resources planning documents  
Challenges in coordinating the Master Water Report with the IRWM planning process are mentioned including the ability of the District to manage both documents
- ✓ San Luis Obispo County (SLOC) Investigation (Volumes I and II). Bulletin 18. 1958. California Department of Water Resources
  - Provides the first estimate of San Luis Obispo groundwater basin storage and safe yield
- ✓ San Luis Obispo County Groundwater Basins, California's Groundwater, Bulletin 118 Update 2003. 2003. California Department of Water Resources  
<http://www.water.ca.gov/groundwater/bulletin118/bulletin118update2003.cfm>
  - Provides a comprehensive overview of statewide groundwater resources
  - Discusses the need and urgency in conducting groundwater management
  - Provides the roles of the state and federal agencies in groundwater management
  - Includes an exhaustive inventory of the state's groundwater information
- ✓ San Luis Obispo County, Groundwater Monitoring Program Evaluation, SLOC, California, May 2008. 2008. Cleath & Associates, 2008
  - Provides the adequacy and level of effort to develop a groundwater monitoring program for IRWM region
- ✓ Groundwater Flow Model Conversion and Urban Area Yield Update, July 2009. 2009. Cleath-Harris Geologists
  - Provides an updated groundwater flow model for use in simulating and understanding the sustainable yield of groundwater for urban communities reliant on groundwater as source of drinking water
- ✓ Water Use Estimates for Private Domestic Wells, July 2009. 2009. Cleath-Harris Geologists
  - Provides a method for calculating water demands for the rural areas of the IRWM region to generate an overall water supply need (i.e., including ag and urban) in the region
- ✓ San Luis Obispo County 2010-2012 Biennial Resource Summary Report. 2008. SLOC Resource Management System, SLOC Planning and Building Department  
[http://www.slocounty.ca.gov/Assets/PL/RMS/2010-2012\\_RMS.pdf](http://www.slocounty.ca.gov/Assets/PL/RMS/2010-2012_RMS.pdf)
  - Provides information to guide decisions about balancing land development with the resources necessary to sustain such development
  - Data collected through the system is used to identify resource problems and recommending solutions

- ✓ Central Coast, Assessment of Nitrate Contamination in Ground Water Basins of the Central Coast Region - Preliminary Working Draft, December 1995. 1995. RWQCB
  - Provides the sources of nitrate contamination and groundwater basins at risk of continued contamination from farming activities and private septic disposal systems
- ✓ Central Coast Region – Basin Plan (with on-line updates). 2006. RWQCB  
[http://www.swrcb.ca.gov/rwqcb3/publications\\_forms/publications/basin\\_plan/index.shtml](http://www.swrcb.ca.gov/rwqcb3/publications_forms/publications/basin_plan/index.shtml)
  - Provides a source of information regarding how the quality of surface water and groundwater should be managed
  - Identifies quantitative water quality standards to meet through programs and other described actions and an implementation plan
  - Includes waste discharge permitting and wastewater treatment effluent standards.
  - Includes identified uses of inland surface waters
  - Describes regulatory monitoring and assessment programs in the Central Coast region
- ✓ San Luis Obispo County Hydrologic Report water years 2001-02 and 2002-03, May 2005. 2005. SLOC Public Works  
<http://www.slocountywater.org/site/Water%20Resources/Reports/pdf/Hydrologic%20Report%202002.pdf>
  - Includes a summary of hydrologic conditions for 2001-02 and 2002-03
  - Provides historical references to hydrologic parameters including rainfall, evaporation, stream flow, groundwater elevations, and reservoirs, which forms the basis of resource management conditions
- ✓ SLOC 2007 IRWM Plan. 2007. SLOC  
<http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/>
  - Provides the historical reference (or baseline) in the development of current needs not addressed over the past 6 years
  - Forms the much of the backbone of defining the needs of projects and programs
- ✓ SLOC General Plan, April 2007. 2007. SLOC  
<http://www.slocounty.ca.gov/Assets/PL/Elements/COSE.pdf>
  - Policies (i.e., Conservation Element) of the General Plan set goals and requirements of urban water resources needs and management goals within the SLO County region
- ✓ SLOC Regional Watershed Planning, 2013. 2013. SLOC
- ✓ SLOC Salt and Nutrient Management and Recycled Water Planning, 2013. 2013. SLOC (?)  
These two studies have not been produced and issued as of yet, have they? Another chapter shows the SNMP being issued in 2014.
- ✓ SLOC Agricultural Demand Inventory
- ✓ SLOC Data Enhancement Plan
- ✓ SLOC Flood Management Plan
- ✓ SLOC Regional Permit Program



- ✓ SLOC Storm Water Management Plan
  - [http://www.slocounty.ca.gov/PW/Flood\\_Control-Stormwater/SWMP.htm](http://www.slocounty.ca.gov/PW/Flood_Control-Stormwater/SWMP.htm)
  - Includes mandatory requirements in storm water quality, permitting, and reporting.
  - Provides potential solutions to the storm water quality management needs in the SLO IRWM region
  - Defines methods for selecting Best Management Practices and related implementation programs for improving storm water quality
- ✓ SLOC, On-line Contaminant Site Database (Geotracker). State Water Resources Control Board
  - [http://geotracker.waterboards.ca.gov/sites\\_by\\_gwbasin.asp](http://geotracker.waterboards.ca.gov/sites_by_gwbasin.asp)
  - A database which provides data sets in establishing needs related to groundwater cleanup programs in the IRWM region
  - Data is found by address and facility type for known contaminant locations
- ✓ Water Balance Study for the Northern Cities Area, April 2007. 2007. Todd Engineers
  - <http://www.pismoeach.org/DocumentView.aspx?DID=249>
  - Establishes a water balance used to define water supply management needs for:
    - City of Pismo Beach
    - City of Grover Beach
    - City of Arroyo Grande
    - Oceano Community Services District
- ✓ STORET and Legacy Data Center (LDC). U.S. Environmental Protection Agency
  - <http://www.epa.gov/storet/>
  - Provides raw data sets for water quality, biological, and physical data
- ✓ On-line Ground Water Level Database. USGS
  - <http://water.usgs.gov/ogw/data.html>
  - Provides raw data sets for groundwater levels, aquifers, water use, groundwater quality, local groundwater data, and other sources of water

### ***M.1.2 North Coast***

- ✓ Morro Bay 2007 Nitrate Study
  - A study completed to evaluate the impacts of fertilizers, sewer exfiltration, animal operations, and private septic systems on groundwater aquifers used for drinking water supply wells
  - Speaks to the need to implement monitoring and management programs in the small coastal basins. The main source of nitrate is identified as coming from vegetable farming operations in the lower Morro Valley
- ✓ Cayucos Area Water Organization, 2007 Water Management Plan Update
  - Most recent master plan for the community of Cayucos identifying needed replacement and rehabilitation of aging capital facilities

- ✓ Cambria CSD, 2008 Water Master Plan EIR
  - Most recent master plan for the community of Cambria identifying needed replacement and rehabilitation of aging capital facilities
- ✓ North Coast Groundwater, 2009 Cleath-Harris Geologists Groundwater Studies
  - Much of the current groundwater understanding and references used in understanding the needs of smaller North Coast groundwater basins stem from these studies as a source for aquifer descriptions and storage capacity for small coastal groundwater basins
- ✓ Cambria CSD 2010 UWMP. 2012  
<http://www.cambriacsd.org/Library/PDFs/REPORTS/URBAN%20WATER%20MGMT%20PLAN/2012%2002%2023%20Final%20CCSD%20public%202010%20UWMP%20update.pdf>
  - The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the Cambria region
- ✓ Cambria 2012 Consumer Confidence Report  
<http://www.cambriacsd.org/Library/PDFs/WATER%20WASTEWATER/Consumer%20Confidence%20Reports/CCR%20012.pdf>
  - Provides water quality data from northernmost water districts using groundwater as primary source of drinking water supply
- ✓ Cayucos - County Service Area 10/10A Water Quality Report. 2008. SLOC  
[http://www.slocounty.ca.gov/Assets/PW/WQL+Annual+Reports/2008/Cayucos\\_2008.pdf](http://www.slocounty.ca.gov/Assets/PW/WQL+Annual+Reports/2008/Cayucos_2008.pdf)
  - Provides water quality data from local water districts using surface water as primary source of drinking water supply
- ✓ Los Osos, Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Ground Water Basin (Volumes I and II), October 2005. 2005. Cleath & Associates  
[http://www.waterboards.ca.gov/rwqcb3/water\\_issues/programs/los\\_osos/docs/master\\_docs/2005\\_07\\_17\\_sea\\_water\\_intrusion\\_assessment.pdf](http://www.waterboards.ca.gov/rwqcb3/water_issues/programs/los_osos/docs/master_docs/2005_07_17_sea_water_intrusion_assessment.pdf)
  - Provides a good first reference document in considering sea water intrusion in combination with a lower aquifer recharge investigation
- ✓ Morro Bay (City of ) 2010 UWMP. June 2011. CH2M-Hill  
[http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Morro%20Bay,%20City%20of/MorroBay\\_2010\\_UWMP.pdf](http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Morro%20Bay,%20City%20of/MorroBay_2010_UWMP.pdf)
  - The required content of the UWMP makes this resource a useful document in developing the water supply sustainability and water budget information for the City of Morro Bay region
- ✓ Los Osos , Public Draft Review Basin Plan for the Los Osos Groundwater Basin. August 2013  
<http://www.slocountywater.org/site/Water%20Resources/Reports/pdf/Basin%20Plan%20Public%20Review%20Draft%208.1.2013.pdf>
  - The Los Osos groundwater basin is a good example where both water quality

degradation by nitrate and seawater intrusion are occurring simultaneously, expressing the urgency in project solutions to sustain the health of the basin

- ✓ Cambria, Water Master Plan, Program Environmental Impact Report, prepared for Cambria Community Services District, July 2008. 2008. RBF Consulting 2008  
<http://www.cambriacsd.org/Library/PDFs/PROJECTS/RODEO%20GRDS%20PUMP%20STATION/Rodeo%20Public%20Review%20IS%20MND.pdf>
  - Provides useful information of the sensitivity of what goes into an Environmental Impact Report for the North Coast Region in implementing water supply system improvements, including flooding and local environmental issues
- ✓ San Simeon CSD November 2007 Water System Master Plan and Wastewater Collection System Evaluation. 2007  
[http://www.sansimeoncsd.com/PDFs/SSCSD\\_Master\\_Plan\\_12-7-07.pdf](http://www.sansimeoncsd.com/PDFs/SSCSD_Master_Plan_12-7-07.pdf)
  - A study including wastewater as a managed water resource and the integration with recycled water for the San Simeon area (also a Disadvantaged Community)
- ✓ Morro Bay (City of) Ashurst Well Field Nitrate Study for the City of Morro Bay, May 2009. 2009. Cleath-Harris Geologists
  - A study looking at impacts of pumping from coastal groundwater basins and how contaminants, including salt water, can be drawn in under peak season pumping conditions
- ✓ Los Osos Task 3 Los Osos Upper Aquifer Water Quality Characterization, June 2006. 2006. Cleath & Associates
  - Study closely looks at the understanding of drinking water supply aquifers
- ✓ Los Osos Nitrate Monitoring Program, October 2006 Ground Water Monitoring, December 2006. 2006. Cleath & Associates
  - Similar to City of Morro study in identifying causes of nitrate contamination

### ***M.1.3 South County***

- ✓ Avila Valley MWC 2008 Consumer Confidence Report  
<http://avilabeachcsd.org/water-supply/water-quality>
  - Provides water quality data from southern water districts using local and State surface water supplies as primary source of drinking water supply
  - Reports are not available on-line with US EPA
- ✓ Northern Cities Management Area (NCMA) 2010 Annual Report  
[http://pismo-beach.granicus.com/Viewer.php?meta\\_id=47009&view=&showpdf=1](http://pismo-beach.granicus.com/Viewer.php?meta_id=47009&view=&showpdf=1)
  - Provides Cities of Arroyo Grande, Grover Beach and Pismo Beach, and the Oceano Community Services District reporting on water supply and demands
  - Current and future management activities in groundwater resources
  - Defines needs through hydrologic setting and political relationships

- ✓ Nipomo CSD 2009 Waterline Intertie Project Narrative Report  
[http://ncsd.ca.gov/Library/Supplemental\\_Water/BOYLE%20ENGINEERING/Aug%202009%20WIP%20Narrative%20online%20version\\_reduced.pdf](http://ncsd.ca.gov/Library/Supplemental_Water/BOYLE%20ENGINEERING/Aug%202009%20WIP%20Narrative%20online%20version_reduced.pdf)
  - Documents how a community, under California State Superior Court Order, implemented a management action to reduce reliance on groundwater by constructing a waterline project to ensure that the annual average recharge of the groundwater basin exceeds annual consumption
- ✓ Arroyo (City of ) Grande 2010 Final Draft UWMP  
<http://www.arroyogrande.org/static/notices/public-notices/general/01/05/2012/2010-urban-water-management-plan-final-draft.pdf>
  - City of Arroyo Grande depends on local surface water and groundwater resources and implements active groundwater recharge projects
  - The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the City of Arroyo Grande as well as identify the need for additional supplies
- ✓ Pismo (City of ) Beach 2010 UWMP  
[http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Pismo%20Beach,%20City%20of/2010UWMP\\_FINALSept.pdf](http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Pismo%20Beach,%20City%20of/2010UWMP_FINALSept.pdf)
  - City of Pismo Beach depends on local surface water, groundwater, and State Water resources and implements active groundwater recharge projects
  - The city continues to seek supplement water supplies in the region, including recycled water, cloud seeding, and desalinized water
  - The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the City of Pismo Beach as well as identify the need for additional supplies
- ✓ Nipomo CSD 2010 Final Draft UWMP  
[http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Nipomo%20Community%20Services%20District/NCSD%202010%20UWMP\\_Final.pdf](http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Nipomo%20Community%20Services%20District/NCSD%202010%20UWMP_Final.pdf)
  - Nipomo CSD depends on entirely on local groundwater supplies from the adjudicated Santa Maria groundwater basin
  - The County has declared a Level of Severity III for Nipomo CSD's water supply, meaning demands exceed supply and water supplies are not sustainable
  - The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the Nipomo CSD as well as identify the need for additional supplies
- ✓ Grover Beach (City of) Public Works Documents  
<http://www.grover.org/index.aspx?NID=215>
  - A website providing various source documents on water and wastewater in the community of City of Grover

- ✓ Price Canyon, Infrastructure and Phasing of Development into Price Canyon, Spanish Springs Specific Plan. Chapter 5. June 2013. City of Pismo Beach  
<http://www.pismo-beach.org/DocumentCenter/Home/View/9324>
  - Provides the utility needs for expansion of development in Price Canyon
  - Quantifies overall demands and supplies for both domestic and agricultural irrigation, as well as wastewater collection, treatment and disposal
- ✓ Nipomo Mesa Management Area, 1<sup>st</sup> and 5<sup>th</sup> Annual Report. Calendar Year 2008 and Year 2012. NMMA Technical Group  
<http://ncsd.ca.gov/Library/NMMA%20Technical%20Group/2008%20ANNUAL%20REPORT.pdf>  
<http://ncsd.ca.gov/Library/NMMA%20Technical%20Group/5th%20Annual%20Report%20-%20Calendar%20Year%202012.pdf>
  - Provides an annual assessment and baseline (2009 report) of the hydrologic condition for the NMMA based on an analysis of data monitoring program accruing and interpreted each year
  - Goal of each management area is to promote monitoring and management practices so that present and future water demands are satisfied without causing long-term damage to the underlying groundwater resource
  - Data management programs needs are well documented along with the sources of data from outside agencies and interested stakeholders
  - Addresses past and newly developed recommendations along with the implementation schedule based on future budgets, feasibility, and priority
- ✓ Woodlands Mutual Water Company 2012 Consumer Confidence Report  
<http://woodlandsmwc.com/Library/Documents/WMWC%20CCR%202012.pdf>
  - Provides water quality data for small drinking water supply system receiving groundwater supplies through local wells
- ✓ Grover Beach (City of) 2005 UWMP  
<http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Grover%20Beach,%20City%20of/DocumentView.pdf>
  - City of Grover Beach depends on local surface and groundwater resources.
  - Recycled water supplies are included in their planned facilities
  - Downstream releases are considered to maintain stream flows and groundwater recharge downstream
  - The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the City of Grover Beach as well as identify the need for additional supplies
- ✓ Avila Beach CSD 2008 Municipal Services Review  
[http://www.slolafco.com/SOI\\_Updates/Final\\_SOI-MSR\\_ABCSD\\_2008.pdf](http://www.slolafco.com/SOI_Updates/Final_SOI-MSR_ABCSD_2008.pdf)
  - Provides information Avila Beach CSD's service capabilities in the context of being able to serve the Sphere of Influence of its jurisdiction
  - Includes similar information as UWMP with additional focus on growth and services

for growth

- ✓ Avila Beach CSD 2010 Sewer System Management Plan (SSMP)  
<http://avilabeachcsd.org/site/wp-content/uploads/2013/09/2013-09-10-ABCSD-Final-SSMP-RPT-Rev-2.pdf>
  - Provides the regulatory background and requirements for the CSD's collection, treatment, and disposal of wastewater
  - Includes rehabilitation and replacement plans as future projects to improve their water quality effluent discharges
- ✓ Cal Poly 2007 Master Plan and EIR  
<http://afd.calpoly.edu/facilities/masterplan/plan/es.pdf>
  - provides principles and guidelines for the physical development of Cal Poly so that the University can sustain its distinctive mission as a polytechnic university into the 21st century
- ✓ Nipomo CSD, Sphere of Influence and Municipal Service Review. 2010  
[http://www.slolafco.com/SOI\\_Updates/All\\_Public\\_Review\\_Draft.pdf](http://www.slolafco.com/SOI_Updates/All_Public_Review_Draft.pdf)
  - Provides information Nipomo CSD's service capabilities in the context of being able to serve the Sphere of Influence of its jurisdiction
  - Includes similar information as UWMP with additional focus on growth and services for growth
- ✓ Nipomo Water Resource Related Reports Website  
<http://ncsd.ca.gov/cm/Resources/Reports%20by%20Subject.html#Master>
  - Provides an abundance of factual master planning and groundwater data for establishing water resource management needs in the Nipomo region
- ✓ Pismo Creek Watershed, Hydrology and Geology Assessment of the Pismo Creek Watershed, SLOC, California, August 2008. 2008. Balance Hydrologics, Inc.  
<http://www.balancehydro.com/pdf/207133HydPisCr08.pdf>
  - Provides a detailed characterization of the hydrogeologic processes in the Pismo Creek watershed and where fish and other aquatic species may be affected by these processes
- ✓ Pismo-Guadalupe Area, Sea-Water Intrusion: Pismo-Guadalupe Area, Bulletin No. 63-3, February 1970. 1970. California Department of Water Resources  
[http://www.water.ca.gov/waterdatalibrary/docs/historic/Bulletins/Bulletin\\_63/Bulletin\\_63\\_1970.pdf](http://www.water.ca.gov/waterdatalibrary/docs/historic/Bulletins/Bulletin_63/Bulletin_63_1970.pdf)
  - Initially believed to be sea-water intrusion, this study concluded that natural salinity of the geologic environment was the cause
  - Did conclude that additional groundwater pumping could bring subsurface saline water inland
  - Created first sentry monitoring wells for assessing the movement of sea water intrusion
- ✓ Arroyo Grande-Nipomo Mesa Area Water Resources, Southern District Report. 2002. California Department of Water Resources  
[http://www.dpla.water.ca.gov/sd/water\\_quality/arroyo\\_grande/arroyo\\_grande-nipomo\\_mesa.html](http://www.dpla.water.ca.gov/sd/water_quality/arroyo_grande/arroyo_grande-nipomo_mesa.html)

- Provide information on the water resources of the Arroyo Grande-Nipoma area
- DWR conducted this study under an agreement with SLO County
- ✓ Nipomo Community Services District Water and Sewer Master Plan, December 2007. Cannon Associates  
<http://ncsd.ca.gov/Library/Master%20Plans/2007/FINAL%20REPORT.pdf>
  - Provides a regional study and Water Supply Alternatives Analysis for the Southland Wastewater Treatment Facility Master Plan and the Sanitary Sewer Overflow Regulations
  - Includes a wide ranging list of project ideas and concepts from water recycling to desalinization, water tank mixing, and conversion of well motors from electric to natural gas
- ✓ Arroyo Grande (City of ) Consumer Confidence Reports  
[http://www.arroyogrande.org/static/uploads/pdfs/document-center/city-departments/public-works/consumer\\_confidence\\_report\\_2012.pdf](http://www.arroyogrande.org/static/uploads/pdfs/document-center/city-departments/public-works/consumer_confidence_report_2012.pdf)
  - Provides water quality data for small drinking water supply system receiving local surface water (Lopez Lake) and groundwater supplies through local wells
- ✓ Pismo (City of) 2006/07 through 2015/16 Ten-Year Capital Program and Major Expenditure  
<http://ca-pismobeach.civicplus.com/DocumentCenter/Home/View/185>
  - Provides 10 year outlook on solutions to water resources challenges facing the City of Pismo Beach
  - Includes costs of capital projects
- ✓ Edna, Draft San Luis-Edna Valley Ground Water Study. 1997. DWR
  - Provides hydrogeologic description of San Luis-Edna Valley area.
- ✓ Arroyo Grande/Nipomo Mesa Study. 2002. DWR  
[http://www.water.ca.gov/groundwater/data\\_and\\_monitoring/southern\\_region/GroundwaterQuality/arroyo\\_grande/arroyo\\_grande-nipomo\\_mesa.html](http://www.water.ca.gov/groundwater/data_and_monitoring/southern_region/GroundwaterQuality/arroyo_grande/arroyo_grande-nipomo_mesa.html)
  - Provides hydrogeologic description of water resources in the Arroyo Grande-Nipomo Mesa area
  - Portions underlie the now adjudicated Santa Maria Basin
- ✓ Edna, Consumer Confidence Report, Edna Water System. Golden State Water Company  
<http://www.gswater.com/wp-content/uploads/2013/06/Water-Quality-2013-Edna-Road.pdf>
  - Provides water quality data for small drinking water supply system receiving groundwater supplies through local wells
- ✓ Nipomo, Consumer Confidence Reports, Nipomo Water System. Golden State Water Company  
<http://www.gswater.com/nipomoccr/>
  - Provides water quality data for small drinking water supply system receiving groundwater supplies through local wells
- ✓ Santa Maria Valley, Evaluation of Ground Water Quality in the Santa Maria Valley,

California. 1977. Hughes, Jerry L. USGS. Water Resources Investigations 76-128  
<http://pubs.er.usgs.gov/publication/wri76128Cached/>

- Provides initial hydrogeologic evaluation of Santa Maria Valley
- ✓ Santa Maria Valley , Development of a Numerical Ground Water Flow Model and Assessment of Ground-Water Basin Yield - Santa Maria Valley Ground-Water Basin. 2008. Luhdorff and Scalmanini  
[http://www.water.ca.gov/irwm/grants/docs/Archives/Prop84/Submitted\\_Applications/P84\\_Round2\\_Implementation/Cachuma%20RCD%20\(201312340020\)/Attachment%203.%20\(cont\)%20-%20Att03\\_IG2\\_WorkPlan\\_App03\\_02\\_1of1.pdf](http://www.water.ca.gov/irwm/grants/docs/Archives/Prop84/Submitted_Applications/P84_Round2_Implementation/Cachuma%20RCD%20(201312340020)/Attachment%203.%20(cont)%20-%20Att03_IG2_WorkPlan_App03_02_1of1.pdf)
- Provides the geologic conditions, full description and condition of the Santa Maria Groundwater Basin
- Includes the 2011 Annual Report of Hydrogeologic Conditions, Water Requirements, Supplies and Disposition for the Santa Maria Valley Management Area
- ✓ Nipomo, S.S. Papadopulos & Associates, 2004. Nipomo Mesa Resource Capacity Study, March 2004  
<http://ncsd.ca.gov/Library/Groundwater%20Information/PAPADOPULOS%20REPORT.pdf>
- Provides the estimated groundwater capacity beneath Nipomo Mesa, a groundwater basin in overdraft
- Findings indicate Level of Severity III-existing demand equals or exceeds the dependable supply
- ✓ Cuyama Valley, Singer, J. A. and W. V. Swarzenski, 1970. Pumpage and Ground-Water Storage Depletion in Cuyama Valley, California 1947-66. U.S.G.S. Water-Supply Paper 1110-B  
<http://www.countyofsb.org/pwd/water/downloads/USGS%20OFR%201970%20TEXT.pdf>
- Provides an early study of water level declines in the Cuyama Valley groundwater basin
- ✓ Zone 3, 2010 UWMP. 2011. SLOC  
<http://www.water.ca.gov/urbanwatermanagement/2010uwmps/San%20Luis%20Obispo%20County/Zone%203%20Urban%20Water%20Management%20Plan%202010%20Update.pdf>
- Zone 3 provides water to 5 urban service areas in the South County region. The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the Zone 3 region

#### ***M.1.4 North County***

- ✓ Paso Robles 2010 Groundwater Basin Water Balance Review and Update  
<http://www.slocountywater.org/site/Water%20Resources/Reports/pdf/Paso%20Robles%20Groundwater%20Basin%20Water%20Balance%20Review%20and%20Update.pdf>
- Provides the water balance for the Paso Robles Groundwater Basin and the Atascadero Subbasin from 1998 to 2009
- Projected water balance provides forecasting from 2010 to 2025



- Provides definitions to overdraft conditions and natural processes taking place
- ✓ Atascadero Mutual Water Company 2005 UWMP  
<http://www.amwc.us/PDFFilesOther/Conservation/Urban%20Water%20Master%20Plan%202005.pdf>
  - Atascadero MWC depends on groundwater resources from the Atascadero Sub-Basin of the Paso Basin and underflow from the Salinas River (considered as groundwater)
  - Includes some consideration for alternative supplies, for example, Lake Nacimiento.
  - The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the City of Atascadero as well as identify the need for additional supplies
  - Could not locate a 2010 UWMP
- ✓ Atascadero (City of) Sphere of Influence Municipal Service Review  
[http://www.slolafco.com/SOI\\_Updates/Final%20Adopted\\_ATAS\\_SOI-MSR.pdf](http://www.slolafco.com/SOI_Updates/Final%20Adopted_ATAS_SOI-MSR.pdf)
  - Provides comprehensive background for City of Atascadero water and wastewater resources and current and future capacity to meet water and wastewater demands
- ✓ Camp Roberts Joint Land Use Study, May 2013  
[http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=8&ved=0CFoQQfAH&url=http%3A%2F%2Fwww.camprobertsjlus.com%2Fresources%2Flibrary%2Fdoc\\_download%2F5-camp-roberts-jlus-public-draft-may-2013.html&ei=UR5cUoyABMGcJAKu94HYBA&usg=AFQjCNEaHx3rdag\\_sER-6P5P4jWMaiqeng&sig2=ls8ZjPo4suVXxMk7K-rzw&bvm=bv.53899372,d.cGE](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=8&ved=0CFoQQfAH&url=http%3A%2F%2Fwww.camprobertsjlus.com%2Fresources%2Flibrary%2Fdoc_download%2F5-camp-roberts-jlus-public-draft-may-2013.html&ei=UR5cUoyABMGcJAKu94HYBA&usg=AFQjCNEaHx3rdag_sER-6P5P4jWMaiqeng&sig2=ls8ZjPo4suVXxMk7K-rzw&bvm=bv.53899372,d.cGE)
  - Provides a comprehensive evaluation of water resources, environmental and climate change variables for the Camp Roberts area
- ✓ Shandon, 2008 Water Quality Report, County Service Area #16, Shandon. 2008. SLOC. Public Works Department  
<http://www.slocounty.ca.gov/Assets/PW/WQL+Annual+Reports/2008/Shandon+CCR+2009.pdf>
  - Provides supply quality from a small groundwater system in the Paso Robles Groundwater Basin
  - Includes operations and inspections of water system, and needed improvements for fireflows
  - Updated reports including further solutions to reducing groundwater use not found
- ✓ Santa Margarita, County Service Area #23 2008 Water Quality Report. 2008. SLOC. Public Works Department  
[http://www.slocounty.ca.gov/Assets/PW/WQL+Annual+Reports/2008/MRG\\_2008.pdf](http://www.slocounty.ca.gov/Assets/PW/WQL+Annual+Reports/2008/MRG_2008.pdf)
  - Provides supply quality from a small groundwater system in the Santa Margarita Groundwater Basin
  - Includes operations and inspections of water system, and needed improvements for fireflows
  - Updated reports including further solutions to reducing groundwater use not found
- ✓ Templeton, Revised Report, Water Quality Modeling of the Salinas River Underflow and Proposed Waste Discharge Requirements in Support of the Selby Percolation Pond

Facility Expansion: prepared for Templeton Community Services District, January 2007. 2007. Fugro West

- Provides water quality assessment of wastewater discharges to the Salinas River and its potential impact on the underflow well system of Templeton CSD
- ✓ San Miguel, April 2013 Water Study for the San Miguel Community Plan Update. Fugro <http://www.slocounty.ca.gov/Assets/PL/San+Miguel+Community+Plan+Update/waterstudy.pdf>
  - Combines historic water use information from available reports and assesses the projected water demand with available groundwater supplies
  - Identifies needed system improvements to both supply and distribution
  - Considers supplemental water supplies in the region
- ✓ Paso Robles Groundwater Subbasin Water Banking Feasibility Study, Final Report: prepared for SLOC Flood Control and Water Conservation District, April 2008. 2008. GEI Consultants, Fugro West, and Cleath and Associates <http://www.prcity.com/government/departments/publicworks/water/pdf/GBMP/reports/WaterBankingFeasibilityStudyApr08.pdf>
  - Provides a study which stems from the 2007 SLO IRWM Plan to consider opportunities for banking of groundwater in the Paso Robles basin
  - Includes a comprehensive investigation of banking alternatives and management actions
- ✓ Shandon Community Plan, March 2012 <http://www.slocounty.ca.gov/Assets/PL/Draft+Plans/Shandon+Community+Plan+Draft+-+March+2012/Chapter+4.pdf>
  - Provides an environmental discussion of the protection of natural and cultural resources and energy conservation
- ✓ San Miguel CSD, 2011 Consumer Confidence Report <http://www.sanmiguelcsd.org/pdf/2011%20San%20Miguel%20CCR%20Report%20Finalized.pdf>
  - Provides supply quality from a small groundwater system in Paso Robles Groundwater Basin
  - Includes operations and inspections of water system, and needed improvements for fireflows
- ✓ Templeton CSD 2013 Consumer Confidence Report. 2013 <http://www.templetoncsd.org/DocumentCenter/View/33>
  - Provides supply quality from a small groundwater system
  - Includes a source assessment summary for each groundwater well
- ✓ Paso Robles (City of) Annual Monitoring Report for Calendar Year 2009 <http://www.prcity.com/government/departments/publicworks/water/pdf/BasinAnnualMonitoringRPT2009.pdf>
  - A groundwater monitoring report submitted to the Paso Robles Groundwater Basin - Groundwater Advisory Committee in February 2011
- ✓ Paso Robles (City of), 2012 Annual Water Quality Report

<http://www.prcity.com/government/departments/publicworks/water/pdf/WaterQualityReport.pdf>

- Provides a comprehensive understanding of the City of Paso Robles groundwater supplies, including Salinas River underdrains
  - Identifies groundwater issues and need for supplemental water supplies
  - Lists contaminants that may be present in water supplies
- ✓ Paso Robles 2010 UWMP  
[http://www.prcity.com/government/departments/publicworks/water/pdf/UWMP\\_2010\\_FINAL\\_June2011.pdf](http://www.prcity.com/government/departments/publicworks/water/pdf/UWMP_2010_FINAL_June2011.pdf)
- City of Paso Robles depends on groundwater resources including Salinas River underdrains
  - Recycled water supplies are included in their planned facilities along with improvements to the wastewater treatment plant to reduce salt loading
  - City is progressing with a surface water treatment plant using 4,000 AFY of Nacimiento water
  - The required content of the UWMP makes this resource an extremely useful document in developing the water supply sustainability and water budget information for the City of Paso Robles as well as identify the need for additional supplies
- ✓ Paso Robles Groundwater Basin Management Plan, March 2011  
<http://www.prcity.com/government/departments/publicworks/water/groundwater.asp>  
[http://www.prcity.com/government/departments/publicworks/water/pdf/GBMP/plan/PasoBasin\\_FinalGMP.pdf](http://www.prcity.com/government/departments/publicworks/water/pdf/GBMP/plan/PasoBasin_FinalGMP.pdf)
- Provides comprehensive hydrogeologic understanding of the Paso Basin and Basin Management Objectives to ensure the needs of the basin are addressed and monitored over time
  - First website includes important additional studies related to the Paso Basin
- ✓ San Miguel Municipal Services Review September 2013  
[http://www.slolafco.com/SOI\\_Updates/NoCo\\_2013/Public\\_Review\\_Draft\\_Chapter\\_4\\_SMCSO\\_MSR.pdf](http://www.slolafco.com/SOI_Updates/NoCo_2013/Public_Review_Draft_Chapter_4_SMCSO_MSR.pdf)
- Provides water and wastewater utilities assessment for existing and planned growth
  - Associates land use with increases in water resources utilities
- ✓ Santa Margarita Water Master Plan, 2003 CSA 23. 2004. SLOC Public Works Department  
<http://www.slocountywater.org/site/County%20Service%20Areas/CSA%2023/pdf/Santa%20Margarita%20Water%20System%20Master%20Plan%202003.pdf>
- Provides a good source of needed upgrades to a small 40 year old groundwater system with under sized pipes and insufficient fire flows
  - Consideration for supplemental water supply solution including the Nacimiento Project and tank renovation
- ✓ Shandon Community Plan Chapter 7 – Infrastructure and Utilities for CSA 16, Community of Shandon, Draft  
<http://www.slocounty.ca.gov/Assets/PL/Draft+Plans/Shandon+Community+Plan+Draft+-+March+2012/Chapter+7.pdf>

- Provides a summary of the master plans for water and sewer and the 2012 assessment of the water system needed of a small groundwater system
- Includes the planning to hold on to and utilize the 100 AFY State Water Project supply
- ✓ Heritage Ranch Community Services District Website  
<http://www.heritageranchcsd.com/water.html>
  - Provides a summary of the current conditions of the small water systems reliant on Lake Nacimiento, the only source of supply
- ✓ Resource Investigation of Low and Moderate-Temperature. 1983. Campion, L.F., R.H. Chapman, G.W. Chase, and L.G. Youngs
  - Federal document not available
- ✓ Geothermal Areas in Paso Robles, California: California Division of Mines and Geology, Open File Report 83-11 SAC.
  - Federal document not available
- ✓ Santa Margarita, Basic Geology of the Santa Margarita Area, SLOC, California, Bulletin 199, California Division of Mines and Geology, Sacramento, California. 1976. Hart, E.W.  
<http://archive.org/stream/margaritalogyofs00hartrich#page/14/mode/2up>
  - Provides a detailed understanding of the hydrogeology of the Santa Margarita Valley groundwater basin and Rinconada earthquake fault
- ✓ Atascadero (City of) Adopted Sphere of Influence Update Municipal Service Review. September 2011  
[http://www.slolafco.com/SOI\\_Updates/Final%20Adopted\\_ATAS\\_SOI-MSR.pdf](http://www.slolafco.com/SOI_Updates/Final%20Adopted_ATAS_SOI-MSR.pdf)
  - Provides elements of a UWMP in describing the adequacy of the current water, wastewater and storm drain services
  - Includes Atascadero Mutual Water Company water system description of groundwater from wells and underflow drains beneath the Salinas River
- ✓ Atascadero Mutual Water Company 2012 Consumer Confidence Report  
[http://www.amwc.us/PDFFilesOther/CCR/2012\\_CCR.pdf](http://www.amwc.us/PDFFilesOther/CCR/2012_CCR.pdf)
  - Provides a characterization of the water quality and water conservation programs
- ✓ Santa Margarita Ranch Agricultural Residential Cluster Subdivision Project and Future Development Program EIR. February 2008  
<http://www.slocounty.ca.gov/Assets/PL/Draft+EIR+Notice+of+Availability/2008/Santa+Margarita+Ranch+-+Comments+due+03-28-08.pdf>
  - Provides a characterization of an Ag-Res development project and describes environmental considerations
  - Report is an update to an initial EIR and address water and wastewater impacts from the Ag-Res private septic and well systems
  - Includes vineyards and associated water demands as part of the development plan
- ✓ SunPower - California Valley Solar Ranch Website  
<http://www.slocounty.ca.gov/planning/environmental/EnvironmentalNotices/sunpower.htm>

- Provides a website to public information on the construction of the 250 megawatt photovoltaic solar power plant on the Carrizo Plain
  - Includes the final EIR and latest monitoring reports
- ✓ Santa Margarita Technical Memorandum, Groundwater Resources of CSA 23, October 2004
- <http://www.slocountywater.org/site/County%20Service%20Areas/CSA%2023/pdf/CSA%2023%20Todd%20Technical%20Memol.pdf>
- Provides a comprehensive understanding of CSA 23, the small town of Santa Margarita
  - Includes hydrogeology, water demands and supplies, and impacts from the proposed Santa Margarita Ranch development
  - Provides recommendations for monitoring of data from test wells designed for conversion to production wells
- ✓ Topaz Solar Farm (First Solar) Website
- <http://www.slocounty.ca.gov/planning/environmental/EnvironmentalNotices/optisoloar.htm>
- Provides a website to public information on the construction of the 550 megawatt photovoltaic solar power plant on the Carrizo Plain
  - Includes the final EIR and latest monitoring reports

## M.2 INCORPORATE AND CONSIDER PROPOSITION 50 STUDIES

The four studies completed in 2008 specifically addressed regional data gaps and supported the overall SLO Region IRWM Plan goals, objectives, and strategies, and improved the IRWM Plan itself. These projects included the following:

- Data Enhancement Plan
- Flood Management Plan
- Groundwater Banking Plan
- Regional Permitting Plan

**Section A – Introduction**, Table A-2 provides a shortlist of the elements a plan must address, per the 2012 Guidelines. **Appendix Q – State Guideline Requirement Tables** provides the more detailed listing of the specific pass/fail requirements contained within the plan and a listing or key to where each of these elements can be found for this IRWM Plan. Locations are indicated by both section and page number where these elements are treated.

### ***M.2.1 Data Enhancement Plan***

The Data Enhancement Plan was a regional water monitoring program designed to provide data for planning, design, and operational purposes, yet it was also designed to be flexible and to

change over time. This is not necessarily contradictory. Rather, it implies that regional water monitoring program data will be frequently interpreted to identify monitoring sites that might be dropped from the network or sampled less frequently, as well as identifying spatial gaps or the need for more frequent data collection. The design also recognizes that there will continue to be improvements in instrumentation that will allow for more in-situ monitoring and the collection of more data by remote sensing. New technologies will be incorporated into the regional water monitoring program when they are ready for operational deployment.

### ***M.2.2 Flood Management Plan***

The Flood Management Plan was developed as a guide to implementing flood control projects. The objective of the guide was to identify several of the most significant constraints affecting the ability to implement flood control projects in the SLO Region and to propose methods and strategies to address the challenges. As with most problems, and especially with flooding, stakeholder involvement is essential. Therefore, the target audience for the report was composed of the individual citizens and communities affected by flooding problems. The intent of the plan was to provide guidance in the process of implementing such methods and strategies to address the flooding problems.

### ***M.2.3 Groundwater Banking Plan***

The Groundwater Banking Plan explored the feasibility of banking water in the Paso Robles Groundwater Basin (Basin) for the benefit of County residents. This was considered a high-priority study with much potential because the Basin is the largest in the County and the Coastal Branch of the State Water Project (SWP) enters the County adjacent to the Basin. The potential benefits associated with a groundwater banking program included:

- Improving local groundwater conditions within the Basin
- Increasing dry-year water supply reliability for local water users and possibly the residents of the County and the Central Coast
- Improving local groundwater quality in the Basin
- Providing greater flexibility of water resources management in the County and the Central Coast
- Reducing the County's dependence on imported water supplies in below-normal years

### ***M.2.4 Regional Permitting Plan***

The Regional Permitting Plan developed an approach to managing the multitude of permits from different agencies at different levels of government required by the County for carrying out each of its projects. It establishes an orderly set of uniform conditions for projects in order

to reduce processing time and increase consistency and effectiveness. It progresses towards a self-monitored permit using internet access for permitting agencies to monitor compliance by the County. The goal of this plan was to eventually have the County issue its own permits, only requiring auditing by the agencies normally entrusted with the permitting authority. The process described in the plan would reduce redundancy and provide a higher quality and more efficient investment of resources. The plan lays out the steps to:

- Organize consistent conditions from various agencies by project type and resource area
- Develop a single, comprehensive permit that is recognized by permitting agencies
- Designate one permitting agency to provide oversight and reporting responsibilities over each project
- Create and utilize a web portal into their electronic permit monitoring system to allow self-management by the County, with auditing abilities by any permitting agency

#### ***M.2.5 Integrating Proposition 50 Studies into the IRWM Plan***

Information developed in these four studies was incorporated into the relevant sections during the SLO IRWM Plan Update process. The information developed in these studies affect, and were considered while updating, the plan standards as depicted in **Figure M-1**.



***Figure M-1. IRWM Plan Sections Incorporating Proposition 50 Studies***

## M.3 RELATING TECHNICAL SOURCES TO IRWM GOALS

The bulleted description statements are provided to speak to how the technical source helps in defining the management needs of the IRWM region (i.e., not how the source was used in developing the IRWM Plan).<sup>1</sup>

A table is used as a means of relating each source with the five IRWM Plan Goals by identifying which Goals are addressed by each source document and to what degree of adequacy. Each of the listed sources includes a green or yellow dot signifying a high or low degree of adequacy, respectively.

### *M.3.1 Relevance of Technical Sources*

**Table M-1** includes each of the technical source titles and provides the relevance of the document to each of the IRWM Goals. The relevance is measured by how the technical information contained in the source document (or website) represents and characterizes the IRWM region's needs. The following Relevance Factors are used as a basis for why the source is used in the IRWM Plan:

- Current conditions
- Historic highs and lows
- Forecasts for future years
- Public involvement and visibility
- Scientific methods and models
- Responses to direct Goal-related concerns (e.g., UWMPs)

The value listed in the table is based on which of the IRWM Goals the source best characterizes to allow for a conclusion of need, as defined in the IRWM Plan. In some cases the value relates to the usefulness of the information, or approach to presenting information to an IRWM Goal. For example, a water district's Water Quality Consumer Confidence Report is a means of understanding the current conditions of water supply and its treated water quality for a community. The fact that this information is sent to each of the water district's customers, in a format to be read by the layperson, and includes educational material, makes it applicable to both the Water Supply Goal and the Water Resources Management and Communications Goal. If the water district is also reporting on groundwater conditions in the report, the Groundwater Management Goal is also included.

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<sup>1</sup> The IRWM Plan acknowledges that many of these same sources have been used in developing the IRWM Plan including additional sources listed in **Section R - Bibliography**.



For purposes of the IRWM Plan, the values inform the reader of the sources containing one or more of the above listed Relevance Factors. The value 1 indicates a single factor is included for the goal, and the value 2 represents more than one factor is included.<sup>2</sup> An “x” indicates that there is a level of uncertainty as to its relationship with the goal, and a closer examination of the source material is needed.

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<sup>2</sup> An actual count of Relevance Factors was not completed; rather, it is an estimate based on the PMT’s understanding of the document and its intended purpose.

**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

**Table M-1. Technical Source Information for Defining IRWM Management Needs**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
<b>Regional</b>					
1. San Luis Obispo County (SLOC), 2012 Master Water Report Volume I	2		2		1
2. San Luis Obispo County, 2012 SLOC Master Water Report Volume II	2	1	2	1	1
3. San Luis Obispo County, 2012 SLOC Master Water Report Volume III	1				2
4. San Luis Obispo County (SLOC) Investigation (Volumes I and II). Bulletin 18. 1958. California Department of Water Resources			x		
5. San Luis Obispo County Groundwater Basins, California's Groundwater, Bulletin 118 Update 2003. 2003. California Department of Water Resources	1	1	2		1
6. San Luis Obispo County, Groundwater Monitoring Program Evaluation, SLOC, California, May 2008. 2008. Cleath & Associates, 2008			2		
7. Groundwater Flow Model Conversion and Urban Area Yield Update, July 2009. 2009. Cleath-Harris Geologists			2		
8. Water Use Estimates for Private Domestic Wells, July 2009. 2009. Cleath-Harris Geologists	2				
9. San Luis Obispo County 2010-2012 Biennial Resource Summary Report. 2008. SLOC Resource Management System, SLOC Planning and Building Department	2	1	2		2
10. Central Coast, Assessment of Nitrate Contamination in Ground Water Basins of the Central Coast Region - Preliminary Working Draft, December 1995. 1995. RWQCB	1	1	2		1
11. Central Coast Region – Basin Plan (with	1	2	1		1

**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
on-line updates). 2006. RWQCB					
12. San Luis Obispo County Hydrologic Report water years 2001-02 and 2002-03, May 2005. 2005. SLOC Public Works	1	2	1	2	1
13. SLOC 2007 IRWM Plan. 2007. SLOC	2	2	1	1	1
14. SLOC General Plan, April 2007. 2007. SLOC	1	1	1	1	1
15. SLOC Regional Watershed Planning, 2013. 2013. SLOC	1	2	1	1	2
16. SLOC Salt and Nutrient Management and Recycled Water Planning, 2013. 2013. SLOC	1	1	2		1
17. SLOC Agricultural Demand Inventory	2				
18. SLOC Data Enhancement Plan	1	1	1	1	1
19. SLOC Flood Management Plan				2	
20. SLOC Regional Permit Program		x			
21. SLOC Storm water Management Plan				2	1
22. SLOC, On-line Contaminant Site Database(Geotracker). State Water Resources Control Board	1		2		
23. Water Balance Study for the Northern Cities Area, April 2007. 2007. Todd Engineers	2				
24. STORET and Legacy Data Center (LDC). U.S. Environmental Protection Agency	1		2		
25. On-line Ground Water Level Database. USGS			2		
<b>North Coast</b>					
26. Morro Bay 2007 Nitrate Study	2		2		
27. Cayucos Area Water Organization, 2007 Water Management Plan Update	2		1		

**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
28. Cambria CSD, 2008 Water Master Plan EIR	2		1		
29. North Coast Groundwater, 2009 Cleath-Harris Geologists Groundwater Studies			2		
30. Cambria CSD 2010 UWMP. 2012	2		2		2
31. Cambria 2012 Consumer Confidence Report	2				2
32. Cayucos - County Service Area 10/10A Water Quality Report. 2008. SLOC	2				2
33. Los Osos, Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Ground Water Basin (Volumes I and II), October 2005. 2005. Cleath & Associates	2	1	2		
34. Morro Bay (City of ) 2010 UWMP. June 2011. CH2M-Hill	2		2		2
35. Los Osos , Public Draft Review Basin Plan for the Los Osos Groundwater Basin. August 2013	1		2		1
36. Cambria, Water Master Plan, Program Environmental Impact Report, prepared for Cambria Community Services District, July 2008. 2008. RBF Consulting 2008	2	1	1		
37. San Simeon CSD November 2007 Water System Master Plan and Wastewater Collection System Evaluation. 2007	2	1	1		
38. Morro Bay (City of) Ashurst Well Field Nitrate Study for the City of Morro Bay, May 2009. 2009. Cleath-Harris Geologists	1		2		
39. Los OsosTask 3 Los Osos Upper Aquifer Water Quality Characterization, June 2006. 2006. Cleath & Associates	1		2		
40. Los Osos Nitrate Monitoring Program, October 2006 Ground Water Monitoring, December 2006. 2006. Cleath & Associates	1		2		

**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
<b>North County</b>					
41. Paso Robles 2010 Groundwater Basin Water Balance Review and Update			2		1
42. Atascadero Mutual Water Company 2005 UWMP	2		2		2
43. Atascadero (City of) Sphere of Influence Municipal Service Review	2		1	1	
44. Camp Roberts Joint Land Use Study, May 2013	1	1	1	1	
45. Shandon, 2008 Water Quality Report, County Service Area #16, Shandon. 2008. SLOC. Public Works Department	2		1		2
46. Santa Margarita, County Service Area #23 2008 Water Quality Report. 2008. SLOC. Public Works Department	2		1		1
47. Templeton, Revised Report, Water Quality Modeling of the Salinas River Underflow and Proposed Waste Discharge Requirements in Support of the Selby Percolation Pond Facility Expansion: prepared for Templeton Community Services District, January 2007. 2007. Fugro West	2	1	2		
48. San Miguel, April 2013 Water Study for the San Miguel Community Plan Update. Fugro	2		2		
49. Paso Robles Groundwater Subbasin Water Banking Feasibility Study, Final Report: prepared for SLOC Flood Control and Water Conservation District, April 2008. 2008. GEI Consultants, Fugro West, and Cleath and Associates	2		2		
50. Shandon Community Plan, March 2012	1	1	1	1	1
51. San Miguel CSD, 2011 Consumer Confidence Report	2		1		2

**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
52. Templeton CSD 2013 Consumer Confidence Report. 2013	2		1		2
53. Paso Robles (City of) Annual Monitoring Report for Calendar Year 2009	2		1		2
54. Paso Robles (City of), 2012 Annual Water Quality Report	2		1		2
55. Paso Robles 2010 UWMP	2		2		2
56. Paso Robles Groundwater Basin Management Plan, March 2011	1		2		2
57. San Miguel Municipal Services Review September 2013	2		1	1	
58. Santa Margarita Water Master Plan, 2003 CSA 23. 2004. SLOC Public Works Department	2		1		
59. Shandon Community Plan Chapter 7 – Infrastructure and Utilities for CSA 16, Community of Shandon, Draft	2		1		
60. Heritage Ranch Community Services District Website	2		2		
61. Resource Investigation of Low and Moderate-Temperature. 1983. Campion, L.F., R.H. Chapman, G.W. Chase, and L.G. Youngs	x				
62. Geothermal Areas in Paso Robles, California: California Division of Mines and Geology, Open File Report 83-11 SAC.	2		1		
63. Santa Margarita, Basic Geology of the Santa Margarita Area, SLOC, California, Bulletin 199, California Division of Mines and Geology, Sacramento, California. 1976. Hart, E.W.			2		
64. Atascadero (City of) Adopted Sphere of Influence Update Municipal Service Review. September 2011	1		1	1	

**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
65. Atascadero Mutual Water Company 2012 Consumer Confidence Report	2		1		2
66. Santa Margarita Ranch Agricultural Residential Cluster Subdivision Project and Future Development Program EIR. February 2008	1	1	1		
67. SunPower - California Valley Solar Ranch Website		1			1
68. Santa Margarita Technical Memorandum, Groundwater Resources of CSA 23, October 2004	1		2		
69. Topaz Solar Farm (First Solar) Website		1			1
<b>South County</b>					
70. Avila Valley MWC 2008 Consumer Confidence Report	2		1		2
71. Northern Cities Management Area (NCMA) 2010 Annual Report	2		2		2
72. Nipomo CSD 2009 Waterline Intertie Project Narrative Report	1				
73. Arroyo (City of ) Grande 2010 Final Draft UWMP	2		2		2
74. Pismo (City of ) Beach 2010 UWMP	2		2		2
75. Nipomo CSD 2010 Final Draft UWMP	2		2		2
76. Grover Beach (City of) Public Works Documents	2		2	2	2
77. Price Canyon, Infrastructure and Phasing of Development into Price Canyon, Spanish Springs Specific Plan. Chapter 5. June 2013. City of Pismo Beach	1				
78. Nipomo Mesa Management Area, 1st and 5th Annual Report. Calendar Year 2008 and Year 2012. NMMA Technical Group	2		2		2

**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
79. Woodlands Mutual Water Company 2012 Consumer Confidence Report	2		1		2
80. Grover Beach (City of) 2005 UWMP	2		2		2
81. Avila Beach CSD 2008 Municipal Services Review	2		1	1	1
82. Avila Beach CSD 2010 Sewer System Management Plan (SSMP)	1				1
83. Cal Poly 2007 Master Plan and EIR	2		1		1
84. Nipomo CSD, Sphere of Influence and Municipal Service Review. 2010	1		1	1	1
85. Nipomo Water Resource Related Reports Website	2		2	2	2
86. Pismo Creek Watershed, Hydrology and Geology Assessment of the Pismo Creek Watershed, SLOC, California, August 2008. 2008. Balance Hydrologics, Inc.		2	2	1	
87. Pismo-Guadalupe Area, Sea-Water Intrusion: Pismo-Guadalupe Area, Bulletin No. 63-3, February 1970. 1970. California Department of Water Resources	1		2		
88. Arroyo Grande-Nipomo Mesa Area Water Resources, Southern District Report. 2002. California Department of Water Resources	1		2		
89. Nipomo Community Services District Water and Sewer Master Plan, December 2007. 2007. Cannon Associates	2		2		
90. Arroyo Grande (City of ) Consumer Confidence Reports	2		1		2
91. Pismo (City of) 2006/07 through 2015/16 Ten-Year Capital Program and Major Expenditure	2				
92. Edna, Draft San Luis-Edna Valley Ground Water Study. 1997. DWR			2		

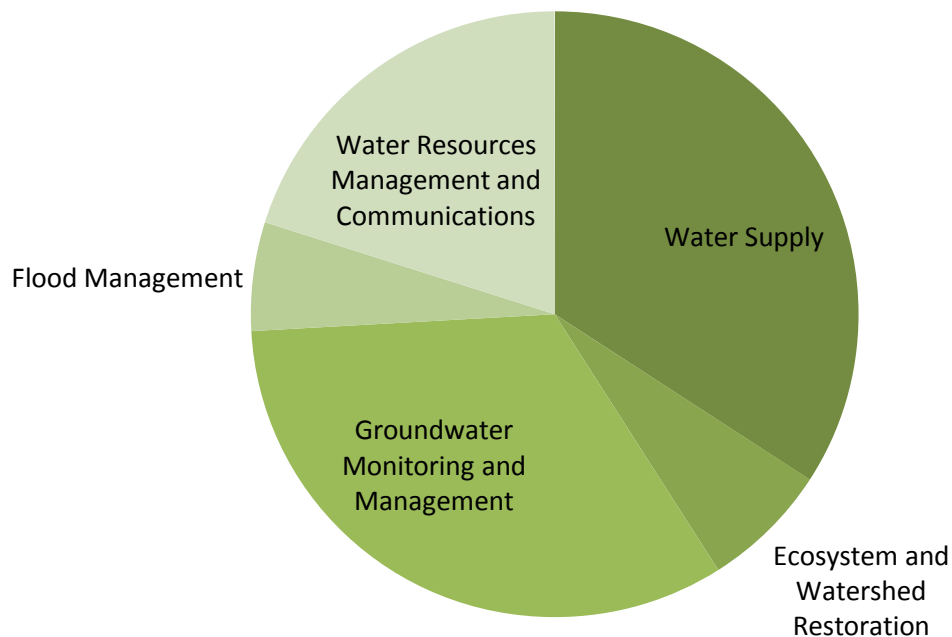


**Table M-1. Technical Source Information for Defining IRWM Management Needs, Continued**

Report Name	IRWM Goals				
	Water Supply	Ecosystem and Watershed Restoration	Groundwater Monitoring and Management	Flood Management	Water Resources Management and Communications
93. Arroyo Grande/Nipomo Mesa Study. 2002. DWR			2		
94. Edna, Consumer Confidence Report, Edna Water System. Golden State Water Company	1		1		1
95. Nipomo, Consumer Confidence Reports, Nipomo Water System. Golden State Water Company	2		1		2
96. Santa Maria Valley, Evaluation of Ground Water Quality in the Santa Maria Valley, California. 1977. Hughes, Jerry L. USGS. Water Resources Investigations 76-128	2	1	2		
97. Santa Maria Valley , Development of a Numerical Ground Water Flow Model and Assessment of Ground-Water Basin Yield - Santa Maria Valley Ground-Water Basin. 2008. Luhdorr and Scalmanini			2		
98. Nipomo, S.S. Papadopulos & Associates, 2004. Nipomo Mesa Resource Capacity Study, March 2004	2		2		
99. Cuyama Valley, Singer, J. A. and W. V. Swarzenski, 1970. Pumpage and Ground-Water Storage Depletion in Cuyama Valley, California 1947-66. U.S.G.S. Water-Supply Paper 1110-B			2		
100. Zone 3, 2010 UWMP. 2011 (Zone 3 is in the South County)	2		2		2

### ***M.3.2 Emphasis of Source Priorities and Data Gaps***

From **Table M-1**, the Water Supply and Groundwater Management Goals visually appear (see **Figure M-2**) to have the highest number of source documents, with the Ecosystem and Restoration and Flood Management Goals with the least number. The reason for this imbalance is two-fold. The former is because water supply and groundwater management are tied together for the majority of SLO communities, and have historically had the highest priority in terms of concerns in the past, present, and future.



***Figure M-2. Source Breakdown by IRWM Goal***

The second reason is because the latter set of goals does not have the regional scale of the former. Flood Management and Ecosystem Restoration concerns center mostly along the coastal regions creating a higher degree of concern and importance than in the inland areas. To improve and fill any data gaps in the latter, the IRWM Plan’s described needs for monitoring and reporting in **Section K – Data Management** and **Section J – Plan Performance and Monitoring** target improved monitoring of hydrology, climate change, and improvements based on implementation of Ecosystem Restoration and Flood Management projects or programs.

## M.4 PROJECT SPECIFIC TECHNICAL SOURCE INFORMATION

As part of the project development and selection process, supporting documentation is necessary in developing the project need, benefit, and cost, as well as comparisons with alternative projects. **Table M-2** summarizes just some of the technical source documents used for each of IRWM Plan’s projects and programs (i.e., unpublished agency reports and studies are not included).

**Table M-2. Project Specific Planning Source Documents**

Project Code	Project Title	Project Type	Local Technical Source Documents
MLTP_ECO1	Livestock & Land Program	Educational Program	Paso Robles Groundwater Basin Management Plan
MLTP_WMT2	LID Pilot Program	Educational Program with Installation Drainage Devices to Optimize Irrigation and Groundwater Recharge	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCNT_ECO1	North County Fertilizer Regions_ Precision Agriculture	Education Program with Changes in Fertilizing Practice	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCNT_ECO2	Attiyeh Ranch Conservation Easement	Conservation Easement for the Protection of Lands in Perpetuity	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCNT_GWM1	Upper Salinas River Basin Water Conservation/Conjunctive Use Project	Improve quality and increase use of treated wastewater to augment and create sustainable water supply	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCNT_WMT1	Community Based Social Marketing	Educational Program	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCNT_WMT2	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices	Education Program with Reductions in Irrigation Water Use	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCNT_WSP1	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction	New Water Treatment Plant	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCNT_WSP2	San Miguel Critical Water System Improvements	System Improvements Including Backup New Generators	San Luis Obispo County 2010-2012 Biennial Resource Summary Report
NCST_GWM1	8th Street Upper Aquifer Well and Nitrate Removal Facility	New Treatment and Supply Well Facilities	Central Coast, Assessment of Nitrate Contamination in Ground Water Basins of the Central Coast Region
NCST_FLD1	Los Padres CCC Center - Stormwater LID Treatment Project	Education and Improved Ecosystem	SLOC Storm Water Management Plan
SCNT_FLD2	Oceano Drainage Improvement Project - Hwy 1 & 13th Street	Drainage Project with Groundwater Recharge	SLOC Storm Water Management Plan
SCNT_WMT1	Lopez Water Treatment Plant Membrane Rack Addition	Water Treatment Plant Expansion	County Service Area 10/10A Water Quality Report
SCNT_WSP2	Recycle Water Distribution System Expansion	Recycled Water System Expansion	2012 SLOC Master Water Report Volume II
SCNT_WSP4	Pismo Beach Recycled Water Project	Recycled Water System Expansion	Pismo (City of ) Beach 2010 UWMP





