MEMORANDUM OF UNDERSTANDING

For Integrated Regional Water Management in the Greater Monterey County Region

1. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to recognize a mutual understanding among entities in the greater Monterey County area regarding their joint efforts toward Integrated Regional Water Management (IRWM) planning. Under this agreement, the Regional Water Management Group (RWMG) partners commit to participate in the ongoing process established pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act (also known as Proposition 84) and develop a comprehensive Integrated Regional Water Management Plan (IRWMP) for the Greater Monterey County IRWM Region. This agreement sets forth the mutual responsibilities of the RWMG in the development of an IRWMP.

2. BACKGROUND

In November of 2002, Proposition 50 (the "Water Security, Clean Drinking Water, Coastal and Beach Protection Act") was passed by California voters, approving Chapter 8 and the Integrated Regional Water Management Program. The purpose of the IRWM Program is to "encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water." Proposition 50 amended the California Water Code to authorize the Legislature to appropriate $500 million for integrated regional water management projects.

In November 2006, California voters passed Proposition 84, the "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Costal Protection Act of 2006." Administered by the Department of Water Resources, Proposition 84 includes an additional $1 billion in funding for the IRWM Grant Program, including $52 million for the Central Coast hydrologic region. Proposition 1E, the "Disaster Preparedness and Flood Prevention Bond Act of 2006," was also passed in 2006, authorizing the State to sell $4.09 billion in bonds to rebuild and repair California's most vulnerable flood control structures, and to protect California's drinking water supply system by rebuilding delta levees that are vulnerable to earthquakes and storms.

In order to be eligible for grant funds through the IRWM Grant Program, a project must be contained within an adopted IRWM Plan (IRWMP) developed in accordance with guidelines set forth by the State. Three IRWMPs covering geographic areas within Monterey County were developed under Proposition 50:

- Pajaro River Watershed IRWMP (May 2007), including portions of San Benito and Santa Clara Counties
- Monterey Peninsula, Carmel Bay and South Monterey Bay IRWMP (November 2007, amended March 2009)

- Salinas Valley IRWM Functionally Equivalent Plan (May 2006, amended October 2008)

Together these plans covered most of the Salinas Valley, all of the Pajaro River watershed, all of the Carmel River and San Jose Creek watersheds, and the Monterey Peninsula. However, many key areas of Monterey County were not represented within any of these plans, leaving significant coverage voids for the purposes of IRWM planning and project implementation. These areas include, specifically: the Big Sur coastal watersheds and communities on the western side of the Santa Lucia Range, from Pt. Lobos south to the San Luis Obispo County line; the larger Salinas River watershed from the Salinas River National Wildlife Refuge at the Pacific Ocean south to the San Luis Obispo County line and including the east and west ranges of the valley; the Gabilan watershed; and portions of western San Benito County.

Representatives of the Central Coast IRWM Regions (including the three noted above plus Northern Santa Cruz County, San Luis Obispo County, and Santa Barbara County Regions) agreed during a meeting in February 2008 that the Salinas Valley plan should be expanded to include those areas of Monterey County that had not been represented in previous plans. A Regional Water Management Group has been formed to lead the effort in developing a new IRWMP which will supersede the Salinas Valley IRWM Functionally Equivalent Plan. The new Region eliminates all previous IRWM area coverage voids within Monterey County, and is called the "Greater Monterey County" Region.

This MOU recognizes the joint commitment of the undersigned parties to develop an IRWMP for the Greater Monterey County Region. The MOU does not impose any further commitments or obligations upon any signatory party other than to participate in this process of IRWMP development. The resulting IRWMP will enable agencies and organizations in the Greater Monterey County Region to apply for Proposition 84 and Proposition 1E grant funds to support water resource management projects in the Region. The IRWMP may also serve as a basis for obtaining grant funds through other sources, such as the federal Clean Water Act Section 319 Nonpoint Source Implementation Program, the U.S. Bureau of Reclamation's Title XVI Program, and other Federal, State, and private funding programs.

3. DEFINITIONS

3.1 **IRWM Region (Region).** The area defined by a RWMG for the purposes of integrated regional water resource planning and project implementation. At a minimum, a Region is defined as a contiguous geographic area encompassing the service areas of multiple local agencies; is defined to maximize the opportunities to integrate water management activities; and effectively integrates water management programs and projects within a hydrologic region defined in the California Water Plan, the Regional Water Quality Control Board region, or subdivision or other region specifically identified by the Department of Water Resources.

3.2 **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 a plan that meets the requirements of IRWM planning, participate by means of an MOU or other written agreement that is approved by the governing bodies of those local agencies.

3.3 **Integrated Regional Water Management Plan (IRWMP).** An IRWMP is, in essence, a plan for applying to the State for IRWM grant funds to support various water resource-related projects within a defined planning Region. The plan must be developed according to certain guidelines set forth by the State. These guidelines lead the RWMG through a process that is intended to foster integrated regional water management planning in the original spirit of the legislation.

Specifically, the guidelines ensure that a RWMG: considers the major water-related issues and conflicts within its Region; identifies goals and objectives for the Region in relation to IRWM planning; considers a broad variety of water management strategies for water resource management within the Region; identifies disadvantaged communities in the Region and takes the water-related needs of those communities into consideration; considers greenhouse gas emissions of programs and projects included in the plan; evaluates the adaptability to climate change of water management systems in the Region; and ultimately identifies the appropriate mix of water demand and supply management alternatives, water quality protections, and environmental stewardship actions to provide long-term, reliable, and high quality water supply and protect the environment. The result and culmination of this process—the raison d'être and "core" of the plan—is a prioritized list of projects that will be submitted to the State of California in application for IRWM grant funds.

4. GOALS

The goals of the collaborative effort undertaken pursuant to this MOU are as follows:

4.1 To develop and adopt a comprehensive IRWMP for the Region that will consider the strategies that are required by the State under Part 2.2 of Division 6 (commencing with Section 10530) of the California Water Code. Water management strategies that must be considered in the IRWMP include: ecosystem restoration, environmental and habitat protection and improvement, water supply reliability, flood management, groundwater management, recreation and public access, storm water capture and management, water conservation, water quality protection and improvement, water recycling, and wetlands enhancement and creation. Optional additional strategies that may be considered include: conjunctive use, desalination, imported water, land use planning, nonpoint source pollution control, promotion of the steelhead run, surface storage, watershed planning, water and wastewater treatment, and water transfers.

4.2 To develop a comprehensive IRWMP for the Region that incorporates water supply, water quality, flood and erosion protection, and environmental protection and enhancement objectives. At a minimum, the plan shall address all of the following:

a) Protection and improvement of water supply reliability, including identification of feasible agricultural and urban water use efficiency strategies.

b) Identification and consideration of the drinking water quality of communities within the area of the plan.

c) Protection and improvement of water quality within the area of the plan, consistent with the relevant basin plan.

d) Identification of any significant threats to groundwater resources from overdrafting.

e) Protection, restoration, and improvement of stewardship of aquatic, riparian, and watershed resources within the region.

f) Protection of groundwater resources from contamination.

g) Identification and consideration of the water-related needs of disadvantaged communities in the area within the boundaries of the plan.

4.3 To improve and maximize coordination of individual public, private, and non-profit agency plans, programs and projects for mutual benefit and optimal gain within the Region.

4.4 To help identify, develop, and implement collaborative plans, programs, and projects that may be beyond the scope or capability of individual entities, but which would be of mutual benefit if implemented in a cooperative manner.

4.5 To foster coordination, collaboration and communication between stakeholders and other interested parties, to achieve greater efficiencies, enhance public services, and build public support for vital projects.

4.6 To realize regional water management objectives at the least cost possible through mutual cooperation, elimination of redundancy, and enhanced regional competitiveness for State, Federal, and private sources of grant funding.

5. MUTUAL UNDERSTANDING

5.1 **Geographic Scope of the Greater Monterey County IRWM Region:** The Greater Monterey County IRWM Region includes the entirety of Monterey County exclusive of the Pajaro River Watershed IRWM Region and Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM Region established under Proposition 50, and in addition encompasses a small portion of San Benito County where the Salinas River watershed extends outside of Monterey County.

5.2 **Regional Water Management Group for the Greater Monterey County IRWM Region:** The RWMG for the Greater Monterey County Region consists of 18 entities with responsibility and interests in management of water resources that have agreed to form for the purposes of developing an IRWMP consistent with the guidelines set forth by the State of California for integrated regional water management. The RWMG for Greater Monterey County comprises the following public, private, and non-profit entities and groups:

- Big Sur Land Trust
- California Coastal Commission
- California State University Monterey Bay
- California Water Service Company
- Castroville Community Services District
- City of Salinas
- Coastlands Mutual Water Company
- Elkhorn Slough National Estuarine Research Reserve
- Environmental Justice Coalition for Water
- Garrapata Creek Watershed Council
- Marina Coast Water District
- Monterey Bay National Marine Sanctuary
- Monterey County Agricultural Commissioner's Office
- Monterey County Water Resources Agency
- Monterey Regional Water Pollution Control Agency
- Moss Landing Marine Laboratories
- Resource Conservation District of Monterey County
- San Jerardo Cooperative, Inc.

5.3 **Governance and Decision-making Related to IRWMP Development:** Governance and decision-making related to development of the IRWMP will follow the structure and procedures outlined in the Greater Monterey County RWMG Bylaws, which are incorporated by reference.

5.4 **Adoption of the IRWMP:** Upon completion of the Greater Monterey County IRWMP, RWMG members shall each accept, approve, or adopt the plan through resolution by their governing boards or by other means according to organizational protocol.

5.5 **Amendment of the IRWMP:** The IRWMP and prioritized project list may be amended from time to time by majority vote of the RWMG. Any RWMG member or stakeholder may request that a meeting of the RWMG be convened for the purposes of amending the IRWMP. However, it is anticipated that the IRWMP or prioritized project list will be amended no more frequently than annually.

5.6 **Grant Applications and Awards:** The RWMG will designate a Lead Agency to apply for State IRWM grant funds for projects within the Greater Monterey County Region. The Lead Agency will be the grantee and will administer the grant on behalf of the RWMG and project proponents.

5.7 **Project Implementation and Monitoring:** Project proponents will be responsible for implementing proposed projects and for providing project reports to the Lead Agency. The Lead Agency will be responsible for coordinating data collection and dissemination. The RWMG will be responsible for monitoring the implementation of the IRWMP.

5.8 **RWMG Member Roles and Responsibilities:** RWMG members will not be required, but will be expected to attend all RWMG meetings. RWMG meetings will be held on a monthly basis throughout the duration of plan development, and thereafter on a schedule to be determined most appropriate for continued integrated planning and plan updates. All member organizations will contribute staff time to participate in RWMG meetings, public workshops, and other RWMG activities, and will be expected (though not required) to assume various tasks related to IRWMP development and implementation, including participation on committees.

5.9 **Incorporation of New Members:** It is recognized that membership of the RWMG may change from time to time. Incorporation of new members into the RWMG will be decided on a case-by-case basis by majority vote of the RWMG. A new member will be required to sign the MOU and will be expected to actively participate as described herein. Lack of active participation by any RWMG organization may be grounds for removal from the RWMG, which would be decided by majority vote of the RWMG.

5.10 **Financial Costs:** RWMG activities will be funded mainly by in-kind contributions from RWMG members. All member organizations will contribute staff time to participate in RWMG meetings, public workshops, and other RWMG activities. Costs to cover consultant fees to develop and publish the IRWMP and to facilitate public workshops will be covered entirely through private grant funds that have been obtained by the Big Sur Land Trust. Funds for other costs related to IRWMP development and future plan amendments that cannot be covered through in-kind contributions will be obtained from grants or will be determined by the RWMG at that time.

6. GENERAL PROVISIONS GOVERNING MOU

6.1 **Term:** This MOU shall become effective upon the date of the signature of all authorized representatives from each of the participating entities. This term shall continue in effect until terminated by the RWMG or until there are no longer any participating entities.

6.2 **Counterparts:** This MOU may be executed in any number of counterparts, each of which so executed shall be deemed to be an original. The counterparts shall together constitute one and the same MOU.

6.3 **Termination:** An entity signatory to this MOU may withdraw from participation upon 30 days advance notice to the other signatory entities.

6.4 **Amending the Agreement:** This MOU may be amended upon signed agreement by all authorized representatives.

6.5 **Relationship:** This agreement shall not be construed or deemed to create a fiscal relationship of partnership or joint venture among the parties.

6.6 **Good Faith:** Each RWMG member shall use its best efforts and work wholeheartedly and in good faith for the expeditious completion of the objectives of this MOU and the satisfactory performance of its terms.

6.7 **Rights of the Parties and Constituencies:** This MOU does not provide any added legal rights or regulatory powers to any of the signatory parties, or to the RWMG as a whole. This MOU does not of itself give any party the power to adjudicate water rights, or to regulate or otherwise control the private property of other parties. This MOU does not contemplate the parties taking any action that would adversely affect the rights of any of the parties, or that would adversely affect the customers or constituencies of any of the parties.

7. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the duly authorized undersigned representatives of our respective entities, acknowledge the above as our understanding of the intent and expected outcome in overseeing the development and implementation of an Integrated Regional Water Management Plan for the Greater Monterey County IRWM Region.

REGIONAL WATER MANAGEMENT GROUP

William H. Leahy, Executive Director
Big Sur Land Trust

5-10-2009
Date

Alfred L. Wanger, Deputy Director for Information Technology and Water Quality
California Coastal Commission

Date

Kathryn Cruz-Uribe, Provost and Vice President for Academic Affairs
California State University Monterey Bay

Date

Todd Peters, Chief Engineer
California Water Service Company

Date

Eric Tynan, General Manager
Castroville Community Services District

Date

Artie Fields, City Manager
City of Salinas

Date

Everett Kronlund, President
Coastlands Mutual Water Company

Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

12/3/09
Date

William H. Leahy, Executive Director
Big Sur Land Trust

Date

Alfred L. Wanger, Deputy Director for Information Technology and Water Quality
California Coastal Commission

9/23/09
Date

Kathryn Cruz-Uribe, Provost and Vice President for Academic Affairs
California State University Monterey Bay

Date

Todd Peters, Chief Engineer
California Water Service Company

Date

Eric Tynan, General Manager
Castroville Community Services District

Date

Artie Fields, City Manager
City of Salinas

Date

Everett Kronlund, President
Coastlands Mutual Water Company

Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

Date

William H. Leahy, Executive Director
Big Sur Land Trust

Date

Alfred L. Wanger, Deputy Director for Information Technology and Water Quality
California Coastal Commission

Date

Kathryn Cruz-Uribe, Provost and Vice President for Academic Affairs
California State University Monterey Bay

10/30/09
Date

Todd Peters, Chief Engineer
California Water Service Company

Date

Eric Tynan, General Manager
Castroville Community Services District

Date

Artie Fields, City Manager
City of Salinas

Date

Everett Kronlund, President
Coastlands Mutual Water Company

Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

Date

William H. Leahy, Executive Director
Big Sur Land Trust

Date

Alfred L. Wanger, Deputy Director for Information Technology and Water Quality
California Coastal Commission

Date

Kathryn Cruz-Uribe, Provost and Vice President for Academic Affairs
California State University Monterey Bay

Date

Todd Peters, Chief Engineer
California Water Service Company

8/26/09
Date

Eric Tynan, General Manager
Castroville Community Services District

Date

Artie Fields, City Manager
City of Salinas

Date

Everett Kronlund, President
Coastlands Mutual Water Company

Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

Date

REGIONAL WATER MANAGEMENT GROUP

William H. Leahy, Executive Director
Big Sur Land Trust

Date

Ross Clark, TITLE
California Coastal Commission

Date

Kathryn Cruz-Uribe, Provost and Vice President for Academic Affairs
California State University Monterey Bay

Date

Todd Peters, Chief Engineer
California Water Service Company

Date

Eric Tynan, General Manager
Castroville Community Services District

9-23-09
Date

Denise Estrada, TITLE
City of Salinas

Date

Everett Kronlund, President
Coastlands Mutual Water Company

Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

Date

William H. Leahy, Executive Director
Big Sur Land Trust

Date

Alfred L. Wanger, Deputy Director for Information Technology and Water Quality
California Coastal Commission

Date

Kathryn Cruz-Uribe, Provost and Vice President for Academic Affairs
California State University Monterey Bay

Date

Todd Peters, Chief Engineer
California Water Service Company

Date

Eric Tynan, General Manager
Castroville Community Services District

Date

Artie Fields, City Manager
City of Salinas

9-14-09
Date

Everett Kronlund, President
Coastlands Mutual Water Company

Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

Date

William H. Leahy, Executive Director
Big Sur Land Trust

Date

Alfred L. Wanger, Deputy Director for Information Technology and Water Quality
California Coastal Commission

Date

Kathryn Cruz-Uribe, Provost and Vice President for Academic Affairs
California State University Monterey Bay

Date

Todd Peters, Chief Engineer
California Water Service Company

Date

Eric Tynan, General Manager
Castroville Community Services District

Date

Artie Fields, City Manager
City of Salinas

Date

Everett Kronlund, President
Coastlands Mutual Water Company

9-29-09
Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

Date

Deborah Davis, Policy Director
Environmental Justice Coalition for Water

October 8, 2009
Date

Ken Ekelund, President
Garrapata Creek Watershed Council

Date

Jim Heitzman, General Manager
Marina Coast Water District

Date

Paul Michel, Superintendent
Monterey Bay National Marine Sanctuary

Date

Paul Binsacca, Board President
Resource Conservation District of Monterey County

Date

Eric Lauritzen, Agricultural Commissioner
Monterey County Agricultural Commissioner's Office

Date

Curtis V. Weeks, General Manager
Monterey County Water Resources Agency

Date

Keith Israel, General Manager
Monterey Regional Water Pollution Control Agency

Date

Eric Tynan, General Manager
Castroville Community Services District

Date

Artie Fields, City Manager
City of Salinas

Date

Everett Kronlund, President
Coastlands Mutual Water Company

Date

Bryan Largay, Tidal Wetland Project Director
Elkhorn Slough National Estuarine Research Reserve

Date

Deborah Davis, Legislative Analyst
Environmental Justice Coalition for Water

Date

K Ekelund

Ken Ekelund, President
Garrapata Creek Watershed Council

23 Sept 2009
Date

Jim Heitzman, General Manager
Marina Coast Water District

Date

Paul Michel, Superintendent
Monterey Bay National Marine Sanctuary

Date

Deborah Davis, Legislative Analyst
Environmental Justice Coalition for Water

Date

Ken Ekelund, President
Garrapata Creek Watershed Council

Date

Jim Heitzman, General Manager
Marina Coast Water District

Oct. 3, 09

Date

Paul Michel, Superintendent
Monterey Bay National Marine Sanctuary

Date

Paul Binsacca, Board President
Resource Conservation District of Monterey County

Date

Eric Lauritzen, Agricultural Commissioner
Monterey County Agricultural Commissioner's Office

Date

Curtis V. Weeks, General Manager
Monterey County Water Resources Agency

Date

Keith Israel, General Manager
Monterey Regional Water Pollution Control Agency

Date

Deborah Davis, Legislative Analyst
Environmental Justice Coalition for Water

Date

Ken Ekelund, President
Garrapata Creek Watershed Council

Date

Jim Heitzman, General Manager
Marina Coast Water District

Date

Paul Michel, Superintendent
Monterey Bay National Marine Sanctuary

9-10-09
Date

Paul Binsacca, Board President
Resource Conservation District of Monterey County

Date

Eric Lauritzen, Agricultural Commissioner
Monterey County Agricultural Commissioner's Office

Date

Curtis V. Weeks, General Manager
Monterey County Water Resources Agency

6/21/4
Date

Keith Israel, General Manager
Monterey Regional Water Pollution Control Agency

Date

Deborah Davis, Legislative Analyst
Environmental Justice Coalition for Water

Date

Ken Ekelund, President
Garrapata Creek Watershed Council

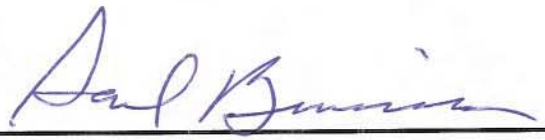
Date

Jim Heitzman, General Manager
Marina Coast Water District

Date

Paul Michel, Superintendent
Monterey Bay National Marine Sanctuary

Date



8/20/09

Paul Binsacca, Board President
Resource Conservation District of Monterey County

Date

Eric Lauritzen, Agricultural Commissioner
Monterey County Agricultural Commissioner's Office

Date

Curtis V. Weeks, General Manager
Monterey County Water Resources Agency

Date

Keith Israel, General Manager
Monterey Regional Water Pollution Control Agency

Date

Deborah Davis, Legislative Analyst
Environmental Justice Coalition for Water

Date

Ken Ekelund, President
Garrapata Creek Watershed Council

Date

Jim Heitzman, General Manager
Marina Coast Water District

Date

Paul Michel, Superintendent
Monterey Bay National Marine Sanctuary

Date

Paul Binsacca, Board President
Resource Conservation District of Monterey County

Date

Eric Lauritzen, Agricultural Commissioner
Monterey County Agricultural Commissioner's Office

April 12, 2010
Date

Curtis V. Weeks, General Manager
Monterey County Water Resources Agency

Date

Keith Israel, General Manager
Monterey Regional Water Pollution Control Agency

Date

Keith Israel, General Manager **Monterey Regional Water Pollution Control Agency**	9-28-2009 Date
Jerri Carmo, Deputy Chief Operating Officer and Director of Sponsored Programs, San Jose State University Research Foundation **Moss Landing Marine Laboratories**	Date
Horacio Amezquita, Manager **San Jerardo Cooperative, Inc.**	Date

Jerri Carmo, Deputy Chief Operating Officer and Director of Sponsored Programs, San Jose State University Research Foundation **Moss Landing Marine Laboratories**	10/14/04 Date
Horacio Amezquita, Manager **San Jerardo Cooperative, Inc.**	Date

Jerri Carmo, Deputy Chief Operating Officer and Director of Sponsored Programs, San Jose State University Research Foundation
Moss Landing Marine Laboratories

Date

Horacio Amezquita

09/29/2009

Horacio Amezquita, Manager
San Jerardo Cooperative, Inc.

Date

ADDENDUM

The organizations below have been added to the Regional Water Management Group The RWMG voted to invite the City of Soledad to join the Group on August 17, 2011, and voted to invite the Rural Community Assistance Corporation to join on September 21, 2011, with none opposed for either vote.

8.29.12 — 8/29/12

Adela P Gonzalez, City Manager — Date
City of Soledad

Brian Phillips, Regional Manager, Environmental N CA/NV — Date
Rural Community Assistance Corporation

ADDENDUM

The organizations below have been added to the Regional Water Management Group. The RWMG voted to invite the City of Soledad to join the Group on August 17, 2011, and voted to invite the Rural Community Assistance Corporation to join on September 21, 2011, with none opposed for either vote.

Adela P. Gonzalez, City Manager — Date
City of Soledad

BK Phillips — 10-11-11
Brian Phillips, Regional Manager, Environmental N.CA/NV — Date
Rural Community Assistance Corporation

ADDENDUM September 21, 2011

The organizations below have been added to the Regional Water Management Group. The RWMG voted to invite the City of Soledad to join the Group on August 17, 2011, and voted to invite the Rural Community Assistance Corporation to join on September 21, 2011, with none opposed for either vote.

Adela P. Gonzalez, City Manager — Date
City of Soledad

Brian Phillips, Regional Manager, Environmental N.CA/NV — Date
Rural Community Assistance Corporation

ADDENDUM September 19, 2012

The California Coastal Commission representative announced at the September 19, 2012 RWMG meeting that the Coastal Commission will be unable to formally adopt the IRWMP due to potential conflicts of interest, and therefore has no choice but to resign from the Regional Water Management Group. This addendum hereby acknowledges the resignation of the California Coastal Commission from the Regional Water Management Group.

Appendix C
Greater Monterey County Regional Water Management Group
Bylaws
(With Amendments through September 19, 2012)

ARTICLE I. THE GROUP

Section 1. Name. The name of this group is the "Greater Monterey County Regional Water Management Group" (RWMG).

Section 2. Composition. The RWMG is composed of 19 entities:

- Big Sur Land Trust
- California State University Monterey Bay
- California Water Service Company
- Castroville Community Services District
- City of Salinas
- City of Soledad
- Coastlands Mutual Water Company
- Elkhorn Slough National Estuarine Research Reserve
- Environmental Justice Coalition for Water
- Garrapata Creek Watershed Council
- Marina Coast Water District
- Monterey Bay National Marine Sanctuary
- Monterey County Agricultural Commissioner's Office
- Monterey County Water Resources Agency
- Monterey Regional Water Pollution Control Agency
- Moss Landing Marine Laboratories
- Resource Conservation District of Monterey County
- Rural Community Assistance Corporation
- San Jerardo Cooperative, Inc.

Section 3. Notices. Any notices shall be sent to the Project Coordinator and to each of the RWMG entities by personal delivery, by email, by facsimile, or by first class mail, postage prepared in the United States Postal Service at the addresses set forth below. Notice shall be deemed effective upon delivery or transmission if delivered or sent by email or facsimile and on the third (3rd) day after mailing.

Susan Robinson, Project Coordinator for the Greater Monterey County IRWMP 1202 Hayes Run Road Marshall, NC 28753 Phone: (828) 649-9742 Email: srobinsongs@frontier.com	Joanna Devers, Assistant Director Big Sur Land Trust 509 Hartnell Street, Monterey, CA 93940 Mail: P.O. Box 4071, Monterey, CA 93942 Phone: (831) 625-5523 Fax: (831) 625-0716 Email: jdevers@bigsurlandtrust.org
Laura Lee Lienk, Co-Director, Watershed Institute California State University Monterey Bay Building 42, 100 Campus Center	Dana Jacobson, Project Engineer California Water Service Company 1720 North First Street

Seaside, CA 93955 Phone: (831) 582-3689 Fax: (831) 582-3691 Email: llienk@csumb.edu	San Jose, CA 95112 Phone: (408) 367-8361 Fax: (408) 367-8427 Email: djacobson@calwater.com
J. Eric Tynan, General Manager Castroville Community Services District 11499 Geil Street P.O. Box 1065 Castroville, CA 95012 Phone: (831) 633-2560 Fax: (831) 633-3103 Email: cwderic@redshift.com	Michael Ricker, Environmental and Maintenance Services City of Salinas 426 Work Street Salinas, CA 93901 Phone: (831) 758-7450 Fax: (831) 758-7940 Email: mikeri@ci.salinas.ca.us
Lon Martin, Interim Public Works Director City of Soledad 248 Main Street (P.O. Box 156) Soledad, CA 93960 Phone: (831) 223-5173 Fax: (831) 678-3965 Email: lmartin@cityofsoledad.com	Everett (Butch) Kronlund, President Coastlands Mutual Water Company 48280 Highway 1 Big Sur, CA 93920 Phone: (831) 667-0332 Fax: (831) 667-2906 Email: bpkronlund@aol.com
Monique Fountain, Interim Tidal Wetland Project Director Elkhorn Slough National Estuarine Research Reserve 1700 Elkhorn Road Watsonville, CA 95076 Phone: (831) 728-2822 Fax: (831) 728-1056 Email: Monique@elkhornslough.org	Paola Ramos, Interim Executive Director Environmental Justice Coalition for Water PO Box 70532 Oakland, CA 94612 Phone: (510) 508-3406 Fax: (866) 513-6021 Email: paola.ejcw@gmail.com
Ken Ekelund, President Garrapata Creek Watershed Council 35811 Highway 1 Monterey, CA 93940 Phone: (831) 625-9621 Email: kenekelund@redshift.com	Brian True, Capital Projects Manager Marina Coast Water District 11 Reservation Road Marina, CA 93933 Phone: (831) 883-5937 Fax: (831) 384-0197 Email: btrue@mcwd.org
Bridget Hoover, Director Water Quality Protection Program Monterey Bay National Marine Sanctuary 299 Foam Street Monterey, CA 93940 Phone: (831) 647-4217 Fax: (831) 647-4250 Email: bridget.hoover@noaa.gov	Dawn Mathes Monterey Co. Agricultural Commissioner's Office 1428 Abbott Street Salinas, CA 93901 Phone: (831) 759-7384 Fax: (831) 759-2268 Email: mathesdw@co.monterey.ca.us
Robert Johnson, Acting Assistant General Manager Chief of Water Resources Planning Monterey County Water Resources Agency 893 Blanco Circle Salinas, CA 93901-4455 Phone: (831) 755-4860 Fax: (831) 424-7935	Brad Hagemann, Assistant General Manager Monterey Regional Water Pollution Control Agency 5 Harris Court, Building D Monterey, CA 93940 Phone: (831) 883-6133 Fax: (831) 372-6178 Email: brad@mrwpca.com

Email: johnsonr@co.monterey.ca.us	
Kevin O'Connor, Project Manager Moss Landing Marine Laboratories 8272 Moss Landing Road Moss Landing, CA 95039 Phone: (831) 771-4495 Email: koconnor@mlml.calstate.edu	Paul Robins, Executive Director Resource Conservation District of Monterey County 744-A La Guardia Street Salinas, CA 93905 Phone: (831) 424-1036 x 124 Fax: (831) 424-7289 Email: paul.robins@rcdmonterey.org
Karen McBride, Rural Development Specialist-Environmental Rural Community Assistance Corporation 3120 Freeboard Drive #201 West Sacramento, CA 95691 Phone: (916) 447-9832 ext 1012 Email: karenm@rcac.org	Horacio Amezquita, Manager San Jerardo Cooperative, Inc. 24500 Calle El Rosario Salinas, CA 93908 Phone: (831) 424-1947 Fax: (831) 424-1948 Email: horacioamezquita@yahoo.com

Section 4. Incorporation of New Members. It is recognized that composition of the RWMG may change from time to time. Incorporation of new members into the RWMG will be decided on a case-by-case basis by majority vote of the RWMG, with the general assumption that a new entity will only be considered for admission into the RWMG if such admission would result in more balanced representation on the RWMG of geographic regions, disadvantaged communities, or water resource management interests within the Greater Monterey County region. A new member will be required to sign the MOU and will be expected to actively participate in regular RWMG meetings and in other RWMG activities, such as subcommittees or attendance at public workshops.

Section 5. Removal of RWMG Members. Lack of regular attendance at RWMG meetings or of active participation in RWMG activities may result in removal from the RWMG. A member may be removed from the RWMG, following 30-day written notice of a possible removal action and the reason therefore, upon the affirmative vote of a majority of RWMG members.

ARTICLE II. MEETINGS

Section 1. Meetings. RWMG meetings will be held on a monthly basis throughout the duration of development of the Integrated Regional Water Management Plan (IRWMP), unless cancelled by the Project Coordinator due to lack of business to discuss. Meetings will be held the third Wednesday of each month from 1:30PM – 3:30PM at a location to be determined each month. A call-in conference phone number will be made available for those who cannot physically attend. The RWMG meetings will be open to the public. Upon completion of the IRWMP, RWMG meetings will be held on a schedule to be determined most appropriate for continued integrated planning and plan updates.

Section 2. Attendance. The RWMG members are expected to attend all meetings scheduled.

Section 3. Special Meetings. Subject to proper notice, special meetings may be called by the Project Coordinator or by any other RWMG member regarding the development or amendment of the IRWMP.

Section 4. Conflict of Interest. Any member who believes himself/herself to have a conflict of interest in any matter shall indicate such conflict prior to discussion of the matter and shall step down during such discussion and subsequent voting.

Section 5. Requests and Considerations. All requests and/or considerations related to the RWMG shall be made in writing at least seventy-two (72) hours prior to the time of the regular scheduled meeting.

Section 6. Conduct of Meetings. Except as otherwise provided by these Bylaws, the RWMG will follow the latest version of Robert's Rules of Order for the orderly conduct of meetings.

ARTICLE III. DECISION-MAKING

Section 1. Decision-making Authority of RWMG. The RWMG is the final decision-making authority in all matters related to the IRWMP, though stakeholders and the general public will be given ample opportunity for comment and input regarding elements of the IRWMP during IRWMP development and future amendments.

Section 2. Quorum. A simple majority (50% plus one) of the RWMG shall constitute a quorum for the transaction of business.

Section 3. Voting. In order for voting to take place, there must be a quorum including at least two local agencies having statutory authority over water supply or water management. Action shall require a simple majority vote (50% plus one) of those present at the meeting, where "present" means involved in the discussion either in person or via conference call. Each RWMG entity is allowed one vote, regardless of whether or not they have contributed financially to the plan or to other RWMG activities. All votes will be counted equally. If the primary representative for a RWMG entity cannot attend a RWMG meeting, an alternate will be permitted to participate in the meeting and vote on behalf of that entity.

ARTICLE IV. DESIGNATION OF COMMITTEES

Section 1. Designation of Committees. The RWMG may designate committees to advise the RWMG in matters related to development of the IRWMP. These committees will include, at a minimum: various subcommittees to aid the RWMG in its decisions regarding specific elements of the IRWMP; a Project Review Committee to review, develop, and rank the projects submitted for inclusion in the IRWMP; and a Funding Committee to identify additional sources of potential funding for the region's water resource management projects and to support the ongoing IRWM planning process. The roles and responsibilities of each of these groups are described in the following sections.

Section 2. RWMG Subcommittees: The RWMG will need to define certain elements of the IRWMP including regional issues and conflicts, goals and objectives, and a system for ranking projects. Subcommittees comprised of RWMG members will be created to develop recommendations to the RWMG regarding each of these plan elements. A subcommittee to review drafts of the IRWMP will also be formed. Other subcommittees may be formed as needed.

Section 3. Project Review Committee: The Project Review Committee will review all projects submitted for inclusion into the IRWMP, determine whether they meet minimum criteria, and then rank the projects according to the approved project ranking system. The Committee will recommend a ranked project list to the RWMG, which will then discuss, revise if necessary, and vote to accept a final list for inclusion in the IRWMP. The Project Review Committee will be comprised entirely of RWMG members.

Section 4. Funding Committee: A Funding Committee will be created to assist the RWMG in identifying funding sources (beyond State IRWM funds) to help implement the region's projects, as well as funds to support ongoing IRWM planning. The Funding Committee will meet two or three times a year to review projects for funding needs.

ARTICLE V. AUTHORITY OF THE RWMG

Section 1. Purpose and Role of RWMG. The primary purpose of the RWMG is to develop an IRWMP for the Greater Monterey County region, which will include a list of prioritized water resource-related projects for potential consideration by the State's IRWM Grant Program. Following award of any IRWM grant funds, the RWMG will be responsible for tracking progress of the region's funded projects. The RWMG will also be responsible for updating and amending the IRWMP from time to time.

Section 2. Limitations of Authority. It is intended that the RWMG shall serve only in the above-stated capacities. RWMG membership does not provide any added legal rights or regulatory powers to any RWMG member, or to the RWMG as an entity. RWMG membership does not of itself give any party the power to adjudicate water rights, or to regulate or otherwise control the private property of other parties.

ARTICLE VI. BYLAW AMENDMENTS

These Bylaws may be amended by vote of the RWMG at any regularly scheduled RWMG meeting.

PASSED AND ADOPTED by the Greater Monterey County Regional Water Management Group this 17th day of February 2010.

AMENDED at the Regional Water Management Group meeting on September 21, 2011.
Amendments comprised the following:

- Added two new members: City of Soledad and Rural Community Assistance Corporation
- Updated information contained in Article IV. Designation of Committees
- Updated RWMG Member contact information (Article I, Section 3)

AMENDED at the Regional Water Management Group meeting on September 19, 2012.

- Removed one member: California Coastal Commission
- Updated RWMG Member contact information (Article I, Section 3)

Appendix D
Greater Monterey County Integrated Regional Water Management Plan Stakeholder Organizations

FEDERAL AGENCIES

Elkhorn Slough National Estuarine Research Reserve
NOAA National Marine Fisheries Service
NOAA Monterey Bay National Marine Sanctuary
US Bureau of Land Management
USDA Natural Resources Conservation Service
USFWS Coastal Program
USFWS Partners for Fish & Wildlife Program
USFWS Salinas National Wildlife Refuge
US Forest Service
US Geological Survey

STATE AGENCIES

California Coastal Commission
California Coastal Conservancy
California Department of Fish and Game
California Department of Public Health
California Department of Water Resources
California State Parks
Caltrans
Central Coast Regional Water Quality Control Board
State Water Resources Control Board

WATER DISTRICTS & WATER SUPPLIERS & WASTEWATER

Alco Water Service Company
Aromas Water District
Boronda Sanitation District
Buck Creek Water Company
California Amercian Water
California Water Service Company
Camp Roberts
Castroville Community Services District
Coastlands Water Company
Little Bear Water Company
Marina Coast Water District
Monterey County Water Resources Agency
Monterey Regional Water Pollution Control Agency
Pajaro Sunny Mesa Community Services District
Pajaro Valley Water Management Agency
Partington Ridge
Rancho Chaparral
San Ardo California Water District
San Benito County Water District

San Lucas County Water District
Santa Lucia Preserve
Seaside Basin Watermaster
Spreckels Water Company
Water Resources Association of San Benito County

MUNICIPALITIES
City of Gonzales
City of Greenfield
City of Marina
City of Salinas
City of Soledad
King City

COUNTY GOVERNMENT, LOCAL AGENCIES, COUNCILS, DISTRICTS, & ADVISORY COMMITTEES
Association of Monterey Bay Area Governments
Fort Ord Reuse Authority
Monterey County Health Department, Division of Environmental Health
Monterey County Office of Emergency Services
Monterey County Parks
Monterey County Public Works
Monterey County Resource Conservation District
Monterey County Resource Management Agency
Monterey County Weed Management Area
Monterey Peninsula Regional Park District
Monterey Regional Waste Management District
Moss Landing Harbor District
Nacimiento Regional Water Management Advisory Committee
North Salinas Valley Mosquito Abatement District
Pajaro River Watershed Flood Prevention Authority
San Luis Obispo County Public Works Department

AGRICULTURAL REPRESENTATIVES & GROUPS
ALBA
Ag Land Trust
Agriculture Water Quality Alliance
Cattleman's Association
Central Coast Agricultural Water Quality Coalition
Central Coast Water Quality Preservation, Inc
Coalition of Central Coast Farm Bureaus
Central Coast Rangeland Coalition
Grower-Shipper Association of Central California
Monterey County Agricultural Commissioner's Office
Monterey County Farm Bureau
Monterey County Vintner & Grower Association (MCVGA)
Salinas River Channel Coalition
Salinas Valley Water Coalition / Independent Growers Association
San Bernabe Vineyards

NONPROFIT ORGANIZATIONS & CITIZEN GROUPS

1000 Friends of Carr Lake
Action Pajaro Valley
Big Sur Land Trust
California Native Plant Society, Monterey County Chapter
California Rural Legal Assistance Foundation
California Trout
CAP SLO San Ardo
Carmel River Steelhead Association
Center for Community Advocacy
CHISPA
Citizens for Responsible Growth
Clinicas de Salud del Valle de Salinas
Coastal Watershed Council
Coast Property Owners Association
Ecology Action
Elkhorn Slough Foundation
Environmental Justice Coalition for Water
Friends, Artistis, and Neighbors of Elkhorn Slough
Friends of the River
Friends of the Tembladero
Garrapata Creek Watershed Council
Highway 68 Coalition
LandWatch Monterey County
Lideres Campesinas
Monterey Bay Citizen Watershed Monitoring Network
Monterey Bay Conservancy
Monterey Coastkeeper
Nacitone Watershed Group
The Otter Project
Planning and Conservation League Foundation
Poder Popular
Promotora Salud
Prunedale Preservation Alliance
Rural Community Assistance Corporation
San Jerardo Cooperative, Inc.
Santa Lucia Conservancy
Save Our Shores
Save The Whales
Sierra Club - Ventana Chapter
Surfrider Foundation
The Nature Conservancy
Trout Unlimited
Ventana Wilderness Alliance
Ventana Wildlife Society

ACADEMIC & RESEARCH INSTITUTIONS

Balance Hydrologics, Inc.
Central Coast Wetlands Group at Moss Landing Marine Laboratories
Hartnell Community College

Monterey Bay Aquarium Research Institute
Moss Landing Marine Laboratories
RMC Water and Environment
UC Berkeley Hastings Reserve
UC Cooperative Extension
UC Davis Granite Canyon Marine Pollution Studies Laboratory
UC Santa Cruz Big Creek Reserve
Watershed Institute, California State University Monterey Bay

BUSINESS ORGANIZATIONS
Big Sur Chamber of Commerce
Esalen Institute
King City Chamber of Commerce & Agriculture
Lynn and Michael Heller Landscapes
Monterey County Convention and Visitors Bureau
Monterey County Hospitality Association
Pebble Beach Company
Salinas Valley Chamber of Commerce
Soledad Mission Chamber of Commerce

ELECTED OFFICIALS
Congressman Sam Farr, District 17
Supervisor Fernando Armenta, Mo Co District 1
Supervisor Lou Calcagno, Mo Co District 2
Supervisor Simon Salinas, Mo Co District 3
Supervisor Jane Parker, Mo Co District 4
Supervisor Dave Potter, Mo Co District 5
State Assemblymember Bill Monning, District 27
State Assemblymember Luis Alejo, District 28
State Senator Anthony Cannella, California State Senate District 12
State Senator Sam Blakeslee, California State Senate District 15

CENTRAL COAST IRWM Regional Water Management Groups
Santa Barbara County
Northern Santa Cruz County
San Luis Obispo County
Monterey Peninsula, Carmel Bay, and South Monterey Bay
Pajaro River Watershed

Appendix E
Central Coast IRWM Regions
Statement of Principles
For the Proposition 50 and Proposition 84/1E IRWM Process

March 8, 2007

Background

- The State of California proposes to substantially change the Integrated Regional Water Management (IRWM) Grant Program as early as March 20, 2007. These changes could significantly affect planning and implementation of projects throughout the Central Coast Region.

- In an effort to respond to these proposed changes, which include accelerated funding for Proposition 50 and the elimination or reduction of a second round of competitive grants, regional representatives have met and agreed to develop a process to maintain an equitable distribution of IRWM funds throughout the Central Coast. However, due to the limited time available for a full stakeholder process, this statement may be modified upon mutual consent of the planning sub-regions after a complete stakeholder process.

- Regional representatives have met and agree that their long term interests are best met by working together to develop a coherent approach to benefit all planning sub-regions within the funding area.

- The region is diverse, with geographically distinct sub-regions. Some sub-regions have common/overlapping water related interests, but most water issues are more effectively managed within the six geographic sub-regions.

- Water management interests that are common across the Central Coast funding area have yet to be defined, but may include (but not be limited to) water conservation, water quality monitoring and improvement, fisheries restoration, and drought protection.

Principles

- Cooperate on a regional basis (Central Coast funding area) within the framework of the IRWM process pursuant to Prop 50 (IRWM) and Prop 84 (IRWM).

- To the extent possible, such a process should be consensus based among/across the six planning sub-regions defined in the Central Coast funding area.

- To the extent possible, geographic areas not currently covered by IRWM Plans should be brought into the IRWM planning process in the future and incorporated into adjacent planning areas.

- The six planning sub-regions (participants) agree to take coordinated action and no unilateral action in seeking Prop 84 (IRWM) funds allocated to the Central Coast area.

- The six planning sub-regions agree to coordinate their actions in seeking further Prop 50 (IRWM) funds, including supporting current changes to the State process, but acknowledge the continued competitive nature of the process.

- Benefits from the various funding sources, taken as a whole, should be shared throughout the funding area so that areas that are not funded by Prop 50 are given initial priority in allocating a portion of Prop 84 (IRWM) funds, recognizing that these areas must adhere to IRWM standards and guidelines and have sub-region and regional stakeholder support.

- The Central Coast region will, under a performance based approach to IRWM planning, continue our efforts to develop regional priorities, which includes providing added priority to projects identified in sub-region IRWM plans not previously funded by Proposition 50, and reach consensus on the equitable allocation of Proposition 84 funds in our region.

- This agreement does not affect a sub-region's ability to apply unilaterally for other recently established State grants, such as Prop 1-E funds, but best efforts should be made to coordinate with other sub-regions so as to avoid direct competition. Other funding processes (such as the State Revolving Fund) are not affected by this agreement.

- Priorities within each IRWM Plan have been determined based on the needs of the sub-region identified through a rigorous outreach and stakeholder process. These priorities were also developed to integrate or be consistent with portions of the Basin Management Plan for the Region and other applicable State and Federal management plans.

- Regional interests intend to develop a process that will address:

    The intent of the process
    The participants
    The decision making process for Proposition 84 (IRWM)
    Regional cooperation and communication in accessing funds from other grant programs
    The term of the agreement
    Role/opportunity for future applicants

Appendix F
Sample Project Application Forms for the IRWM Plan

GREATER MONTEREY COUNTY IRWMP
PROJECT SOLICITATION 2012

APPLICATION FORM FOR IMPLEMENTATION PROJECTS

SECTION I. PROJECT SUMMARY

1. Project Proponent (Name of Organization):

Type of Entity: ☐ Public agency ☐ Nonprofit organization ☐ Privately owned water utility

☐ Private citizen or privately owned business ☐ Other (describe)**:**

2. Project Title:

3. Name, Title, and Affiliation of Contact Person:

4. Phone: **5. Email:**

6. Mailing Address:

7. Project Location: The project must lie within the geographic scope of the Greater Monterey County IRWM region,[1] or otherwise be of direct benefit to the Greater Monterey County IRWM region. Please describe the exact location of the project *and provide a map*. If your project is not located within the geographic boundaries of the region, please explain how it is of direct benefit to the region.

8. Summary Description of Project (about 200 words):

9. Project Cost Summary: Note, implementation projects require a minimum non-State funding match of 25% (may include in-kind funds).

	$ Amount
Requested Funds	
Matching (non-State) Funds	
Total Project Cost	

[1] The Greater Monterey County IRWM region includes most of Monterey County, with the exception of areas that are already included in other IRWM Plans (specifically, the Pajaro River Watershed IRWM region and Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM region). These exceptions include: land areas within the San Jose Creek and Carmel River watersheds, land areas within the Pajaro River watershed, and most of the Monterey Peninsula (the Greater Monterey County region includes and runs north from Marina). For a map of the Greater Monterey County IRWM region, please visit our website: http://ccwg.mlml.calstate.edu/irwmp/ (go to the "Greater Monterey County Region Description" section).

SECTION II. PROJECT ELIGIBILITY

1. Minimum Criteria

To be eligible for inclusion in the IRWM Plan, projects must yield multiple benefits and include one or more of the following elements. Please check all that apply:

- ☐ Water supply reliability, water conservation and water use efficiency.
- ☐ Storm water capture, storage, clean-up, treatment, and management.
- ☐ Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.
- ☐ Non-point source pollution reduction, management and monitoring.
- ☐ Groundwater recharge and management projects.
- ☐ Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users.
- ☐ Water banking, exchange, reclamation and improvement of water quality.
- ☐ Planning and implementation of multipurpose flood management programs.
- ☐ Watershed protection and management.
- ☐ Drinking water treatment and distribution.
- ☐ Ecosystem and fisheries restoration and protection.

2. Proof of Adoption of the IRWM Plan

The Proposition 84/1E IRWM Program Guidelines require that each project proponent named in an IRWM Grant application must adopt the IRWM Plan. This means that *in order to be eligible for IRWM grant funds*, your agency or organization must submit a formal resolution or other documentation from your governing body (board of directors, city council, president, etc.), with signature, stating that your entity formally adopts the Greater Monterey County IRWM Plan.

The Greater Monterey County IRWM Plan is still in draft form, and is not ready for formal adoption. However, the Round 2 IRWM Implementation Grant applications will be due in March 2013, and the Regional Water Management Group will begin selecting projects to include in the application package in October 2012. Since the Greater Monterey County IRWM Plan is still in draft form, we will be requiring all project proponents *who would like their projects considered for Round 2 IRWM grant funds* to provide a signed "letter of intention" to adopt the Greater Monterey County IRWM Plan from your organization's governing body by **October 17, 2012**.

To see the draft IRWM Plan, go to http://ccwg.mlml.calstate.edu/irwmp/documents. If you have questions, please contact Susan Robinson, IRWM Plan Coordinator, at srobinsongs@frontier.com or (828) 649-9742.

Please check the appropriate box below:

- ☐ A signed letter of intention to adopt the Greater Monterey County IRWM Plan is included with this application.
- ☐ I will be providing a letter of intention by October 17, 2012.
- ☐ I do not want my project to be considered for the Round 2 IRWM Grant application, and will not be submitting a letter of intention at this time.

3. Landowner Support

Please be aware that no project will be eligible to receive IRWM grant funds without *signed documentation of landowner support* for any and all properties on which project activities will occur. Proof of landowner support must be provided in order for a project to be considered for application for IRWM Implementation Grant funds. If you would like your project to be considered for the Round 2 IRWM Implementation Grant application package, you will need to provide us with proof of landowner support no later than **October 17, 2012.** If you have questions, please contact Susan Robinson, IRWM Plan Coordinator, at srobinsongs@frontier.com or (828) 649-9742.

Please check the appropriate box below:

- ☐ Signed documentation of landowner support for all properties, or for a portion of the properties, on which project activities will occur is included with this application (if documentation is provided for only a portion of the properties, please provide explanation).
- ☐ I will provide signed documentation of landowner support by October 17, 2012.
- ☐ I do not want my project to be considered for the Round 2 IRWM Grant application, and will not be submitting documentation of landowner support at this time.

SECTION III. REGIONAL OBJECTIVES AND IRWM PROGRAM PRIORITIES

1. Resource Management Strategies

One of the goals of integrated regional water management planning is to encourage diversification of water management approaches as a way to mitigate for uncertain future circumstances (such as the impacts of climate change). The Prop 84 IRWM Program Guidance requires us to consider certain "resource management strategies" for possible use in our region. The resource management strategies that will be included in the Greater Monterey County IRWM Plan are listed below. Please select the strategies that your project will use (check all that apply):

Reduce Water Demand
- ☐ Agricultural Water Use Efficiency
- ☐ Urban Water Use Efficiency

Improve Operational Efficiency and Transfers
- ☐ Conveyance
- ☐ System Reoperation
- ☐ Water Transfers
- ☐ Infrastructure Reliability

Increase Water Supply
- ☐ Conjunctive Management & Groundwater Storage
- ☐ Desalination
- ☐ Precipitation Enhancement
- ☐ Recycled Municipal Water
- ☐ Surface Storage

Improve Water Quality
- ☐ Drinking Water Treatment and Distribution
- ☐ Groundwater/Aquifer Remediation
- ☐ Matching Water Quality to Use
- ☐ Pollution Prevention
- ☐ Salt and Salinity Management
- ☐ Urban Runoff Management
- ☐ Water and Wastewater Treatment

Practice Resources Stewardship
- ☐ Agricultural Lands Stewardship
- ☐ Economic Incentives (Loans, Grants, and Water Pricing)
- ☐ Ecosystem Restoration
- ☐ Forest Management
- ☐ Land Use Planning and Management
- ☐ Recharge Area Protection
- ☐ Water-Dependent Recreation
- ☐ Watershed Management
- ☐ Environmental and Habitat Protection and Improvement
- ☐ Wetlands Enhancement and Creation

Improve Flood Management
- ☐ Flood Risk Management
- ☐ Storm Water Capture and Management

Other Resource Management Strategies
- ☐ Dewvaporation or Atmospheric Pressure Desalination
- ☐ Fog Collection
- ☐ Rainfed Agriculture
- ☐ Recreation and Public Access
- ☐ Regional Cooperation
- ☐ Education and Outreach
- ☐ Monitoring and Research

2. IRWM Program Preferences

In selecting projects for IRWM grant funds, the Department of Water Resources will give preference to certain types of projects, as listed below. It is not necessary for your project to address these issues; however, projects that do address these preferences will receive additional points in the IRWM Plan project ranking process. Please select the IRWM program preferences that the project will address, if any (check all that apply):

- ☐ The project is regional in scope
- ☐ The project effectively resolves significant water-related conflicts
- ☐ The project addresses critical water supply or water quality needs of disadvantaged communities
- ☐ The project effectively integrates water management with land use planning
- ☐ For eligible Stormwater Flood Management funding, projects which: a) are not receiving state funding for flood control or flood prevention projects, or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

3. Statewide Priorities

In selecting projects for IRWM grant funds, the Department of Water Resources will also give preference to projects that address statewide priorities. Again, it is not required for your project to address these priorities, but projects that do address statewide priorities will receive additional points in the IRWM Plan project ranking process. Please select any statewide priorities that the project will address (check all that apply):

- ☐ Drought Preparedness: Projects that address long-term drought preparedness by contributing to sustainable water supply and reliability during water shortages.
- ☐ Use and Reuse Water More Efficiently: Projects that implement water use efficiency, water conservation, recycling and reuse to help meet future water demands, increase water supply reliability and adapt to climate change.
- ☐ Climate Change Response Actions: Projects that help the Region adapt to climate change, projects that reduce greenhouse gas emissions compared with alternative projects, and/or projects that reduce energy consumption (e.g., through water use efficiency, water recycling, water system energy efficiency, and reusing runoff).
- ☐ Expand Environmental Stewardship: Projects that practice, promote, improve, and expand environmental stewardship to protect and enhance the environment by improving watersheds, floodplains, and instream functions and to sustain water and flood management ecosystems.
- ☐ Practice Integrated Flood Management: Projects that promote and practice integrated flood management to provide multiple benefits (including better emergency preparedness, enhanced floodplain ecosystems, and LID techniques that store and infiltrate runoff while protecting groundwater).
- ☐ Protect Surface Water and Groundwater Quality: Projects that protect and restore surface water and groundwater quality; and salt and nutrient management plans.
- ☐ Ensure Equitable Distribution of Benefits: Projects that increase the participation of small and disadvantaged communities in the IRWM process, multi-benefit projects that take into consideration affected disadvantaged communities and vulnerable populations, projects that address water supply and wastewater treatment needs of disadvantaged communities, and projects that address critical water supply or water quality needs of California Native American Tribes within the region.

4. IRWM Plan Goals and Objectives

The following objectives have been identified for the Greater Monterey County IRWM Plan. The objectives are organized by goal categories. Please select the objectives that the project will address.

NOTE: In the IRWM Plan project ranking process, the "objectives" category accounts for a full 40% of a project's total score. Therefore it is very important that you complete this section accurately. Projects will receive points according to both the number of objectives addressed and the extent to which those objectives are addressed. Please be sure to check *all* objectives that your project will address in order to ensure that your project receives the maximal number of points in this category. Then rate on a scale of 1-5 (5 being the maximum) the extent to which you think your project addresses that objective. If it is not clear to the project reviewers how your project addresses a particular objective, they may reduce or omit altogether the points your project receives for that objective. Therefore, if it is not *entirely obvious* how your project will address a particular objective, please provide a brief explanation (take as much space as you need).

	Extent Addressed (1 – 5)	**Objective**	**Justification (if needed)**
Water Supply Goal			
☐		Increase groundwater recharge and protect groundwater recharge areas.	
☐		Optimize the use of groundwater storage with infrastructure enhancements and improved operational techniques.	
☐		Increase and optimize water storage and conveyance capacity through construction, repair, replacement, and augmentation of infrastructure.	
☐		Diversify water supply sources, including but not limited to the use of recycled water.	
☐		Maximize water conservation programs.	
☐		Capture and manage storm water runoff.	
☐		Optimize conjunctive use where appropriate.	
☐		Support research and monitoring to better understand water supply needs.	
☐		Support the creation of water supply certainties for local production of agricultural products.	
☐		Promote public education about water supply issues and needs.	
☐		Promote planning efforts to provide emergency drinking water to communities in the region in the event of a disaster.	
Water Quality Goal			
☐		Promote practices necessary to meet, or where practicable, exceed all applicable water quality regulatory standards (for drinking water, surface and groundwater quality).	
☐		Promote projects to prevent seawater intrusion.	
☐		Incorporate or promote principles of low impact development where feasible, appropriate, and cost effective.	
☐		Protect surface waters and groundwater basins from contamination and the threat of contamination.	
☐		Support research and pilot projects for the co-management of food safety and water quality protection.	
☐		Improve septic systems, sewer system infrastructure, wastewater treatment systems, and manure management programs to prevent water quality contamination.	
☐		Support research and other efforts on salinity management.	
☐		Support monitoring to better understand major sources of erosion, and implement a comprehensive erosion control program.	
☐		Promote programs and projects to reduce the quantity and improve the quality of urban and agricultural runoff and/or mitigate their effects in surface waters, groundwater, and the marine environment.	
☐		Promote regional monitoring and analysis to better understand water quality conditions.	
☐		Support research and utilization of emerging technologies (enzymes, etc.) to develop effective water pollution prevention and mitigation measures, and source tracking.	

☐		Promote public education about water quality issues and needs.	
Flood Protection & Floodplain Management Goal			
☐		Promote projects and practices to protect infrastructure and property from flood damage.	
☐		Improve flood management infrastructure and operational techniques/strategies.	
☐		Implement flood management projects that provide multiple benefits such as public safety, habitat protection, recreation, agriculture, and economic development.	
☐		Develop and implement projects to protect, restore, and enhance the natural ecological and hydrological functions of rivers, creeks, streams, and their floodplains.	
☐		Support research and monitoring efforts to understand the effects of flooding on transport and persistence of pathogens in food crop production areas.	
☐		Support management of flood waters so that they do not contaminate fresh produce in the field.	
☐		Promote public education about local flood management issues and needs.	
Environment Goal			
☐		Support science-based projects to protect, improve, enhance, and/or restore the region's ecological resources, while providing opportunities for public access and recreation where appropriate.	
☐		Protect and enhance state and federally listed species and their habitats.	
☐		Minimize adverse environmental impacts of water resource management projects.	
☐		Support applied research and monitoring to better understand environmental conditions, environmental water needs, and the impacts of water-related projects on environmental resources.	
☐		Implement fish-friendly stream and river corridor restoration projects.	
☐		Reduce adverse impacts of sedimentation into streams, particularly from roads and non-point sources.	
☐		Promote efforts to prevent, control, reduce, and/or eradicate high priority invasive species.	
☐		Promote native drought-tolerant plantings in municipal and residential landscaping.	
☐		Consider opportunities to purchase fee title or conservation easements on lands from willing sellers that provide integrated water resource management benefits. Ensure adequate funding and infrastructure to manage properties and/or monitor easements.	
☐		Support research and monitoring efforts to understand the effects of wildfire events on water resources.	
Regional Communication and Cooperation Goal			
☐		Facilitate dialogue and reduce inconsistencies in water management strategies/regulations between local, regional, state, and federal entities.	
☐		Promote dialogue between federal and state regulators and small water system managers to facilitate water quality regulation compliance.	
☐		Foster collaboration between regional entities to minimize and resolve potential conflicts and to obtain support for responsible water supply solutions and improved water quality.	
☐		Build relationships with federal, state, and local regulatory agencies and other water agencies to facilitate the permitting, planning, and implementation of water-related projects.	
☐		Increase stakeholder input and public education about the need, complexity, and cost of strategies, programs, plans, and projects to improve water supply, water quality, flood management, coastal conservation, and environmental protection.	
Disadvantaged Communities Goal			
☐		Seek funding opportunities to ensure all communities have a water system with adequate, safe, high-quality drinking water.	
☐		Seek funding opportunities to ensure all communities have adequate wastewater treatment.	
☐		Ensure that disadvantaged communities are adequately protected from	

		flooding and the impacts of poor surface and groundwater quality.	
☐		Provide support for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.	
☐		Promote public education in disadvantaged communities about water resource protection, pollution prevention, conservation, water quality, and watershed health.	
Climate Change Goal			
☐		Plan for potential impacts of future climate change.	
☐		Support increased monitoring and research to obtain greater understanding of long-term impacts of climate change in the Greater Monterey County region.	
☐		Support efforts to research alternative energy and to diversify energy sources appropriate for the region.	
☐		Seek long-term solutions to reduce greenhouse gas producing energy use.	
☐		Seek long-term solutions to maintain and protect existing pristine natural resources from the impacts of climate change.	
☐		Support research and/or implementation of land-based efforts such as carbon-sequestration on working lands and wildlands in the Greater Monterey County region.	
☐		Promote public education about impacts of climate change, particularly as it relates to water resource management in the Greater Monterey County region.	

SECTION IV. PROJECT NARRATIVE

The IRWM Grant Program requires that projects have *multiple benefits*. Therefore, as you develop your project we encourage you to consider potential collaborations with other agencies, organizations, or neighboring landowners, and/or how you might integrate other water resource solutions into your project. Collaboration and integration with other projects are *not required* for project submission—a strong, effective, single-issue, single-proponent project is also valued—but projects with multiple benefits are strongly encouraged and will rank more highly in the IRWM Plan project ranking process.

Please attach a "Project Narrative" including the following elements, with headings and ordering exactly as shown below. There is no page limit for the Project Narrative, but please be as succinct as possible.

1. Project Description: Please describe the proposed project. Describe major tasks/activities. For proposals affecting water quality, please include a description of the water body that the proposal addresses, and a (brief) general discussion of water quality problems the proposal addresses. The project description need not be detailed (1/2 - 2 pages); but note that a detailed work plan (and cost/benefit analysis) will be required if your project is selected for submission for IRWM grant funds.

2. Project Need/Urgent Need: Describe the need for your project and how the project will address that need. If there is a special, urgent, or critical need for your project, please be sure to explain. (Projects will receive extra points in project ranking if there is truly a "critical need.")

3. Budget: Please provide an estimate of costs, using the following format (modify as needed). Again, the project budget need not be detailed; however, if your project is selected for submission for IRWM grant funds, you will need to provide a fully detailed budget, categorized by task.

Budget Category	Requested Grant Funding	Non-State Funding Match	Other State Funds	Total
Direct Project Administration Costs				
Land Purchase/Easement				
Planning/Design/Engineering/ Environmental Documentation				
Construction/Implementation				
Environmental Compliance/ Mitigation/Enhancement				
Construction Administration				
Other Costs				
Construction/Implementation Contingency				
Grand Total				

Please note the following:

Direct Project Administration Costs: The Prop 84 legislative language requires that administrative costs be limited to less than 5% of the total proposal costs. Please do not exceed the 5% limit for project administration.

Funding Match: For IRWM Implementation grants the minimum funding match is 25% of the total project cost (i.e., requested amount + non-State match + other State funds = total, so if you're requesting $75K and you're not using other State funds, you would need at least $25K in match). Match must be non-State funds, and may include in-kind funds. For IRWM implementation projects that address a critical water supply or water quality need for a disadvantaged community, the funding match may be waived. Minimum funding match for regional flood planning grants and for Prop 1E Storm Water Flood Management grants are 50% of the total project cost. Eligible funding match amounts can include, subject to DWR approval, prior costs borne by the applicant or individual project proponent after September 30, 2008.

4. Project Financing: The following information is required by the Prop 84 IRWM Guidelines (our apologies!). The information you provide will go directly into the IRWM Plan, so please write this section carefully.

Please fill in the following table to show all anticipated funding sources for your project (assuming the funds you require may exceed your IRWM Grant Program request). Note that o*perations and maintenance costs will not be funded through Prop 84 IRWM grant funds*, so you must show how you intend to fund O&M. In addition, you should indicate the certainty and longevity of the funding sources. The table shows two examples, then leaves room for your project. (Sorry – we are required to include this information in the IRWM Plan!)

IRWM Plan Financing Example

Activity Description	Approx Total Cost	Funding Source & % of Total Cost	Funding: Certainty/ Longevity	O&M Finance Source	O&M Finance Certainty
(EXAMPLE) Implementation Project #1	$10M	XY water agency, 50%	Secure, part of XY agency current capital improvement budget.	XY water agency budget	Secure- 2011 O&M budget.
		Grant-Prop 84, 30%	Application will be submitted FY 11/12	NA	NA
		Federal Grant, 20%	Tentative award, contingent on State funding.	NA	NA
(EXAMPLE) Implementation Project #2	$250,000	State Grant, DAC assistance, DWR, 100%	Application submitted, in review.	Agency YY, operational budget	Secure, rate increase covers O&M costs
Your project here					

5. Schedule: Please provide an anticipated timeframe for the project. What is the expected project duration? Please list major milestones (e.g., within the first 6 months, in Year 1, Year 2, etc.).

6. Monitoring and Project Performance: Please briefly describe the monitoring systems that will be used to collect data and other measures that will be used to evaluate project performance. Note: Projects that affect water quality *must include* a monitoring component that allows the integration of data into statewide monitoring efforts.

7. Technical Feasibility and Readiness-to-Proceed: Please describe the project's technical feasibility and readiness-to-proceed, as follows.

Technical Feasibility: Explain the strength of the project's technical feasibility. (For example: Are there data gaps that require additional studies to develop the project? Are the methods and technologies to be used in the project known and/or proven techniques? Do you foresee any technical obstacles or challenges? Are there any known factors that could significantly delay implementation and/or completion of the project?)

Readiness-to-Proceed: Is the project ready to proceed:

- ☐ Now
- ☐ By June 2013
- ☐ By June 2014
- ☐ Later than June 2014

Project Status: Please describe project status, including status of the following project elements. Be sure to describe how the project will comply with all applicable environmental review requirements, and indicate when required documentation will be completed for each of the following (as applicable):

- CEQA and/or NEPA (if applicable) compliance
- Required permits or reviews by other agencies
- Preliminary plans and project designs
- Commitments from project partners
- Acquisition of land or rights-of-way and landowner agreements
- Property restrictions and/or encumbrances

8. Consistency with Federal, State, and Local Plans: Please describe how the project is consistent with applicable federal, state, and regional/local plans and planning efforts, to the extent of your knowledge. Be sure to describe any relationship between the project and local water planning and/or land use planning efforts, if known. Is this project identified in a watershed management plan or other community-driven plan? Is the project consistent with the region's Basin Plan (to see the Central Coast Region Basin Plan, go to: http://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/)

9. Geographic Impact: Please describe the geographic areas that will be benefited or otherwise impacted by the project, including watersheds and adjacent areas.

10. Project Benefits and Impacts: The following information is required by the Prop 84 IRWM Guidelines. The information you provide will go directly into the IRWM Plan, so please give careful consideration to this section. In addition, projects are ranked in the IRWM Plan to a significant degree according to project benefits, so be sure to describe the project benefits fully.

Provide one paragraph to describe anticipated **project benefits**. Provide a *separate* paragraph to describe potential **project impacts** (for example, environmental impacts caused by construction activities, or environmental justice impacts). If appropriate, include in your discussion: beneficiaries of the project; impacts/benefits to resources other than water, including energy and air quality; impacts/benefits to special status species and their habitats; and geographic impacts/benefits including effects on adjacent regions. Below are some examples to consider:

Water Supply Projects: *Impacts:* Possible impacts may include reduced in-stream flow, water quality degradation, habitat removal, species removal, flooding, loss of farmland, and construction related impacts. Some of the proposed projects may have impacts on communities, including DACs. If there are any environmental justice impacts, they should be addressed as well. *Benefits:* Water supply benefits may be characterized as increased water supply or range in water supply (i.e., acre-feet per year). Other anticipated benefits may include improved water quality, increased recreational opportunities, decreased reliance on imported water, reduced groundwater overdraft, creation of wetlands and riparian habitat, and decreased operational costs.
Water Quality Projects: *Impacts:* Possible impacts may include construction-related impacts including short-term, site-specific impacts related to site grading and construction, and long-term impacts associated with project operation. Construction-related impacts may include: traffic, noise, biological resources, water quality, public services and utilities, cultural resources, and aesthetics. Other impacts may include surface water and ocean habitat loss from new outflow locations, and waste discharge issues associated with brine management and brine disposal. *Benefits:* Possible benefits from improved water quality projects may include increased water supply, improved aquatic and wetland species habitat and populations, increased cropland production, creation of wetlands and riparian habitat, improved recreation opportunities, and decreased treatment costs.

Groundwater Improvement Projects: *Impacts:* Possible impacts may include construction-related effects, changes in water quality, increased contaminant transport, increased pumping, and in-stream flow reduction. *Benefits:* Possible benefits may include improved flood protection, decreased reliance on imported water, reduced surface water use, reduced pumping costs, and decreased or prevention of groundwater overdraft.
Water Conservation and Reuse Projects: *Impacts:* Possible impacts may include construction-related effects, loss of drainage flow to downstream water users, in-stream flow loss, groundwater and surface water quality effects associated with recycled water use, and reduced groundwater recharge. *Benefits:* Benefits could include increased water savings, efficient reuse of wastewater, costs savings from reduced purchases of imported water, and saving construction of water storage facilities, and increased nutrient levels for plant and crop use from use of reclaimed wastewater.
Watershed Enhancement Projects: *Impacts:* Possible impacts could include introduction of non-native plants for erosion control and temporary increased turbidity in streams due to construction or related activities, including revegetation and forest regeneration activities and prescribed fires (to reduce undesirable trees and vegetation, etc.). *Benefits:* Benefits may include long-term sediment reduction and temperature improvements, reduced surface water nutrient and bacteria concentrations (improved water supply quality), improved fish and wildlife habitat and passage, and enhanced public safety and recreational opportunities.
Habitat Improvement Projects: *Impacts:* Possible impacts could include short-term, site-specific impacts related to site grading and construction, loss of agricultural land protection and urban uses and associate local revenue. *Benefits:* Benefits may include reduced surface water nutrient and bacteria concentrations (improved water supply quality), enhanced fish habitat, increased opportunities for recreational hunting and viewing, increased numbers of native species, reduced flood risks, and education opportunities.
Flood Management Projects: *Impacts:* Impacts may include short-term, site-specific impacts related to construction, land use restrictions, development moratoriums (with potential economic effects), and loss of riparian and/or wetland acreage. *Benefits*: Benefits could include increased aquifer recharge, runoff reduction, improved surface water quality, natural resources preservation and restoration, reduced risk to life and property, and decreased flood insurance costs.

11. Collaboration and Community Support: Please identify other agencies or organizations that will be actively involved in the project, if any, and describe their role in the project. Describe cooperation and/or collaboration with other agencies/organizations (besides project partners) regarding this project, including state or federal agencies. Identify landowners that may be impacted by the project. Discuss any known opposition to the project.

12. Conflict Resolution: Does your project help resolve any water-related conflicts within the region? If so, please describe.

13. Environmental Justice and Disadvantaged Communities: Will the project address environmental justice concerns, or have any known environmental justice impacts? Will the project address water supply or

water quality issues of a disadvantaged community within the Greater Monterey County region[2]? If so, please describe.

14. Climate Change: Please discuss if/how the project will contribute to mitigating climate change impacts (e.g., energy efficiency, reduction of greenhouse gas emissions, reduction of carbon foot print, reduction in water demand) and/or will help the region respond to climate change effects, such as sea level rise. Please discuss anticipated impacts/benefits of your project to energy use and impacts/benefits to air quality.

HOW TO SUBMIT YOUR APPLICATION:

All project applications are due by 5:00 PM Friday, **August 31, 2012**.

Please **email** your completed application to Susan Robinson at srobinsongs@frontier.com.

If you do not have email access, please mail or hand-deliver one copy of your application to (all applications *must be received by* August 31, 2012):

Bridget Hoover
Monterey Bay National Marine Sanctuary
99 Pacific Street, Building 455
Monterey, CA 93940

FOR QUESTIONS ABOUT THIS APPLICATION FORM OR THE IRWM PLANNING PROCESS:

Please visit our website at http://ccwg.mlml.calstate.edu/irwmp or contact:

Susan Robinson
Coordinator for the Greater Monterey County IRWM Plan
srobinsongs@frontier.com
(828) 649-9742

If you need assistance filling out an application form, please contact Susan Robinson or any other member of the Regional Water Management Group.

[2] "Disadvantaged communities" are defined as communities with annual median household incomes (MHI) that are less than 80% of the statewide MHI. Disadvantaged communities within the Greater Monterey County region include (among others): Castroville, Greenfield, King City, San Ardo, and San Lucas.

WHAT PROJECT PROPONENTS SHOULD KNOW…

1. Adoption of IRWM Plan
Important: The Proposition 84/1E IRWM Program Guidelines require that each project proponent named in an IRWM Grant application must adopt the IRWM Plan. This means that your agency or organization must submit a formal resolution or other documentation from your governing body (board of directors, city council, president, etc.), with signature, stating that your entity formally adopts the Greater Monterey County IRWM Plan. Proof of adoption must be received by the Regional Water Management Group before your proposal can be included in an IRWM Grant application. Please contact the IRWM Plan Coordinator, Susan Robinson, for sample resolutions: srobinsongs@frontier.com or (828) 649-9742.

2. Proof of Landowner Support
Please be aware that no project will be eligible to receive IRWM grant funds without *signed documentation of landowner support* for any and all properties on which activities will occur.

3. CEQA/NEPA Compliance
The Grantee must demonstrate that it has a plan to comply with all applicable requirements of CEQA and the National Environmental Policy Act (NEPA) and a schedule that outlines when the appropriate environmental documents will be completed.

4. Monitoring Requirements
Projects that affect surface water quality shall include a monitoring component that allows the integration of data into the California Environmental Data Exchange Network (CEDEN). CWC §10927 requires various entities, including local agencies that are managing all or part of a groundwater basin pursuant to CWC §10750, to assume responsibilities for groundwater elevation monitoring and reporting, as required by CWC §10920 *et seq*.

5. Groundwater Management Plan Compliance
For groundwater management and recharge projects and for projects with potential groundwater impacts, the applicant or the project proponent responsible for such projects must demonstrate that either:

- They have prepared and implemented a Groundwater Management Plan (GWMP) in compliance with CWC §10753.7
- They participate or consent to be subject to a GWMP, basin-wide management plan, or other IRWM program or plan that meets the requirements of CWC §10753.7(a)
- The Proposal includes development of a GWMP that meets the requirements of CWC §10753.7 which will be completed within 1-year of the grant application submittal date. In the event that a grant solicitation is a 2-step process, DWR will use the due date of the Step 2 application to begin the 1-year compliance period
- They conform to the requirements of an adjudication of water rights in the subject groundwater basin

6. Agriculture Water Management Plan Compliance
Beginning July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the State unless the supplier complies with SBx7-7 water conservation requirements outlined in Part 2.55 (commencing with §10608) of Division 6 of the CWC.

7. Surface Water Diversion Reporting Compliance
Beginning January 1, 2012, a diverter of surface water is not eligible for a water grant or loan awarded or administered by the State unless it complies with surface water diversion reporting requirements outlined in Part 5.1 (commencing with §5100) of Division 2 of the CWC.

8. Requirements for Urban Water Suppliers
Urban Water Supplier means a supplier, either publicly or privately owned, that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually (CWC § 10617).

- **Urban Water Management Planning Act Compliance** – Water suppliers who were required by the Urban Water Management Planning Act (CWC § 10610 *et seq*.) to submit an Urban Water Management Plan (UWMP) to DWR must have submitted a complete UWMP to be eligible for IRWM Grant Program funding. Applicants and project proponents that are urban water suppliers and have projects that would receive funding through the IRWM grant program must have a complete UWMP by the time a grant is awarded to be eligible to receive funding.
- **AB1420 Compliance** – AB1420 (Stats. 2007, ch.628) conditions the receipt of a water management grant or loan, including IRWM grant funds and IRWM related water management funding such as SWFM funds, by urban water suppliers on the implementation of California Urban Water Conservation Council (CUWCC) best management practices (BMPs). Urban water suppliers who are applicants or project proponents in a grant application for either funding source must supply additional information as required by DWR's Water Use and Efficiency Branch (WUEB) http://www.owue.water.ca.gov/finance/index.cfm. An urban water supplier may be eligible for a water management grant or loan if it demonstrates that it has or is implementing or scheduling the implementation of BMPs. Urban water suppliers applying to use grant funds for implementation of BMPs must ensure they have submitted all the necessary information per the WUEB instructions.
- **CWC § 529.5 Compliance** - Requires on or after January 1, 2010, any urban water supplier applying for state grant funds for wastewater treatment projects, water use efficiency projects, drinking water treatment projects, or for a permit for a new or expanded water supply, shall demonstrate that they meet the water meter requirements in CWC § 525 *et seq*.

9. Local Plan Consistency

Any watershed protection activities must be consistent with the applicable, adopted, local watershed management plans and the applicable Regional Water Quality Control Plan (Basin Plan) adopted by the Regional Water Quality Control Board (Regional Water Board).

GREATER MONTEREY COUNTY IRWMP
PROJECT SOLICITATION 2012

APPLICATION FORM FOR CONCEPT PROPOSALS

1. Project Proponent (Name of Organization):

Type of Entity: ☐ Public agency ☐ Nonprofit organization ☐ Privately owned water utility

☐ Private citizen or privately owned business ☐ Other (describe)**:**

2. Project Title:

3. Name, Title, and Affiliation of Contact Person:

4. Phone: **5. Email:**

6. Mailing Address:

7. Project Eligibility: Geographic Location
The project must lie within the geographic scope of the Greater Monterey County IRWM region,[3] or otherwise be of direct benefit to the Greater Monterey County IRWM region. Please describe the exact location of the project *and provide a map*. If your project is not located within the geographic boundaries of the region, please explain how it is of direct benefit to the region.

8. Project Eligibility: Prop 84 IRWM Criteria
To be eligible for inclusion in the IRWMP, projects must yield multiple benefits and include one or more of the following elements. Please check all that apply:

☐ Water supply reliability, water conservation and water use efficiency.
☐ Storm water capture, storage, clean-up, treatment, and management.
☐ Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.
☐ Non-point source pollution reduction, management and monitoring.
☐ Groundwater recharge and management projects.
☐ Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users.
☐ Water banking, exchange, reclamation and improvement of water quality.
☐ Planning and implementation of multipurpose flood management programs.
☐ Watershed protection and management.
☐ Drinking water treatment and distribution.
☐ Ecosystem and fisheries restoration and protection.

[3] The Greater Monterey County IRWM region includes most of Monterey County, with the exception of areas that are already included in other IRWMPs (specifically, the Pajaro River Watershed IRWM region and Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM region). These exceptions include: land areas within the San Jose Creek and Carmel River watersheds, land areas within the Pajaro River watershed, and most of the Monterey Peninsula (the Greater Monterey County region includes and runs north from Marina). For a map of the Greater Monterey County IRWM region, please visit our website: http://ccwg.mlml.calstate.edu/irwmp/ (go to the "Greater Monterey County Region Description" section).

9. Project Eligibility: IRWMP Goals and Objectives

To eligible for inclusion in the IRWMP, projects must be consistent with the goals and objectives of the Greater Monterey County IRWM region, which include the following (please check all that apply):

Water Supply

- ☐ Increase groundwater recharge and protect groundwater recharge areas.
- ☐ Optimize the use of groundwater storage with infrastructure enhancements and improved operational techniques.
- ☐ Increase and optimize water storage and conveyance capacity through construction, repair, replacement, and augmentation of infrastructure.
- ☐ Diversify water supply sources, including but not limited to the use of recycled water.
- ☐ Maximize water conservation programs.
- ☐ Capture and manage storm water runoff.
- ☐ Optimize conjunctive use where appropriate.
- ☐ Support research and monitoring to better understand water supply needs.
- ☐ Support the creation of water supply certainties for local production of agricultural products.
- ☐ Promote public education about water supply issues and needs.
- ☐ Promote planning efforts to provide emergency drinking water to communities in the region in the event of a disaster.

Water Quality

- ☐ Promote practices necessary to meet, or where practicable, exceed all applicable water quality regulatory standards (for drinking water, surface and groundwater quality).
- ☐ Promote projects to prevent seawater intrusion.
- ☐ Incorporate or promote principles of low impact development where feasible, appropriate, and cost effective.
- ☐ Protect surface waters and groundwater basins from contamination and the threat of contamination.
- ☐ Support research and pilot projects for the co-management of food safety and water quality protection.
- ☐ Improve septic systems, sewer system infrastructure, wastewater treatment systems, and manure management programs to prevent water quality contamination.
- ☐ Support research and other efforts on salinity management.
- ☐ Support monitoring to better understand major sources of erosion, and implement a comprehensive erosion control program.
- ☐ Promote programs and projects to reduce the quantity and improve the quality of urban and agricultural runoff and/or mitigate their effects in surface waters, groundwater, and the marine environment.
- ☐ Promote regional monitoring and analysis to better understand water quality conditions.
- ☐ Support research of emerging technologies (enzymes, etc.) to develop effective water pollution prevention and mitigation measures, and source tracking.
- ☐ Promote public education about water quality issues and needs.

Flood Protection & Floodplain Management

- ☐ Promote projects and practices to protect infrastructure and property from flood damage.
- ☐ Improve flood management infrastructure and operational techniques/strategies.
- ☐ Implement flood management projects that provide multiple benefits such as public safety, habitat protection, recreation, agriculture, and economic development.
- ☐ Develop and implement projects to protect, restore, and enhance the natural ecological and hydrological functions of rivers, creeks, streams, and their floodplains.
- ☐ Support research and monitoring efforts to understand the effects of flooding on transport and persistence of pathogens in food crop production areas.
- ☐ Support management of flood waters so that they do not contaminate fresh produce in the field.
- ☐ Promote public education about local flood management issues and needs.

Environment

- ☐ Support science-based projects to protect, improve, enhance, and/or restore the region's ecological resources, while providing opportunities for public access and recreation where appropriate.
- ☐ Protect and enhance state and federally listed species and their habitats.
- ☐ Minimize adverse environmental impacts of water resource management projects.
- ☐ Support applied research and monitoring to better understand environmental conditions, environmental water needs, and the impacts of water-related projects on environmental resources.
- ☐ Implement fish-friendly stream and river corridor restoration projects.
- ☐ Reduce adverse impacts of sedimentation into streams, particularly from roads and non-point sources.
- ☐ Promote efforts to prevent, control, reduce, and/or eradicate high priority invasive species.
- ☐ Promote native drought-tolerant plantings in municipal and residential landscaping.
- ☐ Consider opportunities to purchase fee title or conservation easements on lands from willing sellers that provide integrated water resource management benefits. Ensure adequate funding and infrastructure to manage properties and/or monitor easements.
- ☐ Support research and monitoring efforts to understand the effects of wildfire events on water resources.

Regional Communication and Cooperation

- ☐ Facilitate dialogue and reduce inconsistencies in water management strategies/regulations between local, regional, state, and federal entities.
- ☐ Promote dialogue between federal and state regulators and small water system managers to facilitate water quality regulation compliance.
- ☐ Foster collaboration between regional entities to minimize and resolve potential conflicts and to obtain support for responsible water supply solutions and improved water quality.
- ☐ Build relationships with federal, state, and local regulatory agencies and other water agencies to facilitate the permitting, planning, and implementation of water-related projects.
- ☐ Increase stakeholder input and public education about the need, complexity, and cost of strategies, programs, plans, and projects to improve water supply, water quality, flood management, coastal conservation, and environmental protection.

Disadvantaged Communities

- ☐ Seek funding opportunities to ensure all communities have a water system with adequate, safe, high-quality drinking water.
- ☐ Seek funding opportunities to ensure all communities have adequate wastewater treatment.
- ☐ Ensure that disadvantaged communities are adequately protected from flooding and the impacts of poor surface and groundwater quality.
- ☐ Provide support for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
- ☐ Promote public education in disadvantaged communities about water resource protection, pollution prevention, conservation, water quality, and watershed health.

Climate Change

- ☐ Plan for potential impacts of future climate change.
- ☐ Support increased monitoring and research to obtain greater understanding of long-term impacts of climate change in the Greater Monterey County region.
- ☐ Support efforts to research alternative energy and to diversify energy sources appropriate for the region.
- ☐ Seek long-term solutions to reduce greenhouse gas producing energy use.
- ☐ Seek long-term solutions to maintain and protect existing pristine natural resources from the impacts of climate change.
- ☐ Support research and/or implementation of land-based efforts such as carbon-sequestration on working lands and wildlands in the Greater Monterey County region.
- ☐ Promote public education about impacts of climate change, particularly as it relates to water resource management in the Greater Monterey County region.

10. Summary Description of Project: Please include a brief summary of the project idea. Describe project need, as much detail about the project concept as possible, and who would be involved in carrying out the project. Please also describe related efforts and/or project status, if the project is somewhat beyond the concept stage.

HOW TO SUBMIT YOUR APPLICATION:

All project applications are due by 5:00 PM Friday, **August 31, 2012**.

Please **email** your completed application to Susan Robinson at srobinsongs@frontier.com.

If you do not have email access, please mail or hand-deliver one copy of your application to (all applications *must be received by* August 31, 2012):

Bridget Hoover
Monterey Bay National Marine Sanctuary
99 Pacific Street, Building 455
Monterey, CA 93940

FOR QUESTIONS ABOUT THIS APPLICATION FORM OR THE IRWMP PROCESS:

Please visit our website at http://ccwg.mlml.calstate.edu/irwmp/ or contact:

Susan Robinson
Coordinator for the Greater Monterey County IRWMP
srobinsongs@frontier.com
(828) 649-9742

Appendix G

California 303(d) List of Water Quality Limited Segments in the Greater Monterey County IRWM Region

WATER BODY NAME	CALWATER WATERSHED	EST SIZE AFFECTED	UNIT	POLLUTANT	POLLUTANT CATEGORY	FINAL LISTING DECISION	EXPECTED TMDL COMPLETION DATE	COMMENTS INCLUDED ON 303(d) LIST
Alisal Creek (Monterey County)	30970093	16	Miles	Chlorophyll-a	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Alisal Creek (Monterey County)	30970093	16	Miles	Fecal Coliform	Pathogens	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Alisal Creek (Monterey County)	30970093	16	Miles	Nitrate	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Alisal Creek (Monterey County)	30970093	16	Miles	Sodium	Salinity	List on 303(d) list (TMDL required list)	01-Jan-18	
Alisal Slough (Monterey County)	30911010	7	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Alisal Slough (Monterey County)	30911010	7	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Alisal Slough (Monterey County)	30911010	7	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Alisal Slough (Monterey County)	30911010	7	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Arroyo Seco River	30960032	43	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Arroyo Seco River	30960032	43	Miles	Temperature, water	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Bennett Slough	30600014	2	Miles	Chlorophyll-a	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-21	
Bennett Slough	30600014	2	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-21	
Bennett Slough	30600014	2	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Blanco Drain	30911010	15	Miles	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Blanco Drain	30911010	15	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	

Blanco Drain	30911010	15	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Blanco Drain	30911010	15	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Blanco Drain	30911010	15	Miles	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Blanco Drain	30911010	15	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Carneros Creek (Monterey County)	30600010	12	Miles	Ammonia (Unionized)	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-21	
Carneros Creek (Monterey County)	30600010	12	Miles	Chlorophyll-a	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-21	
Carneros Creek (Monterey County)	30600010	12	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Carneros Creek (Monterey County)	30600010	12	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-21	
Carneros Creek (Monterey County)	30600010	12	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-21	
Carneros Creek (Monterey County)	30600010	12	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Cholame Creek	31700053	9	Miles	Boron	Metals/Metalloids	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-21	
Cholame Creek	31700053	9	Miles	Chloride	Salinity	List on 303(d) list (TMDL required list)	01-Jan-21	
Cholame Creek	31700053	9	Miles	Electrical Conductivity	Salinity	List on 303(d) list (TMDL required list)	01-Jan-21	
Cholame Creek	31700053	9	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Cholame Creek	31700053	9	Miles	Fecal Coliform	Pathogens	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-21	
Cholame Creek	31700053	9	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-21	
Cholame Creek	31700053	9	Miles	Sodium	Salinity	List on 303(d) list (TMDL required list)	01-Jan-21	
Chualar Creek	30919000	14	Miles	Ammonia (Unionized)	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	

Chualar Creek	30919000	14	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	Temperature, water	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Chualar Creek	30919000	14	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Elkhorn Slough	30600014	2034	Acres	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-21	
Elkhorn Slough	30600014	2034	Acres	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-21	
Elkhorn Slough	30600014	2034	Acres	Sedimentation/Siltation	Sediment	List on 303(d) list (TMDL required list)	01-Jan-21	
Elkhorn Slough	30600014	2034	Acres	Total Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Elkhorn Slough	30600014	2034	Acres	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Esperanza Creek	30911010	4	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Lake	30919000	163	Acres	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Lake	30919000	163	Acres	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	Ammonia (Unionized)	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	

Espinosa Slough	30911010	1	Miles	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	Priority Organics	Other Organics	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Espinosa Slough	30911010	1	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Gabilan Creek	30919000	6	Miles	Ammonia (Unionized)	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Gabilan Creek	30919000	6	Miles	Fecal Coliform	Pathogens	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Gabilan Creek	30919000	6	Miles	Nitrate	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Gabilan Creek	30919000	6	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Gabilan Creek	30919000	6	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Gabilan Creek	30919000	6	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Gabilan Creek	30919000	6	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Merrit Ditch	30911010	0	Miles	Ammonia (Unionized)	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Merrit Ditch	30911010	0	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Merrit Ditch	30911010	0	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Merrit Ditch	30911010	0	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Merrit Ditch	30911010	0	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Merrit Ditch	30911010	0	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Moro Cojo Slough	30913011	62	Acres	Ammonia (Unionized)	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-21	

Moro Cojo Slough	30913011	62	Acres	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Moro Cojo Slough	30913011	62	Acres	Low Dissolved Oxygen	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-21	
Moro Cojo Slough	30913011	62	Acres	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-21	
Moro Cojo Slough	30913011	62	Acres	Sedimentation/Siltation	Sediment	List on 303(d) list (TMDL required list)	01-Jan-21	
Moro Cojo Slough	30913011	62	Acres	Total Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Moro Cojo Slough	30913011	62	Acres	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Nickel	Metals/Metalloids	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Pathogens	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	Sedimentation/Siltation	Sediment	List on 303(d) list (TMDL required list)	01-Jan-21	
Moss Landing Harbor	30600014	79	Acres	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Nacimiento Reservoir	30982000	5736	Acres	Mercury	Metals/Metalloids	List on 303(d) list (TMDL required list)	01-Jan-21	
Nacimiento Reservoir	30982000	5736	Acres	Metals	Metals/Metalloids	List on 303(d) list (TMDL required list)	01-Jan-21	
Natividad Creek	30911010	7	Miles	Ammonia (Unionized)	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Natividad Creek	30911010	7	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	

Natividad Creek	30911010	7	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Natividad Creek	30911010	7	Miles	Nitrate	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Natividad Creek	30911010	7	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Natividad Creek	30911010	7	Miles	Temperature, water	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Natividad Creek	30911010	7	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Natividad Creek	30911010	7	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Natividad Creek	30911010	7	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Chlorophyll-a	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River	30911010	4	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Old Salinas River Estuary	30911010	16	Acres	Nutrients	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	

Old Salinas River Estuary	30911010	16	Acres	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Ammonia (Unionized)	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Nitrate	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Temperature, water	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Quail Creek	30919000	4	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Ammonia (Unionized)	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Copper	Metals/Metalloids	List on 303(d) list (TMDL required list)	01-Jan-18	
Salinas Reclamation Canal	30911010	8	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Fecal Coliform	Pathogens	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Low Dissolved Oxygen	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	

Salinas Reclamation Canal	30911010	8	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Priority Organics	Other Organics	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas Reclamation Canal	30911010	8	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Chlordane	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Chloride	Salinity	List on 303(d) list (TMDL required list)	01-Jan-18	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	DDD (Dichlorodiphenyldichloroethane)	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Dieldrin	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Electrical Conductivity	Salinity	List on 303(d) list (TMDL required list)	01-Jan-13	Impaired length for conductivity is from Del Monte Road to the River Mouth.

Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Enterococcus	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Fecal Coliform	Pathogens	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Nitrate	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	PCBs (Polychlorinated biphenyls)	Other Organics	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Sodium	Salinity	List on 303(d) list (TMDL required list)	01-Jan-18	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Total Dissolved Solids	Salinity	List on 303(d) list (TMDL required list)	01-Jan-18	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Toxaphene	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)	30917000	31	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	

Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	30917000	72	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	30917000	72	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	30917000	72	Miles	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-21	Area affected is the lower 20 miles of the middle Salinas River.
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	30917000	72	Miles	Temperature, water	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	30917000	72	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-21	
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	30917000	72	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-21	
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River)	30917000	72	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Salinas River Lagoon (North)	30911010	197	Acres	Nutrients	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River Lagoon (North)	30911010	197	Acres	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River Refuge Lagoon (South)	30911010	30	Acres	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Salinas River Refuge Lagoon (South)	30911010	30	Acres	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	
San Antonio Reservoir	30983000	5417	Acres	Mercury	Metals/Metalloids	List on 303(d) list (TMDL required list)	01-Jan-21	

San Antonio River (below San Antonio Reservoir)	30981005	11	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
San Antonio River (below San Antonio Reservoir)	30981005	11	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
San Lorenzo Creek (Monterey County)	30970023	49	Miles	Boron	Metals/Metalloids	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-21	
San Lorenzo Creek (Monterey County)	30970023	49	Miles	Chloride	Salinity	List on 303(d) list (TMDL required list)	01-Jan-21	
San Lorenzo Creek (Monterey County)	30970023	49	Miles	Electrical Conductivity	Salinity	List on 303(d) list (TMDL required list)	01-Jan-21	
San Lorenzo Creek (Monterey County)	30970023	49	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-21	
San Lorenzo Creek (Monterey County)	30970023	49	Miles	Fecal Coliform	Pathogens	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-21	
San Lorenzo Creek (Monterey County)	30970023	49	Miles	Sodium	Salinity	List on 303(d) list (TMDL required list)	01-Jan-20	
San Lorenzo Creek (Monterey County)	30970023	49	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-21	
Santa Rita Creek (Monterey County)	30919000	11	Miles	Ammonia (Unionized)	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Santa Rita Creek (Monterey County)	30919000	11	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Santa Rita Creek (Monterey County)	30919000	11	Miles	Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Santa Rita Creek (Monterey County)	30919000	11	Miles	Low Dissolved Oxygen	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Santa Rita Creek (Monterey County)	30919000	11	Miles	Nitrate	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Santa Rita Creek (Monterey County)	30919000	11	Miles	Sodium	Salinity	List on 303(d) list (TMDL required list)	01-Jan-18	
Santa Rita Creek (Monterey County)	30919000	11	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Chlorophyll-a	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Diazinon	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	

Tembladero Slough	30911010	6	Miles	Enterococcus	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Escherichia coli (E. coli)	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Fecal Coliform	Pathogens	Do Not Delist from 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Nitrate	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Nutrients	Nutrients	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Pesticides	Pesticides	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Sediment Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Total Coliform	Pathogens	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Turbidity	Sediment	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	Unknown Toxicity	Toxicity	List on 303(d) list (TMDL required list)	01-Jan-13	
Tembladero Slough	30911010	6	Miles	pH	Miscellaneous	List on 303(d) list (TMDL required list)	01-Jan-13	

Appendix H
Water Quality Priorities
Central Coast Regional Water Quality Control Board
July 2011

This staff report provides a summary of our priorities and some of the actions we are taking in 2011 on these priorities. This is only a very brief, partial list of all the actions we are and have been taking on these and many other issues. The purpose here is to provide a summary of the most important issues and the actions we are taking.

Our highest priorities:

Preventing and Correcting Threats to Human Health
Preventing and Correcting Degradation of Aquatic Habitat
Preventing Degradation of Hydrologic Processes
Preventing/Reversing Seawater Intrusion
Preventing Further Degradation of Groundwater Basins from Salts

For each of the priorities above we are identifying or already taking specific actions, as briefly summarized below.

Preventing and Correcting Threats to Human Health

The main threats to human health are contaminants in drinking water, such as perchlorate (Olin and other sites in the northern part of our region) and nitrate (contaminated domestic wells in agriculture areas). Nitrate in groundwater is by far the most widespread threat to human health in our Region. Actions we are taking now include:

1. Investigating the extent of nitrate in groundwater and the number and location of rural residents who are at risk, and ensuring they are notified of the risk and their options. We have initiated the notification of rural residents in the Salinas Valley area in a cooperative effort with the State Board's Groundwater Ambient Monitoring Assessment program (GAMA). We are following up with additional notifications, which may exceed 10,000 residents. Some residents may be exposed to nitrate levels that are fifteen times the drinking water standard. Our notification (in cooperation with the County Environmental Health Department) includes information on sampling and analysis, nitrate treatment options, and health effects, so that home owners can make informed decisions. The State Water Board has set up a website to provide this type of information (also linked to our website), which we will also be using in our notification efforts.

2. Revising the Water Board's Irrigated Agriculture Order to include requirements for minimizing fertilizer application rates and reporting usage, and requirements for groundwater sampling and reporting so that the Water Board can prioritize and focus on areas where the threat to public health is greatest.

3. Investigating specific cases of nitrate contamination in domestic or public supply wells, which may result in staff recommendations to the Water Board regarding requirements that responsible parties provide replacement water to the well owners. These investigations include areas near San Lucas in Monterey County, Morro Bay, King City,

Anchor Point Christian High School near Gilroy, and farm labor camps. We expect this list to grow significantly in the coming months.

4. Developing a Basin Plan amendment to prohibit or limit certain high risk activities that cause pollution in groundwater recharge areas, and prohibit or limit activities that prevent groundwater recharge.

5. Improving our working relationship with local county health agencies and the State Department of Public Health to promptly address threats to human health, including exposure due to pesticides in fish, inhalation of vapors at groundwater cleanup sites, and contamination in drinking water. We have been following up on our letter to all of our County Public Health Officers last year (which received a very poor response from the Counties) on a county by county basis, prioritized by extent of threatened exposures. As a result of our follow up, Santa Barbara County staff committed to proposing well testing ordinance improvements. We have followed up with San Benito County staff and are following up with the Board of Supervisors. Monterey County already has the most extensive well testing requirements of any county in our region, although the ordinance still needs to be strengthened.

6. Continuing with petroleum and chemical leak site cleanup oversight using priority systems similar to this more general list – first priority to public health threats, and threats to more usable groundwater (including landfills with leachate).

Preventing and Correcting Degradation of Aquatic Habitat

Aquatic habitat, such as riparian areas and wetlands and their buffers zones are critically important to water quality, water supply, and the overall biological and physical health of watersheds. The loss of aquatic habitat in our Region has been increasing in some areas, especially in agriculture areas due to misconceptions about food safety. Some of the actions we are taking in 2011 include:

1. Including minimum requirements for aquatic habitat protection in the Water Board's draft Irrigated Agriculture Order.

2. Targeting more severe toxicity problems with more aggressive follow-up.

3. Including requirements for aquatic habitat protection in Total Maximum Daily Load Orders.

4. Including requirements for aquatic habitat protection in renewed municipal stormwater permits (Salinas). We already included habitat protection measures in our recent approvals of Phase II municipalities' stormwater management plans.

5. Developing a Basin Pan amendment to prohibit or limit certain activities that degrade aquatic habitat and cause subsequent discharges that degrade water quality and beneficial uses.

6. Prioritizing our oversight of projects that would potentially degrade aquatic habitat, such as construction projects in riparian areas regulated under our 401 Certification program.

7. Prioritizing enforcement actions for illegal degradation of riparian areas and wetlands.

8. Ensuring permits for discharge to surface waters are protective.

Preventing Degradation of Hydrologic Processes

Hydrologic processes include stream and river flow, surface runoff, erosion and sedimentation, recharge of groundwater, water circulation, and groundwater and surface water interaction. These processes are intricately linked to water quality and watershed health. Hydrologic processes are degraded by certain aspects of land use activities, such as overgrazing, urbanization and increasing impervious surfaces, channelization, and devegetation. Degradation can occur on a massive, watershed scale. Some of the actions we are taking in 2011 include:

1. Continuing our work with the Low Impact Development Initiative program's "Joint Effort" project. This is a collaborative project among the Water Board, Low Impact Development Initiative staff, nationally leading scientists, and municipalities, to develop a methodology that local agencies can use to determine their own hydromodification control criteria based on local conditions.

2. Including requirements for hydromodification control in upcoming permit renewals (City of Salinas), and continuing to help municipalities and consultants improve project designs to include low impact development design principles. .

3. Recommending that the State Board include adequate requirements for hydromodification control in their draft Phase II general stormwater permit.

4. Continuing implementation of two Low Impact Development grants through our Low Impact Develop Initiative program. One project is in Paso Robles and will design and build a "Clean Streets" project, similar to the nationally recognized Clean Streets projects in Seattle. The other project is in Atascadero and will design and build a parking lot with low impact development design principles. These projects will provide state of the art designs that others can use and will help Water Board staff develop more effective regulatory requirements in the future.

Preventing/Reversing Seawater Intrusion

Seawater intrusion is one of the most serious water quality issues we face on the Central Coast, resulting in enormous costs to the public as alternative fresh water supplies must be developed in intruded areas. In some areas, such as Los Osos, the rate of salt water intrusion is increasing dramatically due to over pumping in the intruded zone. Although the Regional Water Boards do not have authority to regulate pumping of groundwater (the State Water Board can exercise this authority through adjudication), Regional Water Board staff have acted to address the issue (see Accomplishments staff report, last page). Some actions we are taking in 2011 include:

1. Coordinating with State Board staff on possible actions in seawater intrusion areas. Regional Water Board staff have begun in 2010-11 to propose actions directly to the State Board (Regional actions as well as statewide general permits) and Regional staff can use the same approach to address sea water intrusion issues. We will be pursuing this possibility in 2011.

2. Pursuing actions by local agencies and purveyors in Los Osos to reduce salt water intrusion.

3. Working with local agencies to develop salt and nutrient management plans that include seawater intrusion in applicable basins for Board consideration by Feb 2014.

4. Working on hydromodification controls, as discussed above, to protect and increase groundwater recharge.

5. Working toward a Basin Plan Amendment to protect groundwater recharge areas, discussed in the first section, above, number 4.

Preventing Further Degradation of Groundwater Basins from Salts

1. Working with local agencies to develop salt and nutrient management plans for Board consideration by Feb 2014.

2. Including requirements to reduce or eliminate salt loading, with schedules and compliance monitoring, in the draft Irrigated Agriculture Order.

3. Including salt limits in individual waste discharge requirements.

Performance Measures

In addition to the priorities and actions summarized briefly above, we continue to prioritize all our work, to make sure we are focusing on the most important issues. We have also developed performance measures for much of our work, and we continue to develop additional performance measures where needed. Performance measures are an ongoing topic of discussion and development between the State and Regional Boards. Performance measures require data collection, and in some areas, we still need to develop data collection methods. Consequently, initial statewide performance measures are focused on measures with existing data availability. They tend to be more administrative performance measures, such as the number of permits renewed and the number of inspections performed.

In our office, we are using and developing performance measures that will better inform us of how we are doing in producing tangible results in our watersheds. For example, now that we have developed prioritization criteria for all our clean up sites, we are tracking how long it takes to initiate cleanup, and how long it takes to achieve some level of cleanup (such as eliminating the health risk), on the top priority sites. We are also identifying the actions we need to take on priority issues, and tracking whether or not we take those actions in a timely manner. In some of our tasks discussed in this report, such as the Basin Plan amendments noted above, we are taking much longer than anticipated. As another example, for our monitoring program, CCAMP (Central Coast Ambient Monitoring Program) to inform all of us of environmental outcomes, we are using measures like, “How many CCAMP data points are being used to inform our water quality control decisions?” We are working towards performance measures related to trends in watersheds - how many watersheds are monitored for trends, how many have enough data to support statistical trend analysis, and how many sites show improving trends or decreasing trends in key indicators?

We look forward to discussing these priorities and our actions with the Board.

Appendix I
Special Status Species with Potential to Occur in the Greater Monterey County Region

Source: Table 4.9-4 from EIR for Monterey County General Plan: Special-Status Plants with Potential to Occur in Monterey County

Common and Scientific Name	Status: Federal/State/CNPS	California Distribution	Habitats
Abbott's bush mallow *Malacothamnus abbottii*	SC/–/1B.1	Monterey County	Riparian scrub
Adobe sanicle *Sanicula maritima*	–/R/1B.1	Coastal Monterey and San Luis Obispo Counties. Historically known from the San Francisco Bay area: Alameda* and San Francisco* Counties	Moist clay or ultramafic soils, in meadows and grassland
Alkali milk–vetch *Astragalus tener* var. *tener*	–/–/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay Area	Grassy flats and vernal pool margins, on alkali soils, below 200'
Arroyo de la Cruz manzanita *Arctostaphylos cruzensis*	SC/–/1B.2	Coastal Monterey and San Luis Obispo Counties	Sandy soils, in coastal scrub, chaparral and oak woodland, valley and foothill grassland, below 500'
Arroyo Seco bush mallow *Malacothamnus palmeri* var. *lucianus*	SC/–/1B.2	Monterey County	Chaparral, meadows
Beach layia *Layia carnosa*	E/E/1B.1	Scattered occurrences along coastal California from Humboldt County to Santa Barbara County	Coastal dunes, coastal scrub on sandy soil
Brewer's spineflower *Chorizanthe breweri*	–/–/1B.3	South Coast Ranges, San Luis Obispo County	Rocky or gravelly areas in Sargent cypress forest, chaparral, oak woodland, coastal scrub in open areas on serpentinite soil
Bristlecone fir *Abies bracteata*	–/–/1B.3	Endemic to the Santa Lucia Range: Monterey and San Luis Obispo Counties	Lower montane coniferous forest on steep, rocky, fire–resistant slopes at 700–5,250'
Butterworth's buckwheat *Eriogonum butterworthianum*	SC/R/1B.3	Monterey County	Chaparral on sandstone
California screw–moss *Tortula californica*	–/–/1B.2	Known from Kern and Riverside Counties	Chenopod scrub, valley and foothill grassland/ sandy soil, 10–100 meters
Calycadenia micrantha *Small-flowered calycadenia*	–/–1B.2	Colusa, Lake, Monterey, Napa, and Trinity Counties	Chaparral, Meadows and seeps(volcanic), Valley and foothill grassland/roadsides, rocky, talus, scree, sometimes serpentinite, sparsely vegetated areas
Caper–fruited Tropidocarpum *Tropidocarpum capparideum*	–/–/1B.1	Historically known from the northwest San Joaquin Valley and adjacent Coast Range foothills	Grasslands in alkaline hills below 1,500'
Carmel Valley bush mallow *Malacothamnus palmeri* var. *involucratus*	SC/–/1B.2	Monterey and San Luis Obispo Counties	Chaparral, oak woodland, talus hilltops and slopes, 1,200–2,200'
Carmel Valley cliff–aster	SC/–/1B.2	Monterey and Santa Barbara Counties	Rocky areas in chaparral

Malacothrix saxatilis var. *arachnoidea*			
Coast wallflower *Erysimum ammophilum*	–/–/1B.2	Coastal San Mateo, Santa Cruz, and Monterey Counties	Sandy soils and openings in maritime chaparral, coastal dunes, coastal scrub
Coastal dunes milk–vetch *Astragalus tener* var. *titi*	E/E/1B.1	Central coast, southern coast, including portions of Los Angeles*, Monterey, and San Diego Counties	Sandy soils of coastal bluff scrub, coastal dunes, coastal prairie on mesic or sandy depressions near the coast
Compact cobwebby thistle *Cirsium occidentale* var. *compactum*	–/–/1B.2	San Francisco and San Luis Obispo Counties	Chaparral, coastal dunes, coastal prairie, coastal scrub
Cone Peak bedstraw *Galium californicum* ssp. *luciense*	SC/–/1B.3	Monterey County	Broadleaved upland forest, cismontane woodland, lower montane coniferous forest
Congdon's tarplant *Centromadia parryi* ssp. *congdonii* (formerly *Hemizonia*)	–/–/1B.2	East San Francisco Bay Area, Salinas Valley, Los Osos Valley	Annual grassland, on lower slopes, flats, and swales, sometimes on alkaline or saline soils, below 700'
Contra Costa goldfields *Lasthenia conjugens*	E/–/1B.1	Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley, Alameda, Contra Costa, Mendocino, Monterey, Napa, Santa Barbara*, Santa Clara*, and Solano Counties.	Alkaline or saline vernal pools and swales, below 700'
Cook's Triteleia *Triteleia ixioides* ssp. *cookii*	–/–/1B.3	San Luis Obispo County	Closed–cone coniferous forest, cismontane woodland, on serpentinite seeps
Davidson's bush mallow *Malacothamnus davidsonii*	–/–/1B.2	Los Angeles, Monterey, and San Luis Obispo Counties	Coastal scrub, chaparral, and riparian woodland in sandy washes, 900–2,800'
Delicate bluecup *Githopsis tenella*	1B.1	Kern, Monterey, and Tulare Counties	Chaparral, Cismontane woodland/mesic
Dudley's lousewort *Pedicularis dudleyi*	–/R/1B.2	Monterey, Santa Cruz*, San Luis Obispo, and San Mateo Counties	Maritime chaparral, North Coast coniferous forest, valley and foothill grassland
Dwarf Calycadenia *Calycadenia villosa*	–/–/1B.1	Known from 20 occurrences in interior foothills of South Coast Ranges, in San Luis Obispo and Monterey Counties. Historically in Kern County	Rocky sites in chaparral, oak woodland, juniper woodland, grasslands, open dry flats and hillsides, and alluvial fans, below 4,200'
Eastwood's buckwheat *Eriogonum eastwoodianum*	–/–/1B.3	Fresno and Monterey Counties	Sandy or clay soils in cismontane woodland
Eastwood's goldenbush *Ericameria fasciculata*	SC/–/1B.1	Monterey County	Sandy soils and openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, coastal scrub
Fragrant fritillary *Fritillaria liliacea*	–/–/1B.2	Coast Ranges from Marin County to San Benito County	Adobe soils of interior foothills, coastal prairie, coastal scrub, annual grassland, often on serpentinite, below 1,350'
Gabilan Mountains manzanita *Arctostaphylos gabilanensis*	—/—/1B.2	Monterey and San Benito Counties	Chaparral, Cismontane woodland/granitic
Gowen cypress *Cupressus goveniana* ssp. *goveniana*	T/–/1B.2	Monterey County	Closed–cone coniferous forest, maritime chaparral
Hall's tarplant	–/–/1B.1	Interior foothills of South Coast Ranges, in San	Oak woodland, grassland; in clay soil on flood

Deinandra halliana		Benito, Monterey, and San Luis Obispo counties	plains
Hardham's bedstraw *Galium hardhamiae*	–/–/1B.3	Monterey and San Luis Obispo Counties	Closed–cone coniferous forest on serpentinite substrate
Hardham's evening–primrose *Camissonia hardhamiae*	SC/–/1B.2	South coast ranges, Monterey and San Luis Obispo Counties	Chaparral, oak woodland on decomposed carbonate substrate
Hickman's checkerbloom *Sidalcea hickmanii* ssp. *Hickmanii*	–/–/1B.3	Monterey County	Chaparral
Hickman's cinquefoil *Potentilla hickmanii*	E/E/1B.1	Monterey, San Mateo, and Sonoma* Counties	Freshwater marshes, seeps, and small streams in open areas in coastal scrub or coniferous forest
Hickman's onion *Allium hickmanii*	SC/–/1B.2	Central coast: Monterey and San Luis Obispo Counties, especially Monterey Peninsula and Arroyo de la Cruz.	Closed–cone coniferous forest, maritime chaparral, coastal prairie, coastal scrub, valley and foothill grassland, generally +/– 150'
Hooked popcorn–flower *Plagiobothrys uncinatus*	–/–/1B.2	Monterey, San Benito, Santa Clara, and San Luis Obispo Counties	Chaparral, cismontane woodland, valley and foothill grassland, in sandy areas
Hooker's Manzanita *Arctostaphylos hookeri* ssp. *hookeri*	–/–/1B.2	Central coast, western San Francisco Bay region, Santa Cruz mountains and south to Carmel. Monterey and Santa Cruz Counties	Closed–cone coniferous forest, chaparral, cismontane woodland, coastal scrub on sandy substrate
Hutchinson's larkspur *Delphinium hutchinsoniae*	SC/–/1B.2	Monterey County	Broadleaved upland forest, chaparral, coastal prairie, coastal scrub
Indian Valley bush mallow *Malacothamnus aboriginum*	–/–/1B.2	Inner South Coast Ranges: San Benito, Fresno, and Monterey Counties	Rocky areas in chaparral and oak woodland, often in burned areas
Indian Valley spineflower *Aristocapsa insignis*	–/–/4 B.2	Inner south Coast Range, Monterey and San Luis Obispo Counties	Cismontane woodland on sandy substrate
Jolon clarkia *Clarkia jolonensis*	–/–/1B.2	Northern outer south coast ranges, Monterey County	Cismontane woodland
Kellman's bristle-moss *Orthotrichum kellmanii*	–/–/1B.2	Monterey, Santa Cruz, and San Mateo Counties	Chaparral, Cismontane woodland/sandstone, carbonate
Kellogg's Horkelia *Horkelia cuneata* ssp. *Sericea*	SC/–/1B.1	Coastal California from Marin to Santa Barbara Counties	Openings in closed–cone coniferous forest, coastal scrub, maritime chaparral, on sandy or gravelly soils
Late–flowered mariposa lily *Calochortus weedii* var. *vestus*	SC/–/1B.2	Outer south Coast Ranges, Western Transverse Range, Monterey, Santa Barbara, San Luis Obispo, and Ventura Counties	Chaparral, cismontane woodland, often on serpentinite
Lemmon's jewelflower *Caulanthus coulteri* var. *lemmonii*	–/–/1B.2	Southeast San Francisco Bay Area, south through the South Coast Ranges and adjacent San Joaquin Valley	Dry exposed slopes in grasslands and pinyon–juniper woodland, between 260-4,000 feet; blooms March–May
Little Sur Manzanita *Arctostaphylos edmundsii*	SC/–/1B.2	Central coast, Monterey County	Coastal bluff scrub, chaparral on sandy substrate
Maple–leaved checkerbloom *Sidalcea malachroides*	–/–/1B.3	North Coast and northern Central Coast: from Humboldt to Monterey County	Openings in coastal scrub, perennial grassland, Redwood forest, Douglas–fir forest, often in

			disturbed areas, 5–2,300'
Marsh microseris *Microseris paludosa*	–/–/1B.2	Coastal California from Mendocino County to San Luis Obispo County	Grassland, coastal scrub, closed–cone–coniferous forest, cismontane woodland
Mason neststraw *Stylocline masonii*	–/–/1B.1	Scattered locations from Monterey County to Los Angeles County	Chenopod scrub, pinyon–juniper woodland, in sandy washes, 300–3,900'
Menzies's wallflower *Erysimum menziesii* ssp. *Menziesii*	E/E/1B.1	North and Central coast: Fort Bragg, Monterey Bay, and Point Pinos areas in Mendocino and Monterey Counties	Localized on coastal dunes, on coastal strand areas in coastal scrub below 115'
Monterey clover *Trifolium trichocalyx*	E/E/1B.1	Monterey County	Closed–cone coniferous forest, openings, burned areas
Monterey cypress *Cupressus macrocarpa*	SC/–/1B.2	Monterey County	Closed–cone coniferous forest
Monterey Manzanita *Arctostaphylos montereyensis*	SC/–/1B.2	Central coast, Fort Ord, northern outer south Coast Range, Toro Mountain, northwestern Monterey County	Maritime chaparral, cismontane woodland, coastal scrub, sandy soils
Monterey pine *Pinus radiata*	SC/–/1B.1	Monterey, Santa Cruz, San Luis Obispo, and San Mateo Counties, Baja California, Guadalupe Island (Mexico)	Closed–cone coniferous forest, cismontane woodland
Monterey spineflower *Chorizanthe pungens*	T/–/1B.2	Monterey and Santa Cruz Counties	Coastal dunes
Moss (Norris' Beard–moss) *Didymodon norrisii*	–/–/2.2	Humboldt, Lake, Madera, and Tuolumne Counties	Cismontane woodland, lower montane coniferous forest/ intermittently mesic, rock, 600–1700 meters
Most beautiful jewel–flower *Streptanthus albidus* ssp. *peramoenus*	–/–/1B.2	Eastern San Francisco Bay area, Central south coastal outer ranges. Alameda, Contra Costa, Monterey, and Santa Clara Counties	Chaparral, annual grassland, on ridges and slopes on serpentinite outcrops, 450–3,200'
Muir's tarplant *Carlquistia muirii*	–/–/1B.3	Fresno, Kern, Monterey, and Tulare Counties	Chaparral (montane), lower montane coniferous forest, upper montane coniferous forest.
Napa false indigo *Amorpha californica* var. *napensis*	–/–/1B.2	Monterey, Marin, Napa, and Sonoma Counties	Openings in broadleaved upland forest, cismontane woodland, chaparral, between 500–6,580 feet
Oval–leaved snapdragon *Antirrhinum ovatum*	–/–/4.2	Inner Coast Ranges from San Benito County to Kern and Ventura Counties	Clay or gypsum substrates (often alkaline) in chaparral, cismontane woodland, pinyon–juniper woodland, valley and foothill grassland, between 650–3,300'
Pacific Grove clover *Trifolium polyodon*	–/R/1B.1	Monterey County	Closed–cone coniferous forest, coastal prairie, meadows, valley and foothill grassland, in mesic areas
Pajaro Manzanita *Arctostaphylos pajaroensis*	–/–/1B.1	Pajaro Hills, Monterey County	Chaparral, in sandy areas
Pale–yellow layia	SC/–/1B.1	Ranges, Transverse Ranges, and Tehachapi	Cismontane woodland, pinyon– juniper

Layia heterotricha		mountains: Fresno, Kings*, Kern*, Monterey*, Santa Barbara, San Luis Obispo*, Ventura, and possibly San Benito Counties	woodland, grassland in open areas on alkaline or clay soils, below 5,250'
Palmer's Monardella *Monardella palmeri*	–/–/1B.2	Monterey and San Luis Obispo Counties	Chaparral, cismontane woodland on serpentinite
Pine rose *Rosa pinetorum*	–/–/1B.2	Monterey and San Mateo Counties	Closed–cone coniferous forest, up to 985'
Pinnacles buckwheat *Eriogonum nortonii*	–/–/1B.3	Monterey and San Benito Counties	Sandy soils in chaparral, valley and foothill grassland; often on recent burns
Prostrate navarettia *Navarretia prostrata*	–/–/1B.1	Western San Joaquin Valley, interior South Coast Ranges, central South Coast, Peninsular Ranges: Los Angeles, Merced, Monterey, Orange, Riverside, San Bernardino, and San Diego Counties	Vernal pools and mesic areas in coastal scrub and alkali grasslands
Purple amole *Chlorogalum purpureum* var. p*urpureum*	T/–/1B.1	Northeastern outer south Coast Ranges, eastern Santa Lucia Mountains, Monterey County	Cismontane woodland, valley and foothill Grassland
Rayless ragwort *Senecio aphanactis*	–/–/2.2	Scattered locations in central western and southwestern California, from Alameda County to San Diego County	Oak woodland, coastal scrub, open sandy or rocky areas, on alkaline soils; 15–800 meters
Recurved larkspur *Delphinium recurvatum*	–/–/1B.2	San Joaquin Valley and central valley of the South Coast Ranges, Contra Costa County to Kern County	Subalkaline soils in annual grassland, saltbush scrub, cismontane woodland, and vernal pools
Robust spineflower *Chorizanthe robusta* var. *robusta*	E/–/1B.1	Coastal central California, from San Mateo to Monterey County	Coastal bluff scrub, coastal dunes openings in cismontane woodland, on sandy soil
Saline clover *Trifolium depauperatum* var. *hydrophilum*	–/–/1B.2	Sacramento Valley, central western California	Salt marsh, mesic alkaline areas in grasslands, vernal pools
San Antonio collinsia *Collinsia antonina*	–/–/1B.2	Monterey County	Chaparral, Cismontane woodland
San Benito fritillary *Fritillaria viridea*	–/–/1B.2	Central Coast Ranges in San Benito, Monterey, and San Luis Obispo counties	Serpentinite outcrops, on slopes, in chaparral, 650–5,000'
San Francisco collinsia *Collinsia multicolor*	–/–/1B.2	Coastal California from San Francisco to Monterey County	Closed–cone coniferous forest, coastal scrub
San Luis Obispo sedge *Carex obispoensis*	–/–/1B.2	Outer South Coast Ranges in San Luis Obispo County	Sargent cypress forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; often on serpentinite seeps
San Simeon Baccharis *Baccharis plummerae* ssp. *Glabrata*	–/–/1B.2	Central coast, San Luis Obispo County	Coastal scrub
Sand gilia *Gilia tenuiflora* ssp. *Arenaria*	E/T/1B.2	Monterey County	Sandy soils in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub
Sandmat manzanita *Arctostaphylos pumila*	SC/–/1B.2	Central coast, especially Monterey Bay, Monterey County	Openings in closed–cone coniferous forest, maritime chaparral, cismontane woodland,

			coastal dunes, and coastal scrub, in sandy areas
Santa Cruz clover *Trifolium buckwestiorum*	–/–/1B.1	San Francisco Bay area and central coastal California, Endemic to Santa Cruz County, also known from Monterey and Sonoma Counties	Moist grassy areas on margins of broadleaved upland forest, cismontane woodland, and coastal prairie, sometimes in disturbed areas, 200–1,800'
Santa Cruz Microseris *Stebbinsoseris decipiens*	–/–/1B.2	Coastal California: scattered occurrences from Marin County to Monterey County	Grasslands, coastal prairie, and open grassy areas in other habitat types
Santa Cruz tarplant *Holocarpha macradenia*	T/E/1B.1	Coastal slope of the Santa Cruz Mountains, Monterey and Santa Cruz Counties	Coastal terrace grasslands on light sandy to sandy clay soils, below 300 feet
Santa Lucia bedstraw *Galium clementis*	–/–/1B.3	Monterey County	Lower and upper montane coniferous forest on granitic or serpentinite, rocky substrates
Santa Lucia bush mallow *Malacothamnus palmeri* var. *palmeri*	–/–/1B.2	San Luis Obispo and possibly Monterey Counties	Rocky places in chaparral
Santa Lucia mint *Pogogyne clareana*	–/E/1B.2	Monterey County	Riparian woodland
Seaside bird's–beak *Cordylanthus rigidus* ssp. *Littoralis*	SC/E/1B.1	Central and southern central coast, Monterey and Santa Barbara Counties	Closed–cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, coastal scrub; on sandy soils, often disturbed sites
Shining Navarretia *Navarretia nigelliformis* ssp. *Radians*	–/–/1B.2	Interior foothills of South Coast Ranges from Merced County to San Luis Obispo County	Mesic areas with heavy clay soils, in swales and clay flats; in oak woodland, grassland
Showy madia *Madia radiata*	–/–/1B.1	Scattered populations in the interior foothills of the south Coast Ranges: Contra Costa, Fresno, Kings, Kern, Monterey, Santa Barbara, San Benito, San Joaquin, and San Luis Obispo Counties	Oak woodland, grassland, slopes below 3,000'
Slender Pentachaeta *Pentachaeta exilis* ssp. *Aeolica*	SC/–/1B.2	Monterey and San Benito Counties	Cismontane woodland, valley and foothill grassland
Straight–awned spineflower *Chorizanthe rectispina*	–/–/1B.3	Outer south coast ranges: Monterey, Santa Barbara, and San Luis Obispo Counties	Chaparral, coastal scrub, oak woodland; often on granitic soils, between 1,165–3,400 feet
Talus fritillary *Fritillaria falcate*	–/–/1B.2	South inner coast ranges. Alameda, Monterey, San Benito, Santa Clara, and Stanislaus Counties	Chaparral, oak woodland, closed–cone coniferous forest, on serpentinite talus
Tear Drop moss *Dacryophyllum falcifolium*	–/–/1B.3	Monterey, Santa Cruz	North Coast coniferous forest/carbonate
Temblor buckwheat *Eriogonum temblorense*	SC/–/1B.2	Kern, Monterey, and San Luis Obispo Counties	Valley and foothill grassland on clay or sandstone substrate
Tidestrom's lupine *Lupinus tidestromii*	E/E/1B.1	Coastal Monterey, Marin, and Sonoma Counties	Coastal dunes, coastal dune scrub
Umbrella larkspur *Delphinium umbraculorum*	–/–/1B.3	Monterey, Santa Barbara, San Luis Obispo, and Ventura Counties	Moist areas in cismontane woodland
Yadon's rein orchid *Piperia yadonii*	E/–/1B.1	Monterey County	Coastal bluff scrub, closed–cone coniferous forest, maritime chaparral, on sandy soils

Yadon's wallflower *Erysimum menziesii* ssp. *Yadonii*	E/E/1B.1	Monterey County	Coastal dunes
Yellow–flowered Eriastrum *Eriastrum luteum*	–/–/1B.2	Monterey and San Luis Obispo Counties	Broadleaved upland forest, chaparral, cismontane woodland

Note: For the purposes of the EIR, CEQA-defined special-status species are defined to include both listed and non-listed species that are candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS or that otherwise meet the definitions of rare or endangered under CEQA based on substantial evidence.

Status explanations:
Federal
E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
SC = considered a species of concern by the Fish and Wildlife Service
– = no listing.

State
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
R = listed as rare under the California Endangered Species Act.
– = no listing.

California Native Plant Society (CNPS)
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
3 = List 3 species: more information is needed for this plant.
– = no listing.
.1 = seriously endangered in California
.2 = fairly endangered in California
.3 = not very endangered in California

* Populations uncertain or extirpated in the county indicated

Appendix J
Non-native Invasive Species Found in the Greater Monterey County Region

The following describes invasive non-native plant and animal species known to occur in the Greater Monterey County Integrated Regional Water Management region, compiled from various sources (as noted).

From the Monterey County Agricultural Commissioner's website 8/30/11: http://ag.co.monterey.ca.us/pages/invasive-weeds

The rich soils and moderate climate of Monterey County make it an ideal place for invasive weed species to colonize. Invasive weeds are usually able to out-compete local native plant species for water and space because they are more prolific, have more vigorous growth, and lack predators that would otherwise help to keep them in check. They degrade habitat for other wildlife, domestic animals, recreation, and other land use activities. The agricultural industry is particularly affected by weeds; their control expense is ultimately passed on to the consumer. Weeds affect everyone, either directly or indirectly. The Agricultural Commissioner collaborates with CDFA and the University of California in the introduction and release of biological control agents throughout the county. An example of local biological pest control methods for weeds includes insects to control yellow star thistle.

Monterey County Weed Threats:

- Fertile Capeweed *(Arctotheca calendula),* rated as an "A" species by the State Department of Food and Agriculture.
- French Broom *(Genista monspessulana),* found primarily along the coast and northern Monterey County.
- Cape Ivy *(Delairia odorata).* Cape Ivy has become or is rapidly becoming an ecological disaster in most of the riparian or stream-side areas of the County, especially along the coast. This plant is capable of forming a dense vine-like growth that completely smothers all underlying vegetation.
- Arundo *(Arundo donax):* Arundo is becoming a dominant plant along the Salinas River where it is crowding out native species. Where it occurs in a river, it can restrict stream flow and enhance flooding.
- Pampas Grass *(Cortaderia selloana)*
- Purple Pampas Grass *(Cortaderia jubata),* considered to be more invasive and more prevalent in this county than other species of Pampas Grass. Most purple pampas grass infestations are seen along the coastal areas.
- Yellowstar-thistle *(Centaurea solstitialis):* Unquestionably the most serious rangeland noxious weed in the County.
- Veldt Grass *(Ehrharta calycina)*
- Taurian Thistle *(Onopordum tauricum*, rated as an "A" species by the State Department of Food and Agriculture.
- Puna Grass *(Achnatherum brachychaetum)*
- Skeletonweed *(Chondrilla juncea)*, rated as an "A" species by the State Department of Food and Agriculture.
- Scotch Thistle *(Onopordum acanthium)*, rated as an "A" species by the State Department of Food and Agriculture.

From Brad Oliver, Staff Biologist, Monterey County Agricultural Commissioner's Office (Comment on the Ag Commissioner List, email communication September 6, 2011):
Some other invasive ones that we don't have on the website could be considered to be of importance countywide and may be familiar to many folks: Kikuyu grass (*Pennisetum clandestinum*), Bermuda buttercup (*Oxalis pes-caprae*), iceplant (*Carpobrotus edulis*), fennel (*Foeniculuum vulgare*), tamarisk (*Tamarix parviflora*), Italian thistle (*Carduus pycnocephalus*), and perennial pepperweed (*Lepidium latifolium*). …For a marine non-native invasive plant, the wakame (*Undaria pinnatifida*), which is under eradication in Monterey Bay.

From Nikki Nedeff, Ecological Consultant (conversation June 10, 2011) – Nikki adds:
- Sticky eupatorium (*Ageratina adenophora)*

From Laura Lee Lienk, Executive Director, CSUMB Return of the Natives (email September 1, 2011) – Laura Lee adds:
- Iceplant *Carpobrotus edulis* found mainly near coast and responsible for crowding out native vegetation and associated fauna
- Fennel *Foeniculum vulgare* a rapid colonizer of disturbed spaces whose roots emit chemicals inhibiting the growth of other plants.
- Italian Thistle *Carduus pycnocephalus* a rapid colonizer of disturbed spaces, inland, ie., Carmel Valley

From SIMoN website: *http://www.sanctuarysimon.org/monterey/sections/other/invasives.php*
An "invasive species" is defined as one that is 1) non-native (or alien) to the ecosystem under consideration and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. … Nonindigenous species may threaten the diversity or abundance of native species, alter the natural functioning of ecosystems, disrupt species interactions, and negatively impact commercial and recreational activities that rely on native marine resources. Found in MBNMS (for example):
- Wakame (*Undaria pinnatifida)*
- European green crab (*Carcinus maenas*)

From Elkhorn Slough website*: http://www.elkhornslough.org/research/aquaticinvaders/aquatic0.htm*
Below are the two dozen "least wanted" invasive species for the Monterey Bay region.
- Caulerpa *(Caulerpa taxifolia)*
- Wakame *(Undaria pinnatifida)*
- Smooth Cordgrass *(Spartina alterniflora)*
- Black Sea Jellyfish *(Maeotias inexspectata)*
- Spotted Jellyfish *(Phyllorhiza punctata*)
- Striped Barnacle *(Balanus amphitrite)*
- Red Swamp Crayfish *(Procambarus clarkii)*
- American Lobster *(Homarus americanus)*
- Chinese Mitten Crab *(Eriocheir sinensis)*
- Harris Mud Crab *(Rhithropanopeus harrisii)*
- Eastern Mud Snail *(Ilyanassa obsoleta)*
- Channeled Whelk *(Busycotypus canaliculatus)*
- Veined Rapa Whelk *(Rapana venosa)*
- Atlantic Ribbed Mussel *(Ischadium demissum)*
- Green Mussel *(Perna spp.)*
- Northern Quahog *(Mercenaria mercenaria)*
- False Angelwing *(Petricolaria pholadiformis)*
- Winged Oyster *(Pteria sterna)*

- Asian Clam *(Potamocorbula amurensis)*
- Northern Pacific Seastar *(Asterias amurensis)*
- Spaghetti Bryozoan *(Zoobotryon verticillatum)*
- Mediterranean Fan Worm *(Sabella spallanzanii)*
- Chameleon Goby *(Tridentiger trigonocephalus)*
- Diamondback Terrapin *(Malaclemys terrapin)*

Harmful non-native animal species from conversation with Nikki Nedeff, Ecological Consultant (June 10, 2011):

- Red squirrels
- Red fox
- Bullfrogs

From California Department of Fish and Game website September 1, 2011:
http://www.dfg.ca.gov/wildlife/nongame/nuis_exo/ferret/ferret_issues_4.html

Most of the more than 50 non-native species of terrestrial mammals, birds, reptiles, and amphibians that now breed in the wild in California are kinds that were imported for pet, menagerie, or ornamental purposes and eventually escaped or were purposely released. California is now home to feral breeding populations of many types of domestic animals that had been released or escaped into the wild. Of the 22 species of non-native mammals that now exist in established breeding populations in California, 9 (over 40%) are from domestic stock: domestic rabbit, house cat, horse, burro, cattle, domestic sheep, swine, domestic goat, and fallow deer.

In assessing "*the relative importance of habitat destruction, alien species, pollution, overexploitation, and disease*" in the U.S., Wilcove et al. (1998) found that "*... habitat loss is the top-ranked threat (in terms of the number of species it affects) for all species groups. Competition with or predation by alien species is the second-ranked threat in the overall analysis, affecting 49% of imperiled species*."

From CA DFG website: *http://www.dfg.ca.gov/wildlife/nongame/nuis_exo/exo_spp.html*

Non-Native & Nuisance Terrestrial Vertebrates

From "A Check-List of the Amphibians, Reptiles, Birds, and Mammals of California" by W.E. Grenfell, Jr., et al. Wildlife Habitat Relationships Program, California Department of Fish and Game, 2001.

Status Code:

I	Introduced to California
I?	Introduced to California; it is not known if populations are viable through time

Amphibians

Common Name	Scientific Name	Status	Footnotes
Ambystomatidae (Mole Salamanders and relatives)			
Ranidae (True Frogs)			
Rio Grande Leopard Frog	Rana berlandieri	I	
Bullfrog	Rana catesbeiana	I	
Pipidae (Pipid Frogs)			
African Clawed Frog	Xenopus laevis	I	

Reptiles

Common Name	Scientific Name	Status	Footnotes
Chelydridae (Snapping Turtles)			
Snapping Turtle	Chelydra serpentina	I	
Emydidae (Box and Water Turtles)			
Painted Turtle	Chrysemys picta	I	
Slider	Pseudemys (Trachemys) scripta	I	
Trionychidae (Softshell Turtles)			
Spiny Softshell	Trionyx spiniferus	I	
Colubridae (Colubrids)			
Diamondback Water Snake	Nerodia rhombifer	I	

Birds

Common Name	Scientific Name	Status	Footnotes
Anatidae (Swans, Geese, and Ducks)			
Mute Swan	Cygnus olor	I	
Phasianidae (Qualis, Pheasants, and relatives)			
Chukar	Alectoris chukar	I	
Ring-necked Pheasant	Phasianus colchicus	I	
Common Peafowl	Pavo cristatus	I	
White-tailed Ptarmigan	Lagopus leucurus	I	
Wild Turkey	Melegris gallopavo	I	
Columbidae (Pigeons and Doves)			
Rock Dove	Columa livia	I	
Eurasian Collared Dove	Streptopelia decaocto	I?	
Spotted Dove	Streptopelia chinensis	I	
Psittacidae (Lories, Parakeets, Macaws, and Parrots)			
Rose-winged Parakeet	Psittacula krameri	I?	
Blue-crowned Parakeet	Aratinga auticaudata	I	
Mitred Parakeet	Aratinga mitrata	I	
Red-masked Parakeet	Aratinga erythrogenys	I	
Black-hooded Parakeet	Nandayus nendey	I	
White-winged (Canary-winged) Parakeet	Brotogeris versicolurus	I?	
Yellow-chevroned Parakeet	Brotogeris chiriri	I	
Red-crowned Parrot	Amazona viridigenalis	I?	
Lilac-crowned Parrot	Amazona finschi	I?	
Yellow-headed Parrot	Amazona oratrix	I?	
Sturnidae (Starlings)			
European Starling	Sturnus vulgaris	I	
Emberizidae (Wood Warblers, Sparrows, Blackbirds, and relatives)			
Northern Cardinal	Cardinalis cardinalis	I	Cardinals are native to California only marginally in the Colorado River Valley, other populations are of introduced subspecies.
Passeridae (Old World Sparrows)			
House Sparrow	Passer domesticus	I	
Plocidae (Weavers and Allies)			

Orange Bishop	Euplectes franciscanus	I?	
Estrildidae (Waxbills and Allies)			
Nutmeg Manakin	Lonchura punctulata	I?	

Mammals

Common Name	Scientific Name	Status	Footnotes
Didelphidae (Opossums)			
Virginia Opossum	Didelphis virginiana	I	
Leporidae (Rabbits and Hares)			
European Rabbit	Oryctolagus cuniculus	I	
Sciuridae (Squirrels, chipmunks, and Marmots)			
Eastern Gray Squirrel	Sclurus carolinensis	I	
Eastern Fox Squirrel	Sciurus niger	I	
Castoridae (Beavers)			
Beaver	Castor canadensis	I	*Some populations were introduced into the Sierra Nevada and Southern California from stock taken from Oregon and Washington.
Cricetidae (Native Mice, Rats, and Voles)			
Muskrat	Onatra zibethicus	I	*Some populations in California were introduced.
Muridae (Old World Rats and Mice)			
Black Rat	Rattus rattus	I	
Norway Rat	Rattus norvegicus	I	
House Mouse	Mus musculus	I	
Canidae (Foxes, Wolves, and relatives)			
Red Fox	Vulpes vulpes	I	Red foxes native to California are of the subspecies V.v. necator. Members of other subspecies of red fox have been introduced to California.
Felidae			
Domestic Cat	Felis cattus	I	
Equidae (Horses)			
Feral Horse	Equus caballus	I	
Feral Burro	Equus assinus	I	
Burchell's Zebra	Equus burchelli	I	
Suidae (Pigs)			
Wild Pig	Sus scrofa	I	
Cervidae (Deer, Elk, and relatives)			
Wapiti or Elk	Cervus elaphus	I	*Elk native to California are Roosevelt (C.e. roosevelti) and tule (C.e. nannodes)) elk. Rocky Mountain elk (C.e. nelsoni) have been introduced to California.
Fallow Deer	Cervus dama	I	
Sambar	Cervus unicolor	I	
Axis Deer	Cervus axis	I	

Bovidae (Sheep, Goats, an relatives)			
Feral Cattle	Bos taurus	I	
Bison	Bison bison	I	
Blackbuck	Antilope cervicapra	I	
Barbary Sheep	Ammotragus lervia	I	
Himalayan Tahr	Hemitragus jemlahicus	I	
Feral Goat	Capra hircus	I	

Appendix K

The Role of Natural Habitat in Coastal Vulnerability and Adaptation Planning within the Greater Monterey County Region

September 2012

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Organizations: Natural Capital Project and Center for Ocean Solutions

To support decision-makers in their efforts to manage coastal resources in our changing world, The Natural Capital Project and the Center for Ocean Solutions have engaged with the Greater Monterey County Integrated Regional Water Management (GMC IRWM) planning team to assess the effects of coastal adaptation strategies and climate scenarios on the ecosystem services provided by coastal and nearshore environments. This project 1) assessed the physical vulnerability of the coast to hazards such as erosion and inundation, and 2) assessed the vulnerability of relevant infrastructure, land use types and coastal communities. This assessment can be used to identify areas for future analysis and inform project prioritization and funding. Analysis of these vulnerabilities was developed through the use of the Integrated Valuation of Environmental Services and Tradeoffs (InVEST) decision support tool—a family of tools to map and value the goods and services provided by nature. The Coastal Vulnerability[1] model was utilized for this project.

Introduction

The impacts from climate change to California's coast are evident in Monterey County. As noted in the *Climate Change Handbook for Regional Water Planning*,[2] sea level rise will impact the shoreline in many ways such as the increased severity of coastal erosion, the increased likelihood of coastal structure failure, and the increased likelihood of the inundation of coastal infrastructure due to storm surge. These sea level rise impacts may be enhanced by a potential increase in storm wave intensity.

In spite of these increased impacts, human activity in the ocean and along the coast continues to grow. Faced with a changing climate and this growing intensity of human activities, coastal communities must understand how development and modifications of the biological and physical environment can affect their exposure to storm-induced erosion, flooding, and inundation, both now and in future sea level rise scenarios. The InVEST Coastal Vulnerability model produces a qualitative estimate of such exposure. The model maps the location and vulnerability of populations, land use, and infrastructure near coastlines using a Vulnerability Index, which differentiates areas with relatively high or low exposure to erosion and inundation during storms. In addition, the Index can highlight the protective services offered by natural habitats—such as wetlands, dunes, and kelp forests—to coastal populations.

Methods

The Vulnerability Index produced by the Coastal Vulnerability model is the qualitative estimate of exposure to erosion and flooding. It is based on seven physical and biological characteristics of the region—geomorphology, natural habitats, relief, wave exposure, wind exposure, surge potential, and sea level change—which are ranked according to their potential for increasing or decreasing coastal hazards (Figure 1). The Coastal Vulnerability model can be used to qualitatively assess where the protective role

[1] http://ncp-dev.stanford.edu/~dataportal/invest-releases/documentation/current_release/#marine-models
[2] United States Environmental Protection Agency Region 9, and California Department of Water Resources (US EPA and DWR). 2011. Climate Change Handbook for Regional Water Planning. Availablehttp://www.water.ca.gov/climatechange/CCHandbook.cfm

of natural habitats has the capacity to reduce the vulnerability of coastal communities and infrastructure. The model does not take into account coastal processes that are unique to a region, nor does it predict long- or short-term changes in shoreline position or configuration.

This analysis included two other qualitative indices, an Erosion Index and an Inundation Index, combining the physical and biological variables from the Vulnerability Index that contribute to erosion or wind-generated surge respectively. The Erosion Index combines the geomorphology, wave exposure, and natural habitat rankings. The Inundation Index combines the relief, wind exposure, surge potential, sea level rise, and natural habitat rankings. The Inundation Index accounts *only* for variables that might affect wind-generated surge (wind induced rise of the water level) and does *not* include effects of inundation from wave run-up (which is dependent on beach foreshore slope and offshore wave characteristics) or flooding from inland sources. Data for the model were collected from various sources (Table 1).

Table 1: Data inputs for InVEST Coastal Vulnerability model

Data inputs	Data source
Geomorphology	NOAA Digital Coast; Coastal Sediment Management Group website
Relief	National Map Seamless Server USGS
Dunes	Coastal Sediment Management Group website
Wetland	National Wetlands Inventory
Kelp	California Department of Fish and Game
Sea level change	California Interim Guidelines
Wind and wave exposure	Scripps Institute of Oceanography, Coastal Data Information Program

In the GMC IRWM region (Figure 2) the InVEST tool assessed the physical vulnerability to coastal hazards under three climate and two habitat scenarios using the Vulnerability Index, Erosion Index, and Inundation Index. By pairing each of the three climate scenarios with the two habitat scenarios, the analysis evaluated six total scenarios. This information was supplemented with data on prime agriculture on the coast (using the California Farmland Monitoring and Mapping data) and coastal communities (using US 2010 Census data at the census block group scale). The climate scenarios follow the State of California Sea-Level Rise Interim Guidance Document:[3] 1) Baseline (Year 2000 sea level), 2) 14 inches by 2050, and 3) 55 inches by 2100. The habitat types included in the two habitat scenarios are 1) the current distribution of high ($\geq$ 5 m) and low ($<$ 5 m) dunes, emergent marsh (National Wetland Inventory data), and kelp (composite layer of Department of Fish Game aerial survey data 2000-2010), and 2) none of these habitats (Figure 3). These habitats were chosen according to their ability to protect the coast from erosion and flooding.

To map and interpret the Vulnerability Index values the GMC region coastline was divided into 50 m^2 segments and classified as highest, medium high, medium low or lowest vulnerability based on the quartiles of the full distribution of Vulnerability Index values (across all coastline segments for all six scenarios) (Table 2). This process was repeated to classify the Erosion and Inundation Indices respectively based on the quartiles of the full distribution of the Erosion Index and Inundation Index values across the different scenarios (Table 2). The Erosion and Inundation Indices are not additive.

[3] Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT). 2010. State of California Sea-Level Rise Interim Guidance Document. http://www.opc.ca.gov/2011/07/sea-level-rise-task-force-interim-guidance-document/

However, they can suggest where erosion or wind-generated surge is the more important factor driving the Vulnerability Index.

Table 2: Quartile distribution of erosion, inundation, and vulnerability indices

	Erosion Index	Inundation Index	Vulnerability Index
Lowest	<1.34	<1.8	<3.06
Medium low	1.34–1.83	1.8–2.83	3.06–5.10
Medium high	1.83–2.36	2.83–4.24	5.10–9.58
Highest	>2.36	>4.24	>9.58

Although there is very limited water infrastructure spatial data for the GMC IRWM region, locations of people and agricultural land can suggest where the greatest concentration of water infrastructure is located. To assess the vulnerability of populations to coastal hazards, coastal segments with the highest Vulnerability Index values were selected. Then the ArcGIS Focal Statistics tool determined the average number of people at each of these 50 m^2 segments within a 1 km distance inland. To assess the vulnerability of prime farmland to coastal hazards, coastal segments with the highest vulnerability were selected and used to determine the number of segments within 1 km of prime farmland. In addition, available water infrastructure data were mapped for the Northern GMC region and used to determine the number of water infrastructure within 1 km of the highest vulnerability sections of the coast.

Results

Impact of Sea Level Rise on Vulnerability

The model results suggest that physical vulnerability of the GMC IRWM coastal region will increase with sea level rise (Figures 4, 5, 6 and 7), with a more than 25% increase in coastal segments that are in the highest vulnerability category with a 55-inch rise in sea level, even with habitat protection (Table 3). Associated with this increase in physical vulnerability with sea level rise is a higher percentage of people and prime agricultural land that will be highly vulnerable to erosion and flooding (Tables 4 and 5). Our analysis of the limited water infrastructure data available in the Northern GMC region suggests that with a 55-inch rise in sea level without habitat protection more than 40% of infrastructure within 1 km of the coast is within 1 km of the highest vulnerability sections of the coast (Figure 8). This analysis would benefit from the inclusion of comprehensive and specific water infrastructure data.

Table 3: Percent of highest vulnerability segments of the coast

Scenario	2000 Sea Level	14” Sea Level Rise	55” Sea Level Rise
With habitat	8%	26%	36%
Without habitat	16%	29%	40%

Table 4: Percent of coastal segments within 1 km of “Prime Agricultural” land with highest vulnerability values

Scenario	2000 Sea Level	14” Sea Level Rise	55” Sea Level Rise
With habitat	23%	33%	35%
Without habitat	32%	33%	37%

Table 5: Percent of people within 1 km of the coast that are within l km of the highest vulnerability segments (number of people within 1 km of highest vulnerability coastal segments).

Scenario	2000 Sea Level	14" Sea Level Rise	55" Sea Level Rise
With habitat	14% (10,000)	46% (32,000)	51% (36,000)
Without habitat	37% (26,000)	49% (34,000)	54% (39,000)

Key message: The Coastal Vulnerability model results suggest that sea level rise predicted through 2100 will lead to an increase in vulnerability, and a greater than 25% increase in coastal segments that are in the highest vulnerability category.

The Role of Natural Habitat in Mitigating Vulnerability

One strategy to reduce vulnerability is to protect the habitats that play a role in protecting infrastructure and people, such as wetlands and dunes. The InVEST Coastal Vulnerability model results indicate that habitats play the greatest protective role for communities and prime agriculture in the areas with the highest vulnerability—Moss Landing, Marina and Seaside (Figure 4, 5, 6, 7). These analyses suggest prioritizing areas within this region for habitat conservation and restoration. The results also suggest that wetland areas in the Elkhorn Slough and Salinas River region are particularly important for reducing vulnerability.

In the Northern GMC IRWM region, the presence of the highest vulnerability segments in the outer coastal region appears to be generally driven by erosion factors in the model. However, many of the Erosion Index values in this area increase from medium low to highest erosion ranking without the protective services the dune habitat in this region (Figure 9). These results suggest a focus on protecting and restoring dunes, which can protect inland communities from flooding.

Higher vulnerability segments in Elkhorn Slough and the Salinas River appear to be generally driven by wind-generated surge. However, the effect of wind-generated surge is increased without the protective services of wetland habitats in this region. (Figure 10). Wetlands attenuate waves and stabilize shorelines for protection against surge.[4] It is important to note that inundation due to storm surge is a complex function of wave size, wave speed, shore topography, shore geography, and slope of the ocean bottom. The Inundation Index only accounts for wind-generated surge, and does not account for wave run-up. The Inundation Index also does not account for inland flooding. However, the *Climate Change Handbook for Regional Water Planning* states that increased storm severity will lead to more severe floods,[5] suggesting that these wetland regions would be even more vulnerable to flooding than just by wind-generated surge.

Key Message: Coastal Vulnerability model results suggest that coastal habitats will play a key role in reducing the vulnerability of people and prime agricultural land to coastal erosion and flooding.

[4] Shepard CC, Crain CM, Beck MW (2011) The Protective Role of Coastal Marshes: A Systematic Review and Meta-analysis. PLoS ONE 6(11): e27374. doi:10.1371/journal.pone.0027374

[5] United States Environmental Protection Agency Region 9, and California Department of Water Resources (US EPA and DWR). 2011. Climate Change Handbook for Regional Water Planning. Page 4-12

Summary and Next Steps

Many response strategies regarding coastal water infrastructure development and defense are made without the benefit of both climate change and coastal protection effects on a broad range of benefits that people expect and need from well-functioning coastal ecosystems. In order to strategically shape decisions about coastal adaptation in ways that meet coastal defense objectives while also protecting or restoring coastal habitats and the full suite of services those habitats provide to people, communities must understand the costs and benefits of different adaptation responses.

The InVEST Coastal Vulnerability model results suggest that coastal habitats will play a key role in reducing the vulnerability of people and prime agricultural land to coastal erosion and flooding. Nature-based approaches to adaptation aim to preserve and restore coastal habitats such as wetlands, dunes and kelp with an outcome that is possibly less costly and less damaging to coastal ecosystems while also more resilient and flexible—allowing for adaptive management in the context of a changing climate.

Future work should focus on a few of the most vulnerable areas and habitats to examine the effects of climate change impacts and alternative adaptation strategies (e.g., restoration and conservation, relocation or retreat, infrastructure investment) and the costs and benefits associated with these adaptation approaches. Ultimately this information can be used to inform the design and execution of IRWM projects to address climate adaptation considerations and support the sustainability of local ecosystems and the benefits provided to people.

Summary:

- Coastal Vulnerability model results suggest that sea level rise predicted through 2100 will lead to an increase in vulnerability and a more than 25% increase in coastal segments that are in the highest vulnerability category.
- Coastal Vulnerability model results suggest that coastal habitats will play a key role in reducing the vulnerability of people and prime agricultural land to coastal erosion and flooding.
- In order to fully evaluate water infrastructure vulnerability and adaptation strategies, comprehensive water infrastructure data must be collected and analyzed for vulnerability to climate change.
- Future work should evaluate the costs and benefits of alternative adaptation strategies such as restoration and conservation, relocation or retreat, or infrastructure investment.

Vulnerability

Rank	Very Low	Low	Moderate	High	Very High
	1	2	3	4	5
Geomorphology	Rocky High Cliff, Concrete Armoring	Medium Cliff, Small Seawalls, Wood Armoring	Low Cliff, Alluvial Plain	Cobble Beach, Estuary, Lagoon, Bluff	Barrier Beach, Sand Beach, Mud Flat, Delta
Relief	>90th Percentile	>75th Percentile	Average Value	>25th Percentile	>10th Percentile
Natural Habitats	Coastal Forest	High Dune, Marsh	Low Dune	Seagrass, Kelp	No Habitat
Sea Level Change	2000 Sea Levels		14" Sea Level Rise		55" Sea Level Rise
Wind Exposure	<10th Percentile	<25th Percentile	Average Value	<75th Percentile	<90th Percentile
Wave Exposure	<10th Percentile	<25th Percentile	Average Value	<75th Percentile	<90th Percentile
Surge Potential	<10th Percentile	<25th Percentile	Average Value	<75th Percentile	<90th Percentile

Figure 1. **Data Inputs for Coastal Vulnerability Model**. Using various input datasets for each of the seven biological and physical variables (Table 1), the tool generates absolute values for each of the variables (e.g., distance to shelf, average elevation in meters, wave power) for each 50 m^2 segment of GMC IRWM region coastline. The tool then ranks each segment of coastline for each variable from very low exposure (Rank=1) to very high exposure (Rank=5) to coastal hazards. Ranks for geomorphology and habitats are absolute and depend on categorical variables. Ranks for the other five variables are relative and depend on the distribution of values for all coastline segments. The tool then estimates exposure to coastal hazards for each shoreline segment:

$$\text{Vulnerability Index} = \sqrt{\frac{R_{\text{Habitats}} R_{\text{Geomorphology}} R_{\text{Relief}} R_{\text{SLR}} R_{\text{Wind}} R_{\text{Waves}} R_{\text{Surge Potential}}}{7}}$$

where *R* is rank, and subscripts for each rank indicate one of the seven variables. The value of seven is derived from the number of variables.

In those segments of shoreline where man-made armoring structures (e.g., sea walls, rock walls, revetments) were identified as geomorphic features we used a two-step process to account for the structures. First, structures were categorized as either concrete or wood. Second, those segments of the shoreline backed by concrete coastal structures were assigned a rank of 1 and those segments of the shoreline backed by wood armoring structures were assigned a rank of 2.

For more specific information about the model please see: http://ncp-dev.stanford.edu/~dataportal/invest-releases/documentation/current_release/#marine-models.

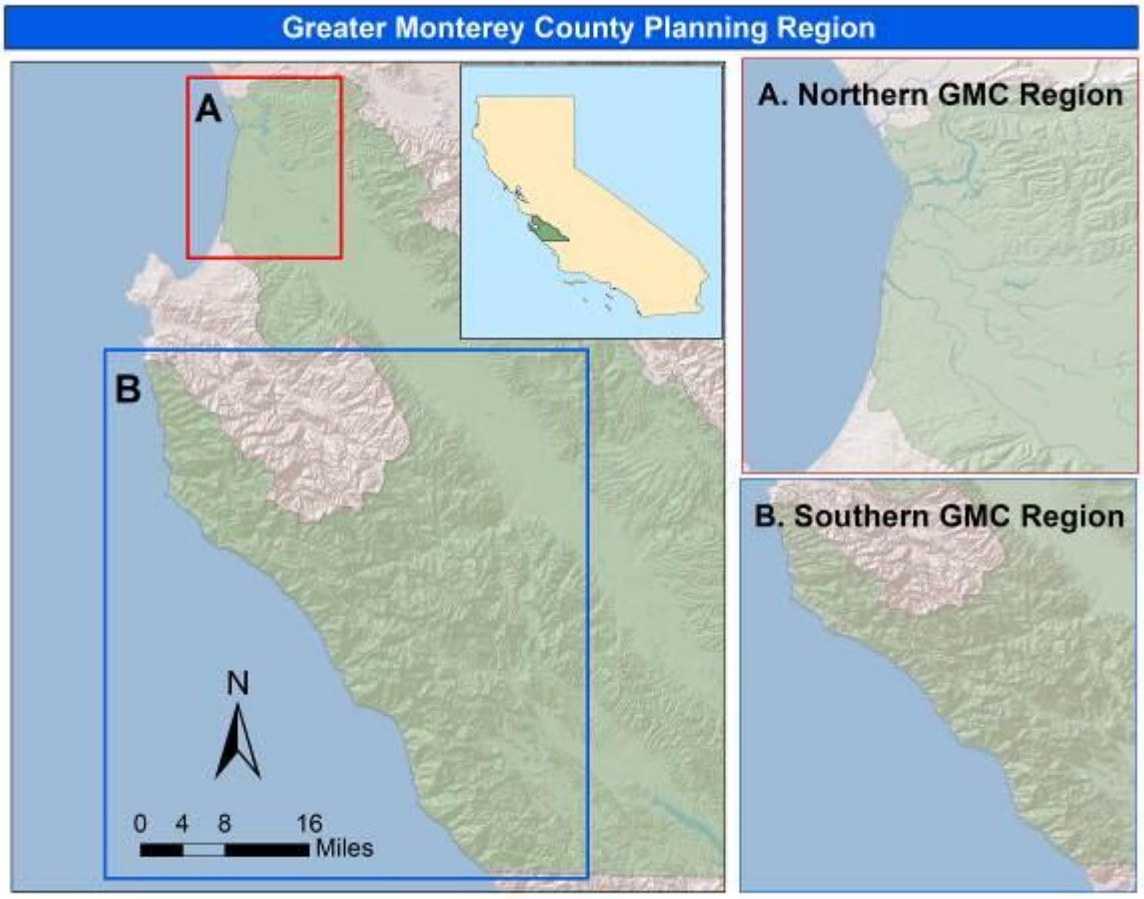
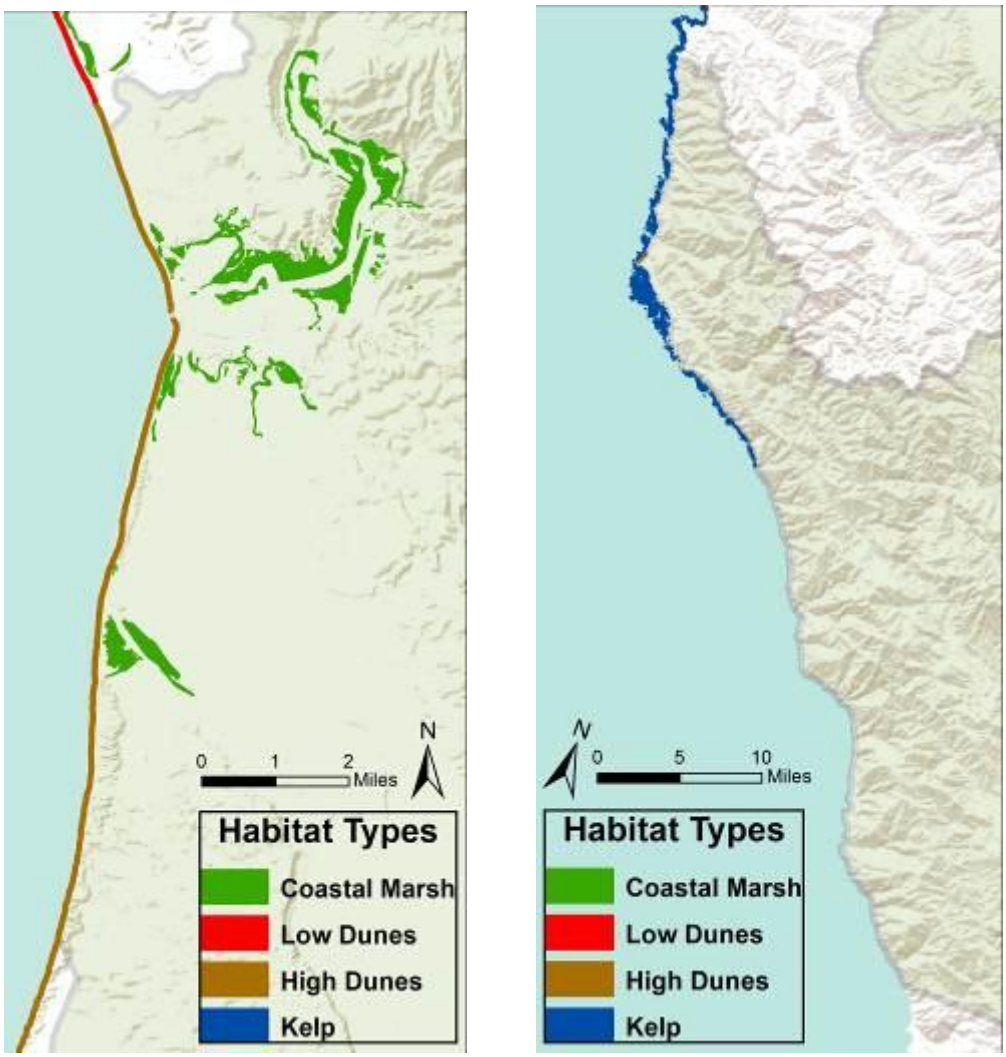
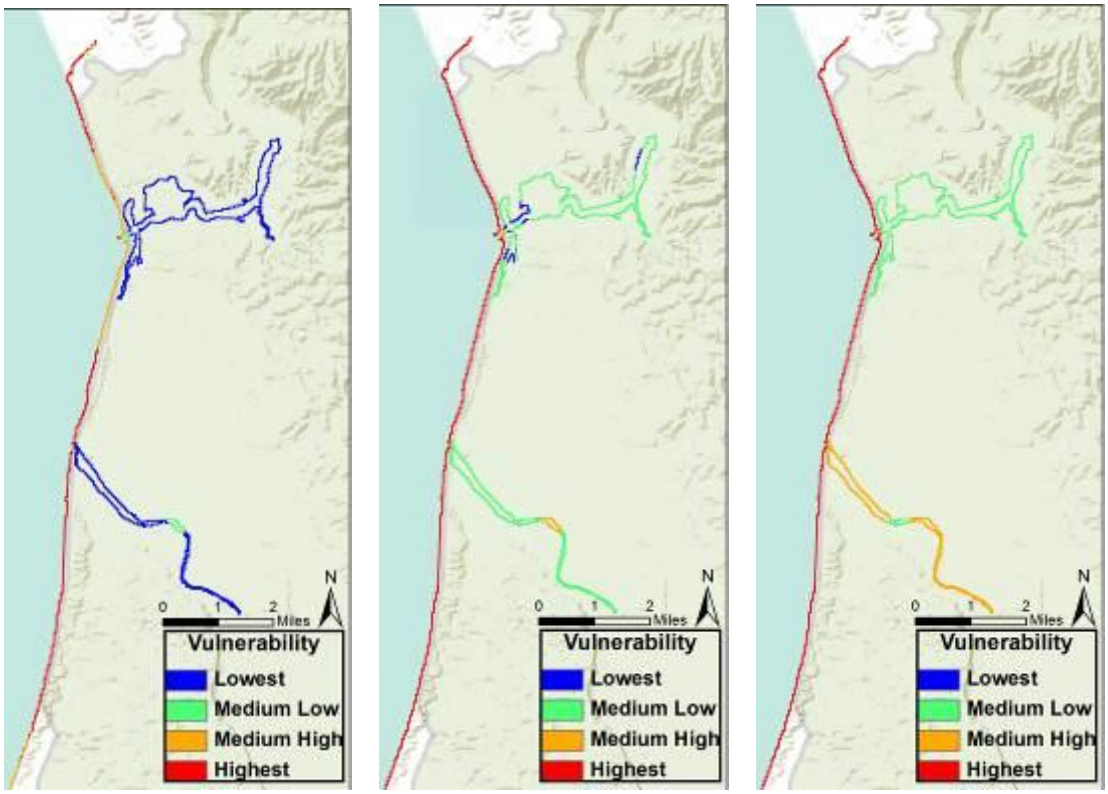


Figure 2. Greater Monterey County IRWM Planning Region. The Greater Monterey County Integrated Regional Water Management (IRWM) region includes the entirety of Monterey County exclusive of the Pajaro River Watershed IRWM region and the Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM region established under Proposition 50. Inset Map A outlined in red is the Northern GMC region. Inset Map B outlined in blue is the Southern GMC region.



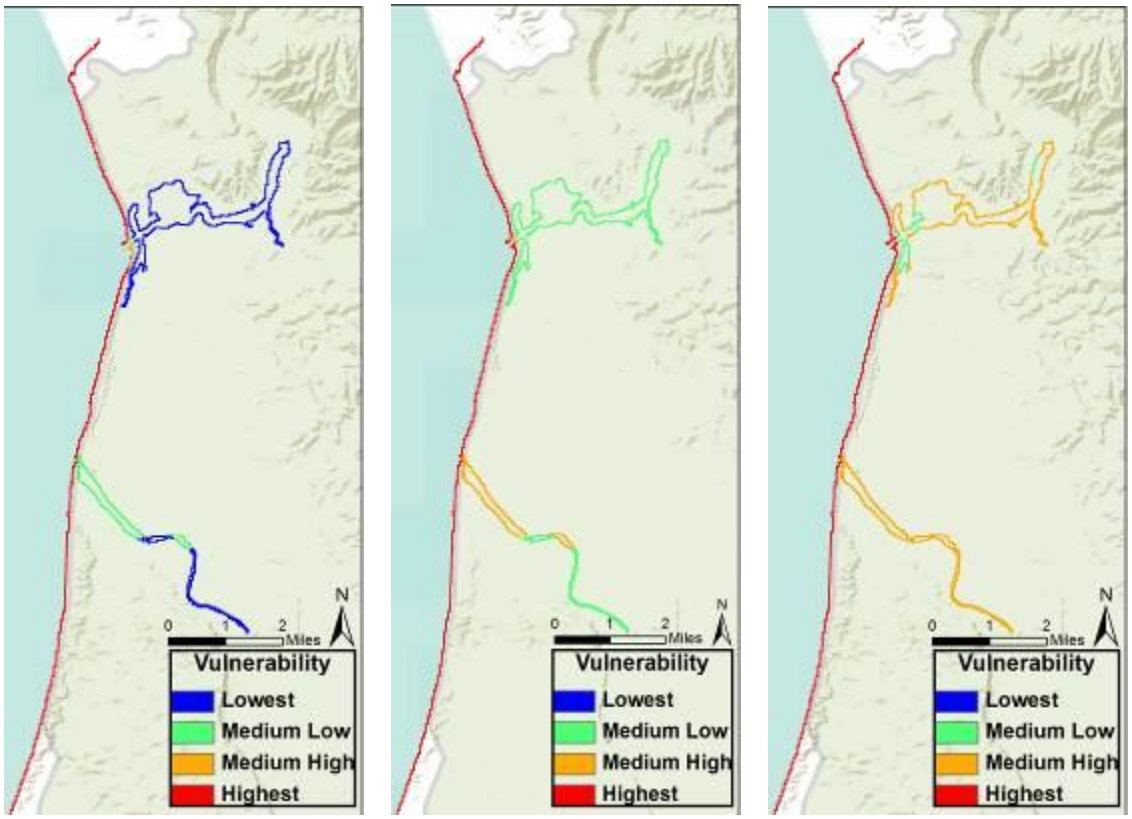
A. Northern GMC Region **B. Southern GMC Region**

Figure 3. Habitat layers used in analysis. Habitat GIS layers used in the analysis in the northern and southern Greater Monterey County Integrated Regional Water Management planning regions. See Table 1 and text for more information on data layers.



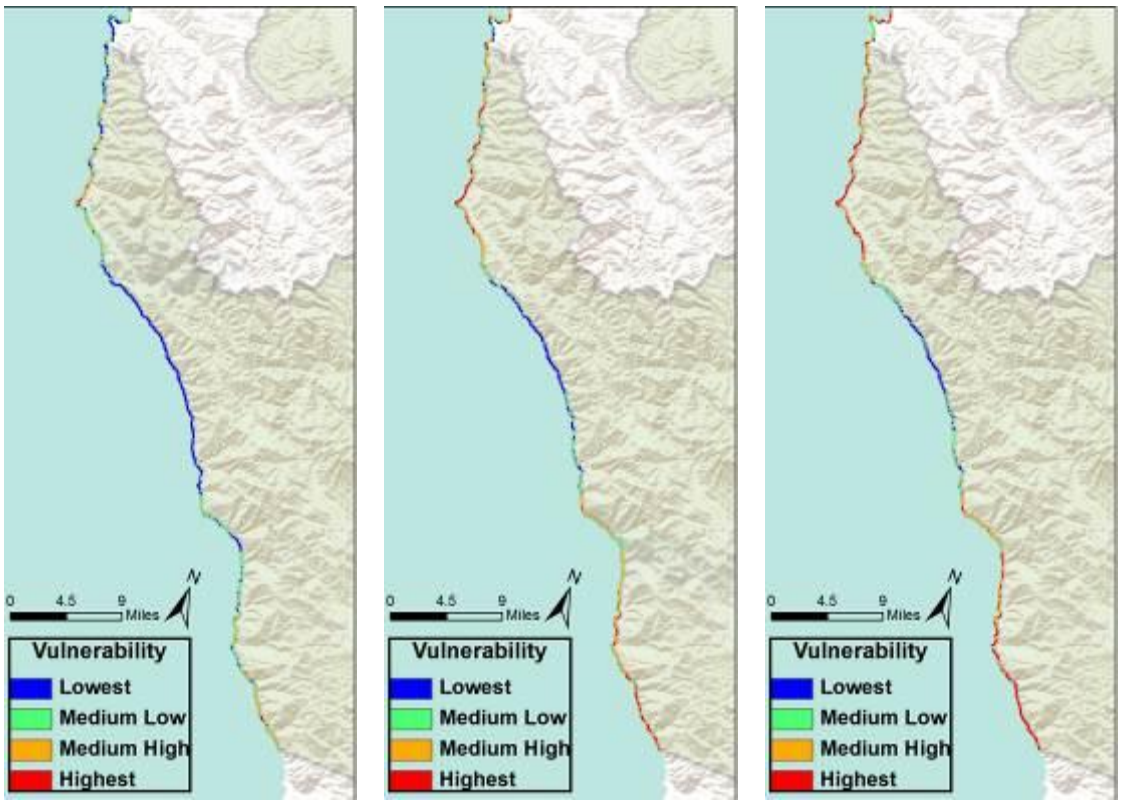
A. Year 2000 Sea Level **B. 14-inch Sea Level Rise** **C. 55-inch Sea Level Rise**

Figure 4. Impact of sea-level rise on vulnerability with habitat protection. Distribution of Vulnerability Index ranks at three different sea level rise scenarios with habitat protection in the northern section of the Greater Monterey County Integrated Regional Water Management planning region. Segments are 50 m^2. See Table 2 for quartile distributions for the Vulnerability Index.



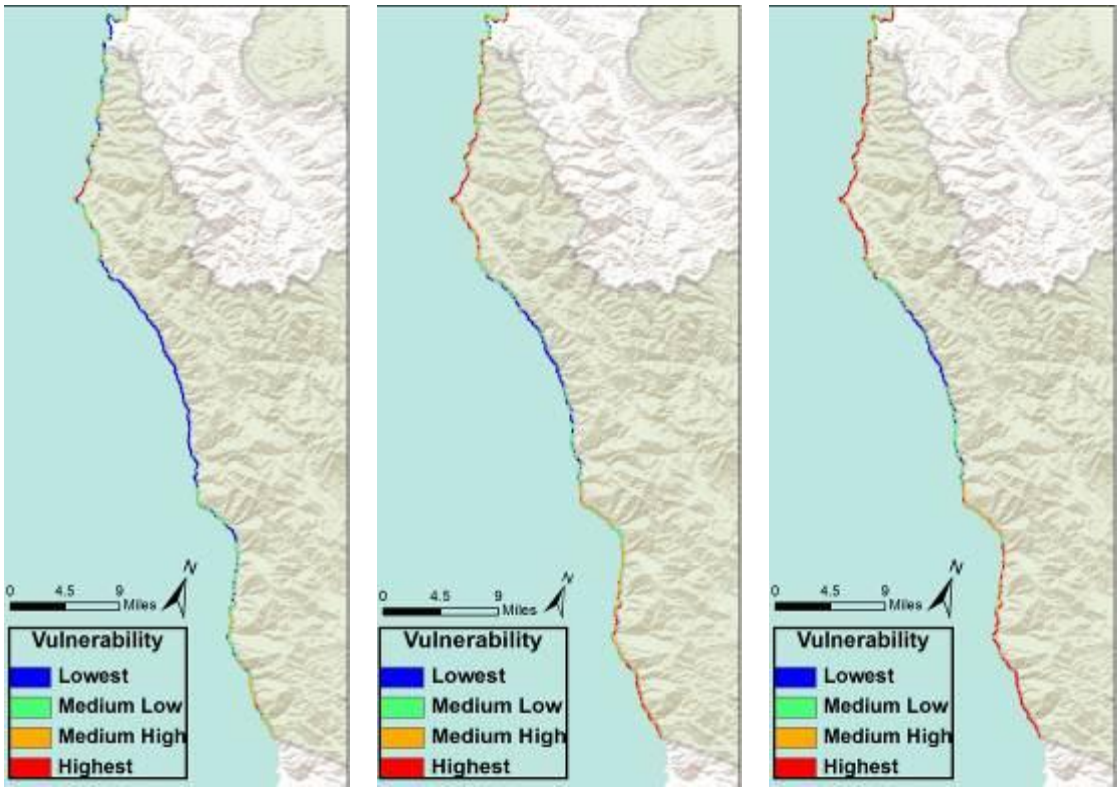
A. Year 2000 Sea Level **B. 14-inch Sea Level Rise** **C. 55-inch Sea Level Rise**

Figure 5. Impact of sea level rise on vulnerability with habitat loss. Distribution of Vulnerability Index ranks at three different sea level rise scenarios with habitat loss in the northern section of the Greater Monterey County Integrated Regional Water Management planning region. Segments are 50 m^2. See Table 2 for quartile distributions for the Vulnerability Index.



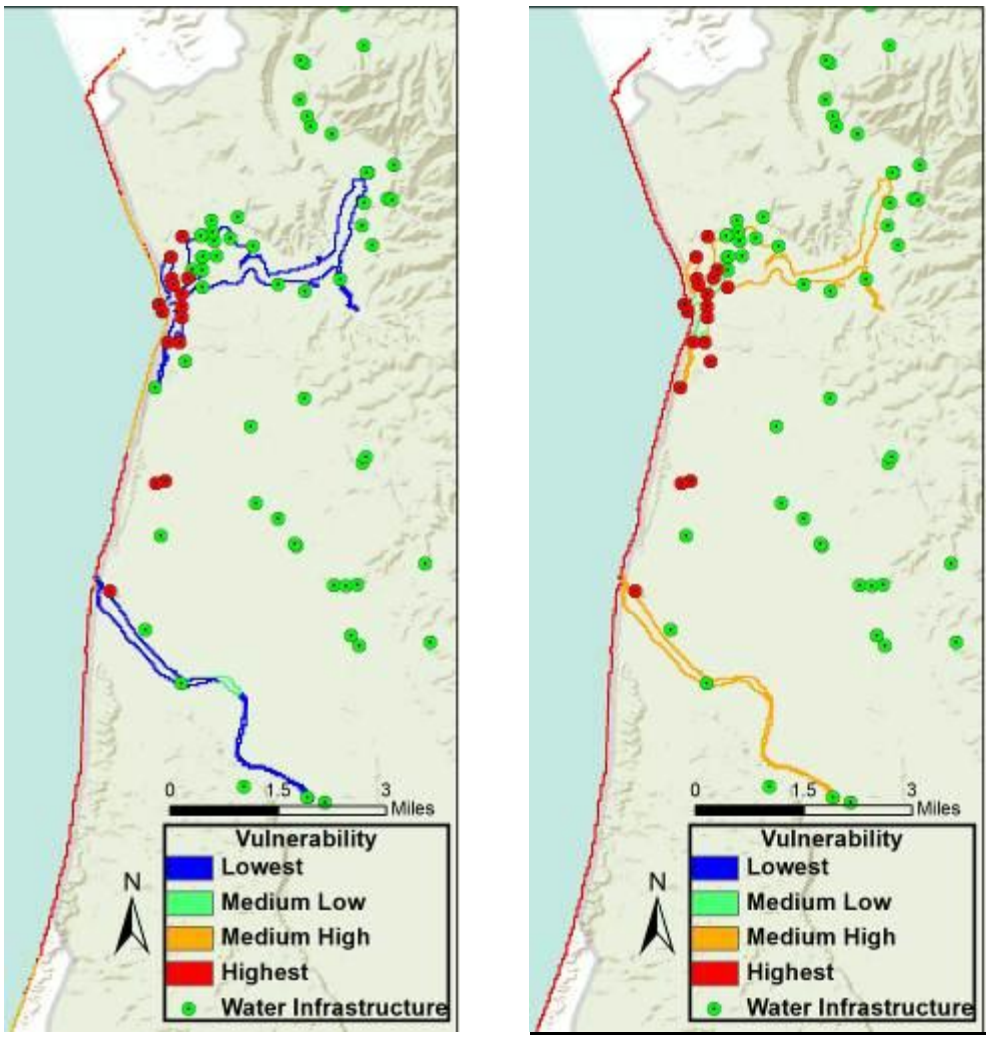
A. Year 2000 Sea Level **B. 14-inch Sea Level Rise** **C. 55-inch Sea Level Rise**

Figure 6. Impact of sea level rise on vulnerability with habitat protection. Distribution of Vulnerability Index ranks at three different sea level rise scenarios with habitat protection in the southern section of the Greater Monterey County Integrated Regional Water Management planning region. Segments are 50 m^2. See Table 2 for quartile distributions for the Vulnerability Index.



A. Year 2000 Sea Level **B. 14-inch Sea Level Rise** **C. 55-inch Sea Level Rise**

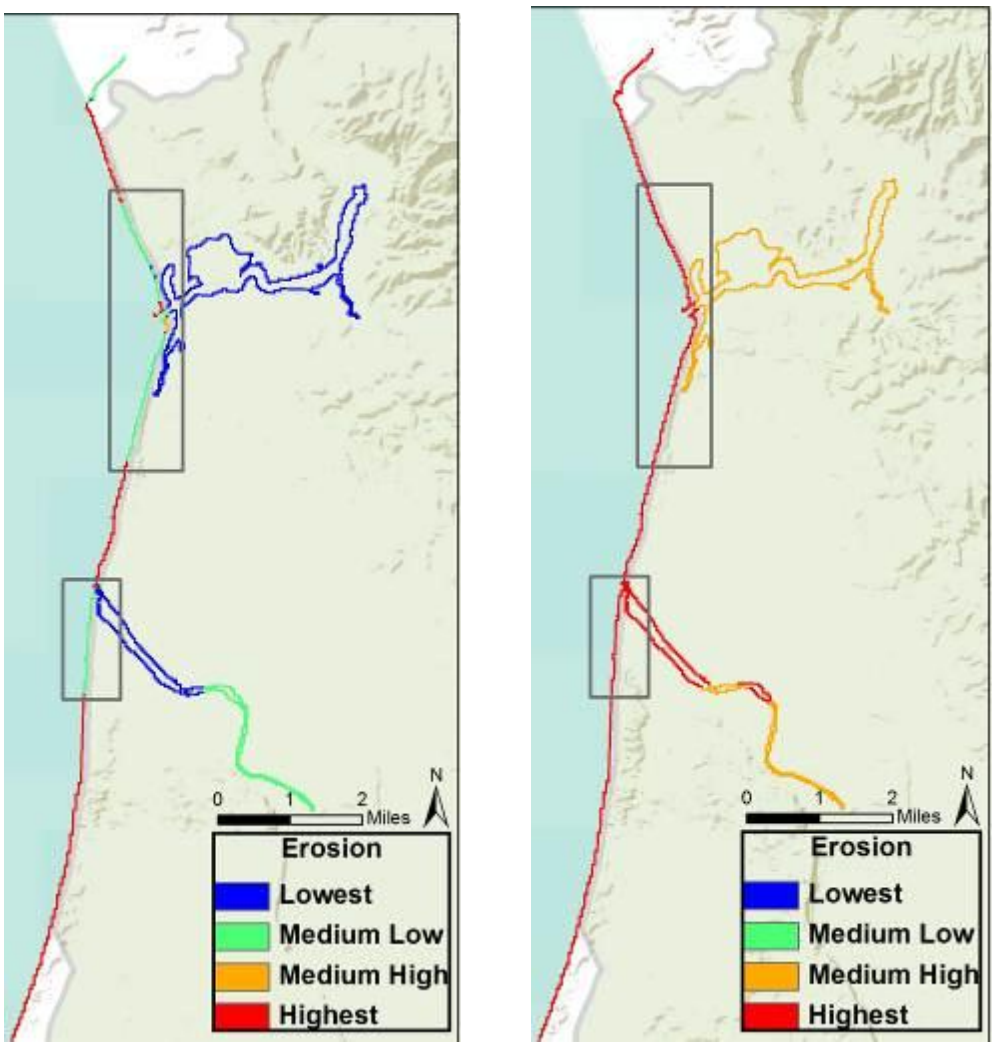
Figure 7. Impact of sea level rise on vulnerability with habitat loss. Distribution of Vulnerability Index ranks at three different sea level rise scenarios with habitat loss in the southern section of the Greater Monterey County Integrated Regional Water Management planning region. Segments are 50 m^2. See Table 2 for quartile distributions for the Vulnerability Index.



A) Year 2000 Sea Level with Habitat Protection

B) 55-inch Sea Level Rise with Habitat Loss

Figure 8. Vulnerability and water infrastructure. Distribution of a sample of water infrastructure (e.g., culverts, pipes, bridges) in the Northern GMC Region. The two images represent two different scenarios: A) Year 2000 sea level with habitat protection and B) 55-inch sea level rise with habitat loss. The red infrastructure is within 1 km of the highest Vulnerability Index value segments of the coastline. In (B) more than 40% of infrastructure within 1 km of the coast is within 1 km of the highest vulnerability sections of the coast. Segments are 50 m^2. See Table 2 for quartile distributions for the Vulnerability Index.



A. Erosion with Habitat Protection at Year 2000 Sea Level

B. Erosion without Habitat Loss at Year 2000 Sea Level

Figure 9. Effects of habitat on Erosion Index. Distribution of Erosion Index ranks along the northern GMC region at year 2000 sea levels in two scenarios: A) with habitat protection and B) with habitat loss. Note that the Erosion Index values of the boxed regions increase from medium low to highest erosion ranking without the protective services of habitat. See Table 2 for quartile distributions for all indices. Segments are 50 m^2.

A. Erosion with Habitat Protection at Year 2000 Sea Level

B. Erosion with Habitat Loss at Year 2000 Sea Level

Figure 10. Effect of habitat on Inundation Index. Distribution of Inundation Index ranks along the northern GMC region at year 2000 sea levels in two scenarios: A) with habitat protection and B) with habitat loss. Note that the Inundation Index values of the boxed region are increased without protective services from habitat. See Table 2 for quartile distributions for all indices. Segments are 50 m^2.