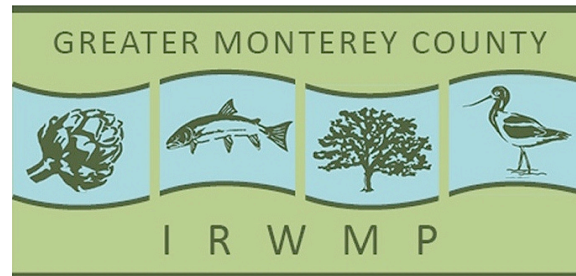


Integrated Regional Water Management Plan for the Greater Monterey County Region



Regional Water Management Group

Big Sur Land Trust
California State University Monterey Bay
California Water Service Company
Castroville Community Services District
City of Salinas
City of Soledad
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.

April 2013
(with Amendments through August 2014)

Acknowledgements

The Integrated Regional Water Management Plan (IRWM Plan) for the Greater Monterey County region represents an expansion and modification of a former plan, the Salinas Valley Integrated Regional Water Management Functionally Equivalent Plan (IRWM FEP). The Salinas Valley IRWM FEP was prepared by the private consulting firm RMC Water and Environment for the Monterey County Water Resources Agency (MCWRA) and the Salinas Valley Water Management Group (MCWRA, Marina Coast Water District, and Castroville Community Services District) in May 2006 under the State's Proposition 50 IRWM Grant Program. The Greater Monterey County IRWM Plan, developed according to the current Proposition 84 IRWM Grant Program Guidelines, incorporates the former Salinas Valley IRWM FEP as its foundation, building upon that plan and expanding its scope in terms of geography, Regional Water Management Group (RWMG) representation, and stakeholder representation. The Greater Monterey County RWMG would therefore like to recognize and thank RMC and the Salinas Valley Water Management Group for its work in developing the Salinas Valley IRWM FEP.

The Greater Monterey County IRWM Plan was prepared by Susan Robinson, the IRWM Plan Coordinator (a consultant for the Greater Monterey County RWMG), with substantial input from RWMG members and other resource managers and scientists throughout the region. Several chapters of the IRWM Plan were drafted by RWMG members, specifically: Plan Performance and Monitoring was drafted by Sierra Ryan (Central Coast Wetlands Group) and Bridget Hoover (Monterey Bay National Marine Sanctuary); Data Management was drafted by Bridget Hoover; and Climate Change was drafted by Ross Clark (Central Coast Wetlands Group).

Note that the Greater Monterey County RWMG has been developed as a "working group." Members are expected to actively participate in all aspects of the IRWM planning process. During the development of this Plan, RWMG members attended monthly RWMG meetings, participated on subcommittees to develop various elements of the Plan (such as identifying the region's issues and conflicts, determining goals and objectives, and developing a process for ranking projects), attended public workshops, and reviewed drafts of the IRWM Plan. We would like to acknowledge and thank all of the RWMG members who have contributed so much of their time toward the development of this IRWM Plan.

The RWMG particularly wishes to thank the Big Sur Land Trust for obtaining the grant funds necessary to initiate this IRWM planning effort, as well as the private funding foundation that generously provided those grant funds. The RWMG also wishes to thank the California Department of Water Resources for providing additional grant funds to complete development of the IRWM Plan through the Proposition 84 IRWM Planning Grant Program.

Finally, the RWMG would like to thank the many stakeholders and community members who attended the public workshops, contributed projects to the Plan, and who have provided comments and feedback throughout development of the IRWM Plan. Since the Greater Monterey County IRWM Plan is very much a living document, we encourage stakeholders and other community members to stay involved as IRWM planning continues to evolve in the Greater Monterey County region.

FOR MORE INFORMATION

If you have questions about this document or about the Greater Monterey County IRWM planning process in general, please visit the Greater Monterey County IRWM website for additional information, resources, and contact information: <http://www.greatermontereyirwmp.org/>.

Table of Contents

Acknowledgements

Acronyms

Executive Summary

Introduction

Section A: Governance

A.1 DESCRIPTION OF REGIONAL WATER MANAGEMENT GROUP	A-1
A.2 GOVERNANCE STRUCTURE AND PROCESS	A-8
A.2.1 Description of Governance Structure	A-8
A.2.2 Decision-making	A-8
A.2.3 Effective Communication	A-10
A.2.4 Long-term Implementation of the IRWM Plan	A-11
A.3 ADOPTION OF THE PLAN	A-12

Section B: Greater Monterey County Region Description

B.1 REGIONAL BOUNDARY	B-1
B.1.1 Description of Greater Monterey County IRWM Regional Boundary and its Relation to Neighboring Regions	B-1
B.1.2 How the Boundaries were Determined and Why the Region is Appropriate	B-4
B.2 REGIONAL OVERVIEW	B-4
B.2.1 Physical Setting	B-4
B.2.2 Social and Cultural Values	B-6
B.2.3 Economic Overview	B-8
B.3 DESCRIPTION OF WATERSHEDS AND WATER SYSTEM	B-10
B.3.1 Watersheds	B-10
B.3.2 Biological Resources	B-12
B.3.2.a Vegetation	B-12
B.3.2.b Wilderness, Conservation Areas, and Open Space	B-15
B.3.2.c Fisheries	B-20
B.3.2.d Species and Habitats of Special Concern	B-20
B.3.2.e Watershed Management Issues	B-21
B.3.2.f A Note About Climate Change and Biological Resources	B-24
B.3.3 Water System	B-25
B.3.3.a Surface Waters	B-26
B.3.3.b Groundwater Basins	B-30
B.3.3.c Reclaimed Water	B-34
B.3.3.d Desalted Water	B-35

B.3.3.e Floodwater and Flood Management.....	B-36
B.3.3.f Estuarine, Coastal, and Ocean Waters.....	B-38
B.3.3.g Wastewater.....	B-38
B.4 INTERNAL BOUNDARIES	B-40
B.4.1 Political Boundaries	B-40
B.4.2 Service Areas of Water, Wastewater, and Flood Control Districts.....	B-43
B.4.2.a Water Supply Districts	B-43
B.4.2.b Service Areas for Major Water Purveyors and Wastewater Treatment Providers	B-43
B.4.2.c Flood Control Districts.....	B-51
B.4.3 Service Areas of Land Use Agencies in the Region	B-51
B.4.4 Boundaries of Watersheds and Groundwater Basins	B-52
B.5 WATER SUPPLY AND DEMAND.....	B-52
B.5.1 Population Trends	B-53
B.5.2 Land Use Trends	B-54
B.5.3 Water Use Trends.....	B-58
B.5.4 Future Water Demand.....	B-63
B.5.4.a Urban Water Use Projections.....	B-63
B.5.4.b Agricultural Water Use Projections	B-66
B.5.4.c Environmental Water Needs	B-66
B.5.4.d Future Water Demand: Conclusions	B-67
B.5.5 Future Water Supply	B-67
B.5.5.a Locally Proposed Solutions to Local Water Supply Issues.....	B-68
B.5.5.b Potential Impacts of Climate Change on Water Supply and Demand	B-72
B.5.6 Water Supply and Demand: Conclusions	B-74
B.6 WATER QUALITY	B-74
B.6.1 Water Quality: Current Conditions	B-74
B.6.1.a Surface Waters: Rivers and Waterways	B-74
B.6.1.b Estuaries	B-75
B.6.1.c Coastal Marine Waters	B-76
B.6.1.d Groundwater Quality.....	B-77
B.6.2 Regional Water Quality Goals and Objectives.....	B-83
B.6.2.a Basin Plan Goals	B-83
B.6.2.b Watershed Management Initiative Goals.....	B-83
B.6.2.c Water Quality Goals and Objectives for Watersheds in the Region	B-85
B.6.3 Efforts to Improve Water Quality in the Greater Monterey County Region.....	B-88
B.6.3.a Regulatory Water Quality Programs	B-88
B.6.3.b Voluntary Water Quality Programs	B-95
B.6.4 Matching Water Quality to Water Use	B-98
B.7 MAJOR WATER-RELATED ISSUES AND CONFLICTS	B-98

Section C: Flood Management

C.1 HISTORIC FLOODING	C-1
C.2 FLOOD MANAGEMENT.....	C-2
C.2.1 Structural Approaches to Flood Management.....	C-3
C.2.2 Non-Structural Approaches to Flood Management	C-7
C.3 INTEGRATED FLOOD MANAGEMENT.....	C-9
C.4 FLOOD MANAGEMENT AND CLIMATE CHANGE	C-11

Section D: Goals and Objectives

D.1 PROCESS FOR IDENTIFYING GOALS AND OBJECTIVES	D-1
D.2 THE GOALS AND OBJECTIVES.....	D-3
D.3 MEASURING THE OBJECTIVES	D-7
D.4 PRIORITIZING THE OBJECTIVES	D-15

Section E: Resource Management Strategies

E.1 RESOURCE MANAGEMENT STRATEGIES INCLUDED IN THE PLAN	E-1
E.2 HOW RESOURCE MANAGEMENT STRATEGIES ARE IMPLEMENTED IN THE PLAN	E-12
E.3 RESOURCE MANAGEMENT STRATEGIES AND CLIMATE CHANGE	E-18

Section F: Project Review Process

F.1 PROCEDURES FOR SUBMITTING A PROJECT FOR INCLUSION IN THE IRWM PLAN.....	F-1
F.2 PROCEDURES FOR REVIEW OF PROJECTS TO IMPLEMENT THE IRWM PLAN.....	F-2
F.2.1 Project Review Process	F-2
F.2.2 Project Ranking Process	F-3
F.2.2.a A Note about Climate Change Review Factors.....	F-5
F.2.3 Selecting Projects for IRWM Grant Funds	F-6
F.2.3.a Preliminary Economic Analysis	F-7
F.3 PROCEDURES FOR COMMUNICATING THE IRWM PLAN PROJECT LIST	F-8

Section G: Projects

G.1 PROPOSED IMPLEMENTATION PROJECTS (“THE PROJECT LIST”).....	G-2
G.2 FUNDED IRWM PLAN PROJECTS	G-20
G.3 CONCEPT PROPOSALS	G-24

Section H: Impacts and Benefits

H.1 HOW PROJECTS ACHIEVE IRWM PLAN OBJECTIVES.....	H-3
H.2 IMPACTS AND BENEFITS TO DACS AND ENVIRONMENTAL JUSTICE CONCERNS.....	H-7
H.3 PROJECT-SPECIFIC IMPACTS AND BENEFITS	H-8
H.4 THE INTANGIBLE BENEFITS OF IRWM PLAN IMPLEMENTATION	H-23

Section I: Integration

I.1 STAKEHOLDER/INSTITUTIONAL INTEGRATION	I-1
I.1.1 Governance	I-1
I.1.2 Stakeholder Involvement	I-2
I.2 RESOURCE INTEGRATION	I-3
I.2.1 Sharing of Information and Expertise	I-3
I.2.2 Integration of Resource Strategies	I-4
I.3 PROJECT INTEGRATION	I-4
I.3.1 How the RWMG Promotes Project Integration	I-4
I.3.2 Water Resource Project Coordination Process	I-5

Section J: Plan Performance and Monitoring

J.1 PLAN PERFORMANCE	J-1
J.2 PROJECT-SPECIFIC MONITORING PLANS	J-3

Section K: Data Management

K.1 DATA MANAGEMENT: INTRODUCTION	K-1
K.2 OVERVIEW OF DATA NEEDS	K-2
K.2.1 Monitoring Programs	K-2
K.3 TYPICAL DATA COLLECTION TECHNIQUES	K-5
K.4 HOW STAKEHOLDERS CONTRIBUTE DATA TO THE DATA MANAGEMENT SYSTEM	K-6
K.4.1 Surface Water Quality and Biological Monitoring Data	K-6
K.4.2 Habitat Conditions	K-7
K.4.3 Groundwater	K-7
K.5 ENTITY RESPONSIBLE FOR MAINTAINING DATA IN DATA MANAGEMENT SYSTEM	K-8
K.6 DESCRIPTION OF DATA VALIDATION OR QUALITY ASSURANCE/QUALITY CONTROL MEASURES	K-8
K.7 DATA TRANSFER AND SHARING	K-8
K.8 HOW THE DATA MANAGEMENT SYSTEM SUPPORTS THE RWMG EFFORTS TO SHARE COLLECTED DATA	K-9
K.9 HOW DATA WILL GO TO LARGER DATA SETS	K-9

Section L: Finance

L.1 ONGOING FUNDING OF THE IRWM PLAN	L-1
L.2 POTENTIAL FUNDING SOURCES FOR IRWM PLAN PROJECTS AND PROGRAMS	L-3

Section M: Technical Analysis

M.1 TECHNICAL INFORMATION USED IN THE IRWM PLAN	M-1
M.2 DESCRIPTION OF TECHNICAL INFORMATION SOURCES	M-5
M.2.1 Population Data	M-5
M.2.2 Water Supply, Water Use, and Projected Water Demand	M-5

M.2.3 Land Use Trends	M-6
M.2.4 Climate Change	M-7
M.3 DATA GAPS	M-7

Section N: Relation to Local Water Planning

N.1 HOW THE IRWM PLAN IS CONSISTENT WITH LOCAL WATER RESOURCE MANAGEMENT PLANS	N-1
N.1.1 Local Water Supply Management Planning	N-2
N.1.2 Other Water Resource Management Planning	N-4
N.1.2.a Flood Protection and Floodplain Management	N-4
N.1.2.b Watershed Management	N-4
N.1.2.c Stormwater Management	N-7
N.1.2.d Low Impact Development	N-7
N.1.2.e Salt and Salinity Management	N-8
N.1.3 Other Planning Efforts	N-8
N.1.3.a City and County General Planning	N-8
N.1.3.b Emergency Response and Disaster Plans	N-14
N.1.3.c Monterey Bay National Marine Sanctuary Management Plan	N-15
N.2 DYNAMICS BETWEEN LOCAL PLANNING AND IRWM PLANNING	N-15
N.2.1 How and When Updates are Considered in the IRWM Plan	N-15
N.2.2 How Regional Planning Efforts Feed Back to Local Planning Efforts	N-15
N.2.3 How Inconsistencies are Resolved	N-16
N.2.4 Climate Change Adaptation and Mitigation Strategies in Local Plans	N-16

Section O: Relation to Local Land Use Planning

O.1 CURRENT RELATIONSHIP BETWEEN LOCAL LAND USE PLANNING ENTITIES AND WATER MANAGEMENT ENTITIES	O-2
O.1.1 Municipalities that Supply Their Own Water	O-2
O.1.2 Municipalities and Large Communities that Do Not Supply Their Own Water	O-3
O.1.3 Rural Communities	O-5
O.1.4 Regional Agencies	O-5
O.2 FUTURE EFFORTS: ESTABLISHING A PROACTIVE RELATIONSHIP BETWEEN LAND USE PLANNING AND WATER MANAGEMENT	O-8
O.3 CLIMATE CHANGE ADAPTATION AND MITIGATION STRATEGIES IN LOCAL PLANS	O-10

Section P: Stakeholder Involvement

P.1 STAKEHOLDER OUTREACH	P-1
P.1.1 Process Used to Identify Stakeholders	P-1
P.1.2 Process Used to Communicate with Stakeholders	P-2
P.2 OUTREACH TO DISADVANTAGED COMMUNITIES	P-3
P.2.1 Disadvantaged Communities in the Greater Monterey County Region	P-3
P.2.2 Environmental Justice Communities	P-6

P.2.3 Water-Related Challenges for DACs and Environmental Justice Communities	P-6
P.2.4 DAC Representatives on the RWMG	P-7
P.2.5 DAC Outreach Plan	P-8
P.3 OUTREACH TO NATIVE AMERICAN TRIBES	P-9
P.4 STAKEHOLDER PARTICIPATION	P-9

Section Q: Coordination

Q.1 COORDINATION OF ACTIVITIES WITHIN THE IRWM REGION	Q-1
Q.2 COORDINATION WITH NEIGHBORING IRWM REGIONS	Q-2
Q.2.1 IRWM Regions on the Central Coast	Q-2
Q.2.2 Why There are Three Separate IRWM Plans in Monterey County	Q-3
Q.2.3 How the Greater Monterey County Region Coordinates with Adjacent Regions	Q-4
Q.2.4 Participation of Greater Monterey County RWMG Members in Other IRWM Efforts ..	Q-7
Q.2.5 Coordination between the Six Central Coast IRWM Regions	Q-8
Q.3 COORDINATION WITH AGENCIES	Q-10
Q.3.1 Coordination with Federal Agencies	Q-11
Q.3.2 Coordination with State Agencies	Q-12
Q.3.3 Coordination with Local Agencies, Governments, and Districts	Q-14

Section R: Climate Change

R.1 GLOBAL CLIMATE CHANGE: AN OVERVIEW	R-1
R.1.2 State Response to Climate Change: Legislation and Policy	R-3
R.2 PREDICTED EFFECTS OF CLIMATE CHANGE IN CALIFORNIA	R-5
R.3 PREDICTED EFFECTS OF CLIMATE CHANGE IN THE GREATER MONTEREY COUNTY REGION	R-8
R.3.1 Projected Changes in Climate Variables	R-8
R.3.2 Predicted Impacts of Climate Change in the Greater Monterey County Region	R-13
R.4 EVALUATING THE ADAPTABILITY OF WATER MANAGEMENT SYSTEMS IN THE REGION TO CLIMATE CHANGE	R-18
R.4.1 Initial Climate Risk Analysis	R-19
R.4.2 Risk Assessment	R-21
R.4.2.a Likelihood	R-21
R.4.2.b Consequence	R-22
R.4.2.c Risk.....	R-22
R.4.2.d Environmental Consequence of Climate Impacts.....	R-24
R.4.2.e Prioritization of Impacts from Changes in Climate Variables	R-25
R.4.2.f Top Priority Climate Risks for the Greater Monterey IRWM Region	R-26
R.4.2.g Adaptive Capacity.....	R-26
R.4.2.h Vulnerability	R-27
R.5 INITIAL ADAPTATION STRATEGY	R-27
R.5.1 No Action Response	R-27
R.5.2 Adaptation Goals and Objectives	R-27

R.5.3 Adaptation Actions and Response	R-28
R.5.4 No Regret Strategies	R-34
R.5.5 Next Steps towards Climate Preparedness	R-34
R.5.6 Pilot Coastal Vulnerability Evaluation	R-35
R.5.7 Future Studies and Regional Data Needs	R-35
R.5.8 Initial Climate Adaptation Project	R-36
R.6 CLIMATE CHANGE MITIGATION AND GHG EMISSIONS REDUCTION STRATEGY	R-38
R.6.1 GHG Reduction Strategies	R-38
R.6.2 Other Climate Change Mitigation/GHG Reduction Activities in Central Coast Region ..	R-39

List of Tables

Table A-1: RWMG Members: Water Resource Management and Geographic Areas Served	A-7
Table B-1: Hydrologic Units in the Greater Monterey County IRWM Region	B-12
Table B-2: Monterey County Vegetation Communities, Estimated for 2006	B-13
Table B-3: Priority Climate Change Impacts Based on Environmental Consequences	B-25
Table B-4: 2010 Total Extraction Data by Basin Subarea and Type of Use	B-33
Table B-5: 2010 Population for Cities/Communities in Region	B-41
Table B-6: Water Supply (Connections >200) and Wastewater Treatment Providers	B-43
Table B-7: Population of Cities and Selected Communities 1960 – 2010	B-53
Table B-8: Population Projections for Cities and Communities in the Salinas Valley	B-54
Table B-9: Land Use in the Greater Monterey County IRWM Region	B-56
Table B-10: Acreage Trends for Selected Crop Categories in Monterey County 1930 – 2010	B-56
Table B-11: Estimated Water Use 1970 – 1994 in the Salinas Valley, Utilizing the Salinas Valley Integrated Ground and Surface Water Model	B-58
Table B-12: Agricultural and Urban Water Use in the Salinas Valley 1995 – 2010	B-60
Table B-13: Determining Average Per Capita Water Use	B-63
Table B-14: Future Water Demand (AFY) for Urban Areas in Salinas Valley, Calculated from MCWRA GWESR and Population Projections	B-64
Table B-15: Future Water Demand for Urban Areas in Salinas Valley, Based on Information Provided by Water Purveyors	B-65
Table B-16: Comparison of Urban Water Use Projection Methods	B-65
Table B-17: Agricultural Water Demand Based on SVIGSM Modeling	B-66
Table B-18: Future Water Demand	B-67
Table B-19: Basin Overdraft, Seawater Intrusion, and Salinas River Outflow for the Salinas Valley ...	B-68
Table B-20: 2007 Summary of Nitrate-NO ₃ Concentrations for Study Wells in Salinas Valley Basin .	B-78
Table B-21: 1993 and 2007 Comparison of Nitrate-NO ₃ Concentrations for Study Wells in Salinas Valley Basin	B-79
Table B-22: 2010 California 303(D) List of Water Quality Limited Segments in the Greater Monterey County IRWM Region	B-90
Table D-1: Measuring IRWM Plan Objectives	D-8

Table E-1: How IRWM Plan Projects Implement Resource Management Strategies	E-13
Table F-1: Project Ranking - Summary of Points	F-4
Table F-2: How Projects are Scored	F-4
Table G-1: Proposed Implementation Projects: Ranked Project List for 2011 IRWM Plan Implementation Projects	G-2
Table G-2: Funded Implementation Projects: IRWM Plan Projects funded through Round 1 IRWM Implementation Grant Program, 2011	G-21
Table G-3: Concept Proposals.....	G-25
Table H-1: Number of Projects that will Implement the Plan Objectives	H-4
Table H-2: Impacts and Benefits: Projects Currently being Implemented through Round 1 IRWM Implementation Grant Funds.....	H-9
Table H-3: Impacts and Benefits: Proposed Projects Included in the IRWM Plan	H-12
Table I-1: Individual Projects for Possible Integration in the Gabilan Watershed	I-14
Table J-1: Status of Project Implementation	J-2
Table J-2: Progress toward Achieving IRWM Plan Objectives.....	J-2
Table L-1: Financing Projects and Programs in the IRWM Plan	L-4
Table M-1: Technical Information Used in the IRWM Plan	M-2
Table P-1: Median Household Income, Poverty Status, and Hispanic/Latino Population for Communities in the Greater Monterey County IRWM Region.....	P-4
Table P-2: Hispanic/Latino Populations and Non-English Language Spoken at Home.....	P-6
Table Q-1: Central Coast IRWM Regions: Shared Interests and Opportunities for Interregional Coordination.....	Q-9
Table R-1: Population Vulnerable to Flood and Erosion from Sea Level Rise	R-6
Table R-2: Projected Increases in Average Temperature.....	R-9
Table R-3: Potential Impacts to Water Resources in the Greater Monterey County Region.....	R-14
Table R-4: Risk Variables	R-21
Table R-5: Probability Variables.....	R-22
Table R-6: Climate Impact Risk Analysis.....	R-23
Table R-7: Environmental Resource-focused Climate Impact Risk Analysis	R-24
Table R-8: Determining Priority Impacts: Prioritized Impacts Based on the Combined Consequence of All Five Social-economic Factors and for Environmental Consequence Alone.....	R-25
Table R-9: Example of an Adaptive Capacity Analysis	R-27
Table R-10: Adaptation and Response Strategies Based on Risk Assessment.....	R-30

List of Figures

Figure Intro-1: Change in Geographic Coverage from the Salinas Valley IRWM Planning Region to the Greater Monterey County IRWM Planning Region	v
Figure B-1: Greater Monterey County IRWM Region	B-2
Figure B-2: Greater Monterey County IRWM Region in Context with the Other Central Coast IRWM Regions.....	B-3
Figure B-3: Monterey County's Top Ten Crops 2010.....	B-8

Figure B-4: Crop Revenues and Acreages, Monterey County 2010.....	B-9
Figure B-5: Distribution of Jobs in Monterey County 2010	B-10
Figure B-6: Major Watersheds of the Greater Monterey County IRWM Region	B-11
Figure B-7: Land Uses in the Greater Monterey County IRWM Region	B-14
Figure B-8: Wilderness, Conservation Areas, and Open Space.....	B-18
Figure B-9: Estuarine, Coastal, and Ocean Protected Areas.....	B-19
Figure B-10: Major Surface Waters in the Greater Monterey County IRWM Region.....	B-29
Figure B-11: Major Groundwater Basins in the Greater Monterey County IRWM Region.....	B-31
Figure B-12: Subareas of the Salinas Valley Groundwater Basin	B-32
Figure B-13: Boundaries of Counties, Cities, Communities, and Military Areas	B-42
Figure B-14: Water Supply Districts and Purveyors.....	B-45
Figure B-15: Monterey County Crop Trends: 1930 – 2010.....	B-57
Figure B-16: Trends for Selected Crops: 1930 – 2010	B-57
Figure B-17: Agricultural Water Use Trends 1970 – 2010.....	B-60
Figure B-18: Urban Water Use Trends 1970 – 2010.....	B-61
Figure B-19: Agricultural and Urban Water Use Trends 1970 – 2010.....	B-61
Figure B-20: Acre-feet of Salinas Valley Groundwater Basin Water applied to Selected Crop Categories in 2010.....	B-62
Figure B-21: Distribution of Salinas Valley Groundwater Extraction for Urban Areas in 2010.....	B-62
Figure B-22: Seawater Intrusion in the Salinas Valley Groundwater Basin: 180-Foot Aquifer.....	B-81
Figure B-23: Seawater Intrusion in the Salinas Valley Groundwater Basin: 400-Foot Aquifer.....	B-82
Figure B-24: Impaired Surface Waters in the Greater Monterey County IRWM Region	B-91
Figure C-1: Present Location of Reclamation Ditch and its Watershed	C-6
Figure C-2: Monterey County FEMA-Defined Special Flood Hazard Areas.....	C-8
Figure C-3: 1995 El Niño Flood	C-10
Figure I-1: Boundary for the WRPC Pilot Project: Gabilan Watershed	I-6
Figure I-2: WRPC Stakeholder Workshop Wordle.....	I-9
Figure P-1: Disadvantaged Communities in the Greater Monterey County Region.....	P-5
Figure Q-1: Greater Monterey County IRWM Region in Context with Other Central Coast IRWM Regions.....	Q-2
Figure R-1: The Greenhouse Effect	R-2
Figure R-2: Impact of Sea Level Rise on DACs.....	R-7
Figure R-3: Four Climate Regimes Modeled in the Greater Monterey County Region	R-9
Figure R-4: Projected Average Temperatures in Big Sur and Salinas.....	R-10
Figure R-5: Projected Average Rainfall in Big Sur and Salinas	R-11
Figure R-6: Sea Level in Monterey Bay from 1976 – 2010.....	R-12
Figure R-7: Predicted Flooding in Moss Landing Area due to Sea Level Rise and Increased Winter River Flows	R-16
Figure R-8: 2005 GHG Emissions from Monterey County Government Operations.....	R-41

List of Appendices

Appendix A: Resolution to Adopt Plan

Appendix B: Regional Water Management Group Memorandum of Understanding

Appendix C: Regional Water Management Group Bylaws

Appendix D: List of Stakeholder Organizations

Appendix E: Central Coast IRWM Regions Statement of Principles

Appendix F1: Sample IRWMP Project Application Forms

Appendix F2: Economic Screening Tool Instructions for Project Sponsors

Appendix F3: Economic Screening Tool

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

Appendix H: Central Coast Regional Water Quality Control Board Water Quality Priorities

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

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

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

Appendix L: Gabilan Watershed Blueprint

Appendix M: Interregional Coordination between the Greater Monterey County and Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM Regions

Acronyms

AB – Assembly Bill
AF – Acre-feet
AFY – Acre-feet per Year
ACS – US Census American Community Survey
AMBAG – Association of Monterey Bay Area Governments
ASBS – Area of Special Biological Significance
AWEP – Agricultural Water Enhancement Program
AWQA – Agriculture Water Quality Alliance
BLM – U.S. Bureau of Land Management
BMP – Best Management Practice
Cal-Am – California American Water Company
CalDUCS – California Data Upload and Checking System
Cal Water – California Water Service Company
CCA – Critical Coastal Area
CCAMP – Central Coast Ambient Monitoring Program
CCC – California Coastal Commission
CCD – Census County Division
CCSD – Castroville Community Services District
CCWG – Central Coast Wetlands Group
CDFG – California Department of Fish and Game
CDP – Census Designated Place
CDPH – California Department of Public Health
CEDEN – California Environmental Data Exchange Network
CEQA – California Environmental Quality Act
CFR – Code of Federal Regulations
COS – Center for Ocean Solutions
CPUC – California Public Utilities Commission
CRAM – California Rapid Assessment Methods
CRS – Community Rating System
CSA – Monterey County Service Area
CSIP – Castroville Seawater Intrusion Project
CSUMB – California State University Monterey Bay
CWC – California Water Code
DAC – Disadvantaged Community
DAU – Data Analysis Unit
DEH – Monterey County Division of Environmental Health
DMS – Data Management System
DPS – Distinct Population Segment
DWR – California Department of Water Resources
DWS – Drinking Water Standard
EIR – Environmental Impact Report

EJCW – Environmental Justice Coalition for Water
EQIP – Environmental Quality Incentives Program
ESF – Elkhorn Slough Foundation
ESNERR – Elkhorn Slough National Estuarine Research Reserve
FEMA – Federal Emergency Management Agency
FEP – Functionally Equivalent Plan
FORA – Fort Ord Reuse Authority
GAMA – Groundwater Ambient Monitoring and Assessment
GIS – Geographic Information System
GPM – Gallons per Minute
GWESR – Ground Water Extraction Summary Report
ICLEI – International Council for Local Environmental Initiatives
IPCC – Intergovernmental Panel on Climate Change
IRWM – Integrated Regional Water Management
IWRP – Integrated Watershed Restoration Program
LAFCO – Local Agency Formation Commission
LCP – Local Coastal Program or Local Coastal Plan
LID – Low Impact Development
MBNMS – Monterey Bay National Marine Sanctuary
MCL – Maximum Contaminant Level
MCRMA – Monterey County Resource Management Agency
MCWD – Marina Coast Water District
MCWRA – Monterey County Water Resources Agency
MGD – Million Gallons per Day
MHI – Median Household Income
MM – Management Measure
MOA – Memorandum of Agreement
MOU – Memorandum of Understanding
MPA – Marine Protected Area
MRSWMP – Monterey Regional Storm Water Management Program
MPWMD – Monterey Peninsula Water Management District
MRWMD – Monterey Regional Waste Management District
MRWPCA – Monterey Regional Water Pollution Control Agency
MS4 – Municipal Separate Storm Sewer System
MSR – Municipal Service Review
NFIP – National Flood Insurance Program
NFWF – National Fish and Wildlife Foundation
NMFS - National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric
NPDES – National Pollutant Discharge Elimination System
NPS – Nonpoint Source
NRCS – Natural Resources Conservation Service
O&M – Operations and Maintenance
OPR – Governor’s Office of Planning and Research

PRC – California Public Resources Code
PVWMA – Pajaro Valley Water Management Agency
RCAC – Rural Community Assistance Corporation
RCD – Resource Conservation District
RCM – Regional Climate Model
RDC – Regional Data Center
RDIPAC – Reclamation Ditch Improvement Plan Advisory Committee
RLP – Repetitive Loss Property
RON – Return of the Natives Restoration Education Project
RTP – Regional Treatment Plant
RUWAP – Regional Urban Water Augmentation Project
RWMG – Regional Water Management Group
RWQCB – Regional Water Quality Control Board
SB – Senate Bill
SBCWD – San Benito County Water District
SMCA – State Marine Conservation Area
SMR – State Marine Reserve
SVIGSM – Salinas Valley Integrated Ground and Surface Water Model
SVRP – Salinas Valley Reclamation Plant
SVWP – Salinas Valley Water Project
SWAMP – California Surface Water Ambient Monitoring Program
SWRCB – State Water Resources Control Board
SWMP – Stormwater Management Plan
TAC – Technical Advisory Committee
TDS – Total Dissolved Solids
TMDL – Total Maximum Daily Load
USDA – United States Department of Agriculture
US EPA – United States Environmental Protection Agency
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey
UWMP – Urban Water Management Plan
WDR – Waste Discharge Requirement
WMI – Watershed Management Initiative
WQPP – Water Quality Protection Program
WRPC – Water Resource Project Coordination
WSA – Water Supply Assessment