



Original Project Title:

**Carr Lake Watershed / Reclamation
Ditch Subwatershed Assessment and
Management Plan**

Prepared for MCWRA Board of Directors

Funded by The Federal EPA under the Clean
Water Act Section 205j Water Quality Planning
Program as,
SWRCB Grant No. 02-098-250-0 and by
Reclamation Ditch, Zone 9 Benefit
Assessment



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*Central
Coast
Watershed
Studies*

CCoWS

Final Report:

**Monterey County Water
Resources Agency –
Reclamation Ditch
Watershed Assessment and
Management Strategy:**

**Part B – Watershed Management
Strategy**

Acknowledgements

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- Traci Roberts (Monterey County Farm Bureau, MCFB)
- Carl Niizawa (City of Salinas)
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Thanks to the following individuals and agencies. Note that the listing of their names here does not necessarily imply that this report reflects their opinions and/or interpretations.

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Primary audience

The primary audience of this Assessment and Management Strategy is the stakeholders of the Reclamation Ditch Watershed, and associated education, research, and professional entities:

- Stakeholders
 - Land use communities
 - Row-crop agricultural Community
 - Individual growers & shippers
 - Monterey County Farm Bureau
 - Grower Shipper Association
 - Ranching Community
 - Individual ranchers
 - Gabilan Cattle Company
 - Development Interests
 - Salinas Valley Builders Exchange and equivalent representatives
 - Creek Bridge Homes
 - Environmental/Restoration/outreach groups
 - Friends of Tembladero (FOT)
 - Friends of Salinas Creeks (FOSC)
 - Return of the Natives (RON)
 - Monterey Bay National Marine Sanctuary Citizens Monitoring Network
 - Audubon Society Local Chapter
 - Agencies
 - Federal Agencies
 - NOAA Fisheries
 - United States Fish and Wildlife Service (USFWS)
 - Environmental Protection Agency (EPA)
 - Monterey Bay National Marine Sanctuary (MBNMS)
 - State Agencies
 - State Water Resources Control Board (SWRCB)
 - Central Coast Regional Water Quality Control Board (CCRWQCB)
 - California Department of Fish Game (CDFG)
 - California Coastal Commission (CCC)
 - Monterey County Agencies and Special Districts
 - Monterey County Water Resources Agency (MCWRA)

- Monterey County Planning Department (MCPD)
- Monterey County Agricultural Commissioner's Office (MCACO),
- Resource Conservation District of Monterey County (RCDMC)
- Moss Landing Harbor District
- Local Cities and unincorporated Monterey County areas
 - City of Salinas
 - Castroville area in unincorporated Monterey County
 - Prunedale area in unincorporated Monterey County
 - Moss Landing area in unincorporated Monterey County
- Educational / professional
 - Educational and research groups
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Project Summary

(a one-page summary required under EPA 205(j) funding)

A Watershed Assessment and Management Strategy was completed for the Reclamation Ditch Watershed in northern Monterey County, California, for Monterey County Water Resources Agency (MCWRA). The project was funded by the Federal EPA (\$114,630), Monterey County Water Resources Agency Zone 9 assessments (\$46,400), the City of Salinas (\$20,000), with in-kind contributions by stakeholders, and other agencies, primarily through extensive participation on a Technical Advisory Committee (TAC).

Initially, the project was entitled the Carr Lake Watershed / Reclamation Ditch Subwatershed Assessment and Management Strategy whose project description stated would form the scientific basis for developing a watershed-wide, community based management Strategy; and for gathering specific information needed for existing studies and planning projects. Due to the limited funding available, the subwatersheds above Carr Lake (Gabilan, Natividad, and Alisal Creeks) would form the project area and become the template for a more comprehensive assessment and management Strategy, with extensive public input from stakeholders, for the larger Reclamation Ditch Watershed area. The project consultant, the Central Coast Watershed Studies team, of the Watershed Institute at California State University Monterey Bay (CSUMB) and the TAC recommended to MCWRA to expand the project study area to include the entire 157 square mile Reclamation Ditch watershed area, without additional resources in support. The revised project title is the *Reclamation Ditch Watershed Assessment & Management Strategy*.

Management Goals listed for the watershed relate to: water quality, flood control, parklands, determining fish passage and steelhead presence/absence, special status species protection, mosquito abatement, food safety and agricultural pest control, harbor sedimentation, sustainable water supply, and economic viability. A number of Actions are listed to address each Goal. It is recommended that three Working Groups be formed to prioritize, schedule, advocate, facilitate, and monitor the implementation of these Actions. The three groups should respectively focus on Actions relating to Flooding, Natural Resources, and Economic Viability. Criteria for successful achievement of Goals were defined, and a Monitoring Plan was described for measuring progress towards success. RDIPAC will provide additional oversight.

It is important to note that one stakeholder meeting was held for the entire 157 square mile watershed during the initial development of this Management Strategy and with minimal input from the Technical Advisory Committee thus, there has been no stakeholder nor peer review of the goals, actions, and strategies contained herein.

The Watershed Assessment & Management Strategy is in separate reports labeled Part A and Part B. This is Part B.

Executive Summary

From 2003–2005, the Central Coast Watershed Studies team, of the Watershed Institute at California State University Monterey Bay (CSUMB) completed an Assessment and Management Strategy for the Monterey County Water Resources Agency (MCWRA) entitled the *Carr Lake Watershed/Reclamation Ditch Subwatershed*, which we refer to here simply as “*The Reclamation Ditch Watershed*”. The 157 square-mile watershed is almost entirely within Monterey County in California’s Central Coast Region, running from its headwaters in the Gabilan Range down to its terminus at a set of tide gates at the entrance to Moss Landing Harbor. Part A of this report contains the Assessment, comprising five elements that collectively assess the function of the watershed, including: Historical Conditions Assessment, Hydrology and Channel Conditions Assessment, Water Quality Assessment, Biological Assessment and a Botanical Assessment. Part B of this report contains the Management Strategy, comprising five main elements: Existing Plans, Public Process, Watershed Management Goals, Management Actions, and Management Strategies. The report then concludes with References and Appendices. One stakeholder meeting was held for the entire 157 square mile watershed. This is Part B.

The project cost \$161,030 plus in-kind contributions. Primary funding was provided by a Federal EPA grant (#02-098-250-0) of \$114,630 through the Clean Water Act Section 205(j) with Zone-9 assessment contributions from the Monterey County Water Resources Agency (MCWRA) in the amount of \$46,400. The Watershed Institute (as Foundation of CSUMB) was sub-contracted for \$89,770 to lead the technical aspects of the project. The Watershed Institute’s role also involved voluntary work. Additional financial commitments were provided by the City of Salinas (\$20,000), as well as RCDMC, CCC, CCRWQCB, Comgro, and MCFB, primarily through Technical Advisory Committee participation.

Executive summary of PART B – Watershed Management Strategy:

- A Watershed Management Strategy was produced, based on the outcomes of the Assessment as well as a limited public process involving: one stakeholder meeting, limited Technical Advisory Committee review and revision.
- This document should not be used as a sole substitute for the RWQCB's responsibility to conduct scientifically based problem statements and source analyses using current water quality data.
- Ten Management Goals were tentatively identified for the Watershed:
 - Improve Water Quality
 - Reduce Flooding of Developed Land
 - Create Parklands & Natural Areas
 - Determine Fish Passage and Steelhead Status
 - Protect Rare & Special Status Species
 - Reduce Mosquitoes
 - Facilitate Food Safety and Agricultural Pest Control
 - Reduce Harbor Sedimentation
 - Achieve Sustainable Water Supply
 - Maintain Economic Viability
- A range of Management Actions was listed to address each Goal. Emphasis was placed on:
 - Controlling runoff sources
 - Finding multi-use solutions for the Reclamation Ditch System
- Example Actions include:
 - Implement Ag Waiver
 - Implement Ag Discharge Source Control
 - Evaluate City of Salinas Stormwater Data
 - Conduct Study of Vegetated Treatment Systems (VTS)
 - Control urban runoff volume
 - Create / Restore (wetlands/open space)
 - Conduct study to evaluate fish passage and status of steelhead
 - Conserve habitat for Special Status Species
 - Expand research into effects of non-crop vegetation on food safety
- The Management Strategy should be implemented and coordinated by the Working Groups and adopt responsibility for prioritizing, scheduling, tracking, advocating, facilitating, and monitoring the progress of Actions toward Goals, with each group focusing respectively on:
 - Flooding
 - Natural Resources
 - Landowner and Economic issues

The RDIPAC currently provides the MCWRA with oversight concerning all flood control and water conservation activities within the watershed.

- Criteria were given for successful implementation of the Management Strategy, and a Monitoring Plan was described for measuring progress toward these criteria.

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1. Introduction

Overview

This Watershed Management Strategy comprises three core elements: a list of Management Goals, a list of Management Actions that achieve these Goals, and a Management Strategy that sets forth an initial list of priority Actions and recommends how MCWRA should implement the Strategy. Chapters containing a brief review of existing plans precede each of these elements, and an explanation of the public process employed in the development of the Strategy. A feature of this process was a single stakeholder meeting for the entire 157 square mile watershed designed to elicit a diverse table of goals and actions drawn purely from stakeholder opinion.

The scope of the Strategy was drawn from the core objectives of the preceding Assessment:

- The need for urban land
- The need for agricultural land
- The need for clean water in support of various beneficial uses
- The need to comply with relevant laws protecting Special Status species and/or Critical Habitat
- The need for effective flood control

Prefatory remarks

The successful management of a watershed depends upon two main elements. First, there must be solid, scientific information that is provided in a clear, un-interpreted manner to all those with an interest in the watershed. Second, open and direct discussion among the different interests in the watershed, about the meaning and potential use of the information (setting of goals and objectives). The community itself can then seek out the tools available for achieving their goals and objectives. Some of these tools are: landscape planning, engineering, management practices, and, technology to solve existing problems.

In the Reclamation Ditch Watershed, flooding is a concern for farmland and urban areas. But flooding can also be viewed as a natural, beneficial function with respect to the need for clean water. Channel vegetation is problematic for farmers because it compromises food safety and efficient drainage, but is beneficial to water quality and habitat. Poor water quality is a unilateral concern but its remediation incurs a financial cost to many stakeholders.

This Strategy proceeds with the best information available, noting critical uncertainties where they exist, and encouraging future studies to clarify them.

The Strategy comprises the following five short chapters:

- Existing plans
- Public process
- Management Goals
- Management Actions
- Management Strategies

The Technical Advisory Committee (TAC) provided some guidance on this strategy and minimal public and stakeholder participation (one stakeholder meeting) was provided due to the time and budget constraints.

2. Existing Plans and Regulatory Requirements

In recent years a number of regulatory requirements, planning documents or studies have been developed whose geographic scope covers the Reclamation Ditch Watershed. Many of these documents contain goals and recommendations that will influence future management and policy decisions in the Reclamation Ditch Watershed. Some recommendations within these documents have already been implemented. The documents include:

- Zone 9 Reclamation Ditch Drainage System Operations Study (SWCCE, 1999)
- MBNMS Action Plan IV Agriculture and Rural Lands (MBNMS, 1999)
- Potrero Road Tide Gates Study (SWCCE, 2000)
- Carr Lake Multi-Purpose Flood Control Study (SWCCE, 2002)
- Reclamation Ditch Improvement Plan Recommendations (RDIPAC, 2002)
- City of Salinas Draft General Plan (COS, 2002)
- CCRWQCB Basin Plan (CCRWQCB, 1994)
- North Salinas Valley Watershed Restoration Plan (1997)
- City of Salinas Storm Water Master Plan (CDM, 2004)
- Monterey County Draft General Plan (Monterey County, 2004)
- Clean Water Act (1972) – National Pollutant Discharge Elimination System (NPDES) Permit – Phase I (current within City of Salinas) and Phase II (pending for Monterey County areas)
- Porter-Cologne (1969) Ag Discharge Regulation

Table 2.1 summarizes the key goals and objectives expressed in these documents.

Broader plans such as the Monterey County General Plan and the City of Salinas General Plan include a variety of general goals for land use planning, resource availability, and pollution control. For example, the City of Salinas General Plan consists of seven elements that collectively meet the State requirements for a City General Plan. The seven elements are: *Land Use, Community Design, Housing, Conservation/Open Space, Circulation (Traffic), Safety, and Noise Elements*. Within each Element there are specific goals or issues identified and policies, or strategies, to be used to achieve the stated goals. Examples of the types of goals outlined in the Conservation/Open Space Element include: *Water Supply and Quality, Water Conservation, Agricultural Resources, Cultural Resources, Ecological and Biological Resources, Air Quality, Mineral Resources, Parks, Recreational Facilities and Services, and Energy Conservation*.

More specific regulatory requirements and plans such as Zone 9 Reclamation Ditch Drainage Study, the MBNMS Action IV Agriculture and Rural Lands Plan, the Carr Lake Multi-Purpose Flood Control Study, and others such as the Clean Water Act (1972) National Pollutant Discharge Elimination System (NPDES) Permit, Porter-Cologne (1969) Ag Discharge Regulation, have specific recommendations and requirements for dealing

with Watershed concerns such as water quality, flooding, resource protection/restoration, and/or storm water detention.

Table 2.1 Goals and/or objectives outlined in previously developed and implemented regional and local Action Plans. The goals/objectives presented here are a general summary of the wide range of specific concerns discussed in these documents and by the TAC.

General Goals/Objectives	CCRWQCB Basin Plan (1994)	Porter Cologne (1969) – Ag Discharge Regulation (1969)	North Salinas Valley Watershed Restoration Plan (1997)	Zone 9 Drainage System Operations Study (1999)	MBNMS Action Plan IV Agriculture and Rural Lands (1999)	Potrero Road Tide Gates Study (2000)	Carr Lake Multi-Purpose Flood Control Study (2002)	Rec. Ditch Improvement Plan Recommendations (2002)	City of Salinas Draft General Plan (2002) and EIR	City of Salinas Storm Water Master Plan (2004)	Clean Water Act (1972) – NPDES Compliance	Monterey County Draft General Plan (2004)
Flood Control/Prevention (Improve runoff source control measures)		X		X		X	X	X	X	X		X
Water Supply (Conservation, improvement of existing sources, and creation of new sources)										X		X
Water Quality (Improve water quality using good management practices, Watershed Working Groups, monitoring, and through public outreach)	X	X	X	X	X		X	X	X	X	X	X
Road Stability and Erosion (Improve stability on unpaved and paved roads)					X							
Erosion Control (Reduce erosion and sedimentation in the vicinity of stream banks and ditches)		X	X	X	X	X	X	X	X		X	X
Habitat/Open Space Preservation and Creation (Preserve and create habitat/open spaces for wildlife and public use)		X	X				X	X		X		X

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General Goals/Objectives	CCRWQCB Basin Plan (1994)	Porter Cologne (1969) - Ag Discharge Regulation (1969)	North Salinas Valley Watershed Restoration Plan (1997)	Zone 9 Drainage System Operations Study (1999)	MBNMS Action Plan IV Agriculture and Rural Lands (1999)	Potrero Road Tide Gates Study (2000)	Carr Lake Multi-Purpose Flood Control Study (2002)	Rec. Ditch Improvement Plan Recommendations (2002)	City of Salinas Draft General Plan (2002) and EIR	City of Salinas Storm Water Master Plan (2004)	Clean Water Act (1972) - NPDES Compliance	Monterey County Draft General Plan (2004)
Habitat protection for Species of Special Status (Encourage protection of Special Status Species; fish passage)		X	X	X		X	X	X	X	X		X
Air Quality (Improve air quality through planning efforts, conservation, and renewable energy technology)									X	X		X
Historical and Cultural Resource Preservation (Preserve historical and cultural resources in the watershed)									X			X
Economic Development (Encourage diverse economic development)									X			X
Agricultural Land Preservation (Preserve prime agriculture lands through planning and zoning ordinances)		X							X			X
Land Use and Housing (Zoning and development plans; Affordable housing; Balanced planning)									X		X	X
Urban Infrastructure (Continue to provide the following with anticipated developments: Parks, Schools, Police, Fire, Hospital, and Sewer)									X	X	X	X
Traffic (Reduce traffic pressure where possible)									X			X
Information Exchange (Improve collaborative efforts between agencies and landowners)		X		X	X			X	X	X	X	X

3. Public Process

The production of this report involved limited public representation at various stages. This chapter briefly summarizes the process used, and in particular, reports the outcome of a stakeholder meeting held near the end of the project.

Lead agency

The project was coordinated by Monterey County Water Resources Agency (MCWRA) and the MCWRA Board of Directors, who are appointed by the following elected public officials and stakeholder organizations:

- Monterey County Board of Supervisors (5 appointees)
- Monterey County Farm Bureau (1 appointee)
- Grower–Shipper Association of Central California (1 appointee),
- Monterey County Agricultural Advisory Committee (MCACO) (1 appointee),
- Mayor’s Select Committee (City of Soledad, Mayor) (1 appointee).

Technical lead

The project was technically executed under sub–contract by staff at the Watershed Institute, which is part of the non–profit Foundation of California State University Monterey Bay (Joel Casagrande, led by Dr Fred Watson). The Watershed Institute operates under the overall mission of CSUMB, a public university, emphasizing grant–funded public–interest community–oriented research, restoration, education, and outreach.

Technical Advisory Committee

The project was overseen by a Technical Advisory Committee (TAC) invited by the project staff to be representative of the key diversity of interests within the Reclamation Ditch Watershed. TAC meetings were held depending upon fluctuating needs for oversight and approval. TAC members were:

- George Fontes (Comgro Inc.)
- Ross Clark (California Coastal Commission, CCC)
- Amanda Bern (Central Coast Regional Water Quality Control Board, CCRWQCB)
- Bryan Largay (Resource Conservation District of Monterey County RCDMC)
- Traci Roberts (Monterey County Farm Bureau, MCFB)
- Carl Niizawa (City of Salinas, COS)
- Kathleen Thomasberg (Monterey County Water Resources Agency, MCWRA)

RDIPAC

Report drafts were reviewed on an ad hoc basis by members of the Reclamation Ditch Improvement Plan Advisory Committee (RDIPAC) both via oral presentations at its regular open-to-the-public meetings, and through specific written comments on report drafts.

Table 3.1 Meetings convened during the project term (Assessment & Strategy development)

Date	Time	Meeting Purpose	Location	Public Meeting
August 11, 2003	12:30– 2:30	Set up TAC	COMGRO	
November 13, 2003	10:00–11:30	TAC Meeting	MCWRA	
March 11, 2004	10:30–12:30	TAC Meeting	MCWRA	
June 15, 2004	10:00–12:00	TAC Meeting	MCWRA	
September 15, 2004	13:00–15:00	Presentation to RDIPAC Meeting	MCWRA	X
September 27, 2004	10:15–12:15	TAC Meeting	MCWRA	
September 27, 2004	13:00–15:00	Presentation to MCWRA Board of Directors	MCWRA	X
October 25, 2004	10:15–12:15	TAC Meeting	MCWRA	
November 17, 2004	13:00–15:00	RDIPAC Meeting	MCWRA	X
December 13, 2004	10:30–12:30	TAC Meeting	MCWRA	
December 20, 2004	10:30–12:30	TAC Meeting	MCWRA	
January 12, 2005	10:00–12:45	TAC Meeting	MCWRA	
January 19, 2005	13:00–15:00	Presentation to RDIPAC Meeting	MCWRA	X
February 17, 2005	10:00–12:45	TAC Meeting (RDIPAC Invited)	MCWRA	
February 22, 2005	9:00–13:00	Stakeholder Meeting	Salinas City Hall	X
March 8, 2005	10:00–12:45	TAC Meeting	MCWRA	
March 29, 2005	10:00–12:00	TAC Meeting	MCWRA	

Stakeholder Meeting

A single stakeholder meeting was held on February 22nd 2005 at City Hall in Salinas for the entire 157 square mile watershed study area. Notification of this meeting was mailed to selected stakeholders and stakeholder representatives in mid-January, which included:

- Announcement of stakeholder meeting
- Draft Executive Summary and Conclusions of the Assessment

- Invitation to request CD copies of the full Assessment
- Invitation to write written comments on the Assessment to be published in the final report

TAC compiled the list of interested parties and organizations to receive direct mailouts during the December 13th 2004 meeting, and through additional communication among TAC members subsequent to that meeting. The criterion for inclusion on the list was that the invitee had a direct stake or represented stakeholders in the Reclamation Ditch Watershed. Any ambiguity was resolved inclusively. We estimate that approximately forty to fifty stakeholders and their representatives were notified either by directly receiving an invitation, or via colleagues. Ten CDs were mailed out or delivered, and we understand that additional copies were made from these for further distribution. Three sets of written comments were received, including one that represented a large group of stakeholders, and these are reproduced verbatim in Appendix A.

The goal of the meeting was to briefly inform and remind stakeholders of the outcomes of the assessment, and mainly to solicit un-prompted ideas from stakeholders on what needs to be accomplished in the watershed, how to accomplish it, and in rough terms, which ideas were strongly supported, rejected, or contested.

Twenty-five stakeholders attended the meeting representing the sectors listed below (The term 'stakeholder' was used for all attendees other than 3 project staff and 7 CSUMB students). The list of stakeholders includes 5 TAC members who attended the meeting.

- Growers or grower representatives: 5
- Environmental groups and similarly interested residents: 4
- Resource Conservation District of Monterey County staff: 3
- Agency staff:
 - County staff: 1
 - City staff: 2
 - Moss Landing Harbor staff: 1
 - Sanctuary (MBNMS) staff: 1
 - California Coastal Commission staff: 1
 - Agricultural Commissioner's staff: 1
 - Natural Resources Conservation Service staff: 1
- Environmental and agricultural consultants: 5
- Project staff (Joel Casagrande, Fred Watson, Manuel Quezada): 3
- CSUMB students: 7 (observers only, for educational purposes)

The meeting lasted from 9:20 until about 13:00 with the following schedule:

1. Introduction
2. Summary of Assessment (and reminder to complete written comments if desired)
3. Solicitation of stakeholder input for use in management strategy – a workshop-style interactive process
 - a. Issues / concerns / goals for the watershed
 - i. Whole-group session listing issues – posted on meeting room wall
 - ii. Prioritization of these by individual ‘votes’ cast by placing yellow dots (stickers) on posters. Six yellow dots were given to each stakeholder, for them to use as they please. Note that the three Project Staff and some TAC members refrained from placing stickers in this session.
 - b. 25-minute break
 - c. Break-out into five sub-groups chosen randomly (Fig. 3.1)
 - d. Actions to be taken to address issues / concerns / goals (Figs. 3.2 & 3.3)
 - i. Sub-group sessions listing actions – written on posters
 - ii. Whole-group summary of sub-group outcomes
 - iii. Prioritization of actions using colored dots, green for desired, and red for undesired actions (Fig. 3.4). Six red and six green dots were given to each stakeholder, for them to use as they please. Note that the three Project Staff and some TAC members refrained from placing stickers in this session.
4. Meeting adjourned after final prioritization step

The outcomes of the meeting are transcribed verbatim in Table 3.2 Of key importance is that the ideas listed by stakeholders were expressed at their own initiative, and were not prompted by the project members (except at the conclusion of the meeting where Watson noted to the group that the ‘Ag Waiver’ had been omitted, which the group then discussed as per the preceding ideas). A wide spectrum of goals and issues were listed, and priority for these was fairly evenly distributed. This suggests that the meeting was relatively balanced across interests. However, the meeting was not a random cross-section of the community due to the fact that it was held on a weekday, in English, and the meeting notice was not distributed to everyone in the community. Some actions were mainly ‘liked’ and to varying degrees, others were mainly ‘disliked’, and some were both liked and disliked.

The opinions expressed by stakeholders helped guide the management strategy process, as referenced in the next two chapters. These opinions enabled the project to draw from more diverse public opinion than is represented on existing committees such as the project TAC and the RDIPAC.



Figure 3.1. Stakeholders discussing their ideas about watershed goals and actions.



Figure 3.2 Stakeholders reviewing their set of proposed actions before prioritizing.
(Photo: Joel Casagrande, Feb 22, 2005)



Figure 3.3 Stakeholders prioritizing their set of actions. (Photo: Fred Watson, 22 Feb. 2005)



Figure 3.4 An example of the results of the Stakeholder prioritization process. Photo: Fred Watson, 22 Feb 2005

Table 3.2. Ideas listed at stakeholder meeting, and associated priorities placed by stakeholders (continued on following pages).

		Priorities of goals	Priorities of actions		
Goals	Sub-goals and Actions	(No. of yellow dots)	Support (No. of green dots)	Against (No. of red dots)	Cross-Listing
Overall¹					
	Sustainable Watershed	8			A, B, C, D, E, F, G, H
	Sustainable Watersheds: Establish a framework for continued watershed collaboration with defined sub-groups with defined tasks		3		
	At the sub-group level, make sure that all interests are heard and the decisions are based on fair representation		1		
	Improve quality of life for people in watershed			1	
	New Name for Watershed		4		
	Continue Stakeholder involvement and collaboration moving forward				
	Within the context of Ag & Urban viability, redesign the watershed system between Salinas and the Harbor to increase drainage capacity, manage flooding and encourage natural habitat.		6		A, B, C, D, E, F, G, H
	Carr Lake Park Project		6		B, C, E, F, G
Critical Coastal Areas: Funding Opportunity		2		7	
Total		8	22	8	
A) Water Use/Supply	Water Use/Supply (unspecified sub-goal)	4			
	<i>Specific Sub-Goals:</i>				
	Balance needs of watershed with needs for groundwater	1			
	Prevent Sea Water Intrusion	1			
	Manage Water Balance	2			
	<i>Actions</i>				
	Analyze water use for different land uses: water balance; development density		2	2	
Develop watershed plan to balance surface & groundwater recharge		6	3		
Total		8	8	5	
B) Economic Viability	Economic Viability (unspecified sub-goal)	8			
	<i>Specific Sub-Goals</i>				
	Sustainable flood control costs	1			
	Maintain Agricultural Economic Viability	15			
	Maintain Urban Economic Viability	5	1		
	<i>Actions</i>				

¹ Heading 'overall' chosen post-meeting.

		Priorities of goals	Priorities of actions		
Goals	Sub-goals and Actions	(No. of yellow dots)	Support (No. of green dots)	Against (No. of red dots)	Cross-Listing
	Make this Watershed a priority for streamlining permitting and "Ag" technical assistance (e.g. for the Ag Waiver, implementation of practices under "Ag" waiver)		7		D, E
	Assess "urban growth plans" to consider watershed sustainability and economic viability		4	2	
	Study of the costs of water quality regulations under current and potential future conditions		2	1	
	Identify & quantify sources of pollutants including sedimentation		2		
	Support existing water quality monitoring and pollutant mitigation efforts				
Total		29	16	3	
C) Community					
	<i>Sub-Goals</i>				
	Improve recreation	2	1		
	Stewardship of Watershed (e.g. Community trash pick-ups)	5			
	Education				
	Stakeholder: Ongoing collaboration share data long-term				
	Manage Multiple Use				D
	<i>Actions - None Reported</i>				
Total		7	1	0	
D) Regulatory					
	<i>Sub-Goals</i>				
	Integrated Management / Overlapping Jurisdiction	2			
	Planning Future Development	2			C
	<i>Actions - None Reported</i>				
Total		4	0	0	
E) Improve Water Quality					
	Improve Water Quality (unspecified sub-goal)	11			
	<i>Specific Sub-Goals</i>				
	Integrate (e.g. Water quality with economic viability)	1			
	Encourage sustainable development	4	2		
	Encourage sustainable agriculture	2			
	Harbor sediment quality	4			
	<i>Actions</i>				
	Use "low impact" development to improve water quality (e.g. reduce or limit impervious surfaces)		3		
	Establish watershed award to growers for successful Best Management Practices that improve water quality		4		

		Priorities of goals	Priorities of actions		
Goals	Sub-goals and Actions	(No. of yellow dots)	Support (No. of green dots)	Against (No. of red dots)	Cross-Listing
	NPDES Phase I & II Implementation		3		
	Promote management practices for erosion & sedimentation control/water quality. Account for costs & benefits of practices		5		
	Agricultural Discharge Waiver (existing)		9		
	Support (politically and financially) for cooperative monitoring program (i.e. part of Ag waiver & coordination with existing monitoring such as City & County (i.e. Watershed Context)		2		
	Ensure cost effective source control is put in place & maintained		3		
Total		22	31	0	
F) Increase Habitat for all Riparian Species	Increase Habitat for all Riparian Species (unspecified sub-goal)	12			
	<i>Specific Sub-Goals- None reported</i>				
	<i>Actions</i>				
	Identify areas for habitat restoration that is integrated with stewardship goals and opportunities: Direct this toward appropriate funding sources.		4	2	
	Tax incentives to encourage landowners to set aside land for Native Habitat		1		
Total		12	5	2	
G) Flood Control / Prevention	Flood Control/Prevention (unspecified sub-goal)	8	2		
	<i>Specific Sub-Goals</i>				
	Improve channel capacity	2			
	<i>Actions</i>				
	Prioritization of land acquisition for flood protection		1	3	
	Reduce harbor sedimentation	4	1		
	Co-management of Salinas River and Rec. Ditch				
	Reduce channel sedimentation	3	1		
	Streamlined regulatory process for flood control (i.e. let people clean their ditches)		1		D
	Locate sediment traps strategically to reduce clean up costs		3		
	Increase channel capacity of drainage ways. Widen channels and slow flows where feasible		3		
	Expand benefit assessment zone to whole watershed				
Total		17	12	3	
H) Safety	Safety (unspecified sub-goals)	3			

		Priorities of goals	Priorities of actions		
Goals	Sub-goals and Actions	(No. of yellow dots)	Support (No. of green dots)	Against (No. of red dots)	Cross-Listing
	<i>Specific Sub-Goals</i>				
	Food Safety	1	1		
	Public Safety				
	<i>Actions</i>				
	Need task force for food safety & adjacent vegetation		6		
Total		4	7	0	

4. Watershed Management Goals

This chapter describes the major goals for the watershed. These were defined based on the results of the Assessment, on the outcomes of the single stakeholder meeting, and through limited review by the Technical Advisory Committee. The goals are inter-related by virtue of the fact that certain actions within the watershed have a positive effect on multiple goals, or in some cases, have positive effects of one goal and negative effects on another.

Improve Water Quality

Improvement of water quality is a clear goal for the Watershed. It is required under the Clean Water Act, in particular by virtue of its fifteen impairment listings in five water bodies within the watershed, and three listings for Moss Landing Harbor, immediately downstream of the watershed (The Watershed as defined in the Assessment ends at the Potrero Road Tide Gates). Water quality improvement was also a prominent goal identified at the stakeholder meeting.

Reduce Flooding of Developed Land

Flood control is a long-standing goal in the Watershed. Since the Reclamation Ditch's construction, the flood control demands on the system have continued to increase. It was originally constructed to drain swampland and thus increase available lands for farming and urban development. Now with the watershed population at approximately 170,000 people, it is being asked to perform as a storm water flood control channel without any additional increase to its hydraulic capacity, originally constructed in 1917.

The storm drainage system of the Reclamation Ditch Watershed (urban storm drains, ditches, creeks, lakes and the Reclamation Ditch System) currently has capacity to convey runoff in most years. Future increases in impervious surface area and the accumulation of sediments in drainage channels, including the Reclamation Ditch, will cause flooding. Often, flooding of agriculture lands will result in a total loss of the crop in addition to damages to the soil, fields, equipment, and infrastructure. Urban areas in the Reclamation Ditch Watershed are flooded on occasion. In the past, urban areas impacted by flooding in the Reclamation Ditch Watershed have been those immediately within and surrounding Carr Lake, a FEMA designated Floodway (e.g. Sherwood Mobile Home Park in February 1998).

Excess sediment loading is also impacting storm water conveyance. Sediment is accumulating in stream channels and ditches and thus reducing their already limited drainage capacity. In turn, this is leading to increased management costs for local agencies responsible for maintaining channels (CDM, 2004). Sediment removal has the

indirect effect of decreasing in-stream habitat by removing vegetation and reducing channel complexity such as pools and low flow channels. It also potentially reduces water quality by stirring up bottom material. Sediment removal activities thus have positive and negative effects on different goals.

Note that this Goal is listed as “Reduce Flooding of Developed Land”, which is more specific than simply “Flood Control”. Under multi-purpose scenarios such as were suggested by the Carr Lake Multi-Purpose Flood Control Study (SWCCE, 2002), deliberately allowing undeveloped land to flood has potential benefits, protecting developed land.

Create Parklands & Natural Areas

Creation of parklands and natural areas is a goal championed by citizens groups and is an objective under the Draft City of Salinas General Plan. As the population in the City of Salinas, and Castroville and Prunedale areas continue to increase, the demand for parklands, bikeways, natural areas and other residential community land uses will continue as well. Currently, the availability of public parklands and natural areas within the City of Salinas are well below the National Standard of 10 acres per 1000 individuals (Mertes & Hall, 1996; Cameron et al. 2003). The City of Salinas “has only 2.87 acres per 1,000 population compared to the Municipal benchmark of 6.25 to 10 acres per 1,000 population”². Future park areas would provide recreational, aesthetic, and educational opportunities for the local communities and some could provide enhanced habitat for wildlife depending on the type of park and its location.

Evaluate Steelhead Status

It is critical to conduct additional studies to determine fish passage issues for the watershed. The existence of a steelhead run or population in the watershed is uncertain (the finding in March 2004 of a dead gravid (egg-bearing) anadromous female in a pool below a potential barrier on Gabilan Creek in the City of Salinas is the only well-documented indication of possible steelhead use the Watershed). If steelhead exists in the Reclamation Ditch Watershed, this usage would be protected under the Federal Endangered Species Act (ESA). Steelhead are managed under the ESA in ‘Evolutionary Significant Units’. Further monitoring and studies should be done to clarify the fish passage and steelhead issue..

Protect Rare & Special Status Species

Several rare and/or Special Status Species (i.e. Endangered, Threatened, or Species of Concern) currently inhabit the Reclamation Ditch Watershed and adjacent areas – See

² D. Estrada, Director of Maintenance Services, speaking at Salinas City Council Meeting, Minutes 4–Nov–2003. See also City of Salinas (2002).

Part A, Chapter 7. A goal for the Watershed is thus to protect these species and to determine their current range within the Watershed. There are a number of activities that are, or could potentially, threaten their continued existence in the Watershed. Such activities could include: large stream channel/wetland excavation projects, use of herbicides for stream bank vegetation control, sub-urban development in sensitive areas, increased levels of water quality degradation, increase use of non-native fish (i.e. mosquito fish) for mosquito abatement, and spread of non-native weeds..

A pro-active approach to this goal was indicated at the stakeholder meeting, which identified the need for increase habitat for riparian species. Existing habitats for these species, some of which are considered unique natural communities by CDFG, primarily occur in rural areas in the Gabilan Range, and the brackish marshes near Castroville area (See maps in Part A, Chapter 7).

Reduce Mosquitoes

Mosquito abatement is a goal for the watershed, most recently highlighted by the arrival of West Nile Virus in Monterey County, for which mosquitoes are vectors. Breeding grounds for mosquitoes can include standing water such as in slow moving ponds, or water and sediment control structures. Mosquito abatement falls under the general goal of human safety, which was identified at the stakeholder meeting. Mosquito abatement has the potential to conflict with other goals. For example, dredging of mosquito breeding habitat results in destruction of habitat for other species and resulting from sediment disturbance.

Facilitate Food Safety and Agricultural Pest Control

Food safety is another public health and human safety goal in the watershed. Produce grown in this watershed is shipped nationally and internationally in a highly competitive marketplace. Stakeholders have stated that a real or publicly perceived threat to the safety of the food supply must be avoided as the highest priority. Increasingly, retailers and wholesalers of fresh produce demand that harvest be made from fields, absent of any non-crop vegetation, and of any standing water. Some local growers have installed fencing along the entire length of a waterway if they choose to maintain vegetation on the bank. Thus, a food safety goal can be in conflict with the goal of protecting water quality and increasing habitat for protected species.

Reduce Harbor Sedimentation

Moss Landing Harbor has a sedimentation problem. and has incurred significant costs to remove sediment interfering with marine navigation. In past dredging activities, after a significant winter season, some of the sediment dredged contained water quality constituents that increase disposal costs and have led to the harbor's listing as a Toxic Hotspot. Reduction of Harbor Sediment is thus a goal for the Watershed.

Achieve Sustainable Water Supply

Groundwater beneath the Reclamation Ditch Watershed, closest to the coast, is overdrawn to the point where seawater intrusion remains a major concern . The long-term stability or recovery of groundwater levels is a key indicator of sustainable water supply for agriculture and urban uses. Water balance issues were raised at the stakeholder meeting. The water supply system is part of a complex, managed interaction of surface and groundwater extending throughout the Salinas Valley. Agricultural and Urban water supply is extracted from groundwater. The groundwater is recharged by the Salinas River, whose flow is enhanced through effective reservoir releases upstream. These reservoirs store winter flow, and release it in summer during times when the River would otherwise be dry and groundwater pumping is maximized. Unlike most agricultural areas in California, the Valley does not import water from the Sierra Nevada.

Maintain Economic Viability

The Reclamation Ditch Watershed is one of the most economically valuable tracts of arable land in the world, producing about half a billion dollars of food annually (see Table 3.1 in Part A: Watershed Assessment), and containing most of the associated urban infrastructure. Maintenance of this economy is thus a clear goal for the watershed, and one of the most prominent goals identified at the stakeholder meeting. Economic costs associated with other Goals must be balanced against any impacts they may have on the economic viability of the Watershed as a whole.

5. Management Actions

This chapter lists a range of possible Management Actions that could be implemented in order to achieve the Management Goals. The list arose from the Watershed Assessment, Technical Advisory Committee discussions, the Stakeholder Meeting, as well comments received from RDIPAC and Stakeholder groups on various drafts. The actions that are listed are not requirements. No specific responsibility should be inferred as being incumbent on any entity from the following text.

Table 5.1 lists the goals identified in Chapter 4, and a range of possible actions for addressing them. The actions are each discussed in greater detail as follows.

WQ1: Water Quality – Support Ag Waiver

The requirements of the 2004 Conditional Waiver of Agricultural Waste Discharge Requirements were developed by the CCRWQCB with representatives of the environmental and agricultural communities. These requirements represent the best existing approach to dealing with agricultural discharges. The requirements placed on all commercial, irrigated agriculture operators include:

- Participate in a monitoring program either region-wide or individual,
- Complete 15 hours of farm water quality education,
- Maintain a **Farm Plan** outlining the methods used on a specific farm to ensure the operation does not cause or contribute to downstream water quality concerns,
- Implement practices in the **Farm Plan**.

Compliance with the Ag Waiver is expected to lead to improvements in water quality (nutrients, sediment, as well as secondary parameters such as dissolved oxygen and fecal coliforms). Note that Many water quality constituents exist in waterways, soils, and in groundwater used for irrigation, due to naturally occurring and/or historical farm practices. Monitoring conducted as part of the Ag Waiver will need to consider these background constituent levels. The Ag Waiver primarily addresses the goals of water quality improvement.

WQ2: Water Quality – Support Ag Discharge Source Control

Although included within the scope of the Ag Waiver, agricultural discharge source control is listed as a recommended action in its own right because it makes more specific reference to actions that lead to water quality improvement, and includes actions already being undertaken by agricultural producers. Continued adoption and implementation of source control management practices on agricultural or ranching

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Table 5.1 Possible Actions for the achievement of Goals in the Reclamation Ditch Watershed. See text for explanation of each Goal (Chapter 0) and Action (this Chapter). Symbols: '+' denotes positive effect, '-' denotes possible negative effect, '~' denotes economic valuation analysis beyond the scope of this report. Chapter number in parenthesis under Goals refers to Assessment chapter with supplemental information. Table is continued on next page.

		Management Goals									
		<i>WQ</i>	<i>FL</i>	<i>PK</i>	<i>SH</i>	<i>SS</i>	<i>MO</i>	<i>FS</i>	<i>HS</i>	<i>WS</i>	<i>EV</i>
Management Actions		Improve Water Quality (Ch 6)	Reduce Flooding of Developed Land(Ch 4)	Create parklands & natural areas (Ch 2, 5)	Determine Steelhead and Fish Passage Status (Ch 7)	Protect Rare and Special Status Species (Ch 7)	Reduce Mosquitoes (Ch 7)	Facilitate food safety & Agricultural Pest Control (Ch 3, 6)	Reduce Harbor Sedimentation	Achieve Sustainable Water Supply	Maintain Economic Viability
<i>WQ1</i>	Support Ag Waiver	+				+			+		~
<i>WQ2</i>	Support Ag Water Quality Source Control	+				+			+		~
<i>WQ3</i>	Evaluate City of Salinas Stormwater	+							+		~
<i>WQ4</i>	Support City of Salinas urban water quality source control programs	+				+			+		~
<i>WQ5</i>	Implement urban water quality treatment measures	+				+			+		~
<i>WQ6</i>	Vegetated Treatment Systems (VTS)	+							+		-
<i>FL1</i>	Control urban runoff volume	+	+								~
<i>FL2</i>	Bedload monitoring study to determine sources of channel sediment		+						+		~
<i>FL3</i>	Implement erosion-control and sediment-retention measures	+	+	+		+		+	+		~
<i>FL4</i>	Limit use of flood-prone areas		+			+			+		~
<i>FL5</i>	Sediment/vegetation removal (i.e. dredging & grubbing of banks)	-	+		-	-	+		+		~
<i>FL6</i>	Form Flood Working Group		+				+		+		~

(Table 5.1 continued)		Management Goals									
		<i>WQ</i>	<i>FL</i>	<i>PK</i>	<i>FP</i>	<i>SS</i>	<i>MO</i>	<i>FS</i>	<i>HS</i>	<i>WS</i>	<i>EV</i>
Management Actions		Improve Water Quality (Ch 6)	Reduce Flooding of Developed Land (Ch 4)	Create parklands & natural areas (Ch 2, 5)	Determine Steelhead and Fish Passage Status (Ch 7)	Protect Rare and Special Status Species (Ch 7)	Reduce Mosquitoes (Ch 7)	Facilitate food safety & Agricultural Pest Control (Ch 3, 6)	Reduce Harbor Sedimentation	Achieve Sustainable Water Supply	Maintain Economic Viability
<i>FL7</i>	Implement recommendations from the Carr Lake Multi-Purpose Flood Control Study	+	+	+							
<i>FP1</i>	Steelhead – Evaluate status of steelhead and fish passage in Reclamation Ditch Watershed				+						~
<i>PK1</i>	Create / Restore (wetlands/open space)	+	+	+		+			+		~
<i>PK2</i>	Implement recommendations from the Vision Plan for Carr Lake Regional Park	+		+		+			+		~
<i>PK3</i>	Form Natural Resources Working Group	+		+	+	+			+		~
<i>SS1</i>	Describe and conserve habitat for Special Status Species	+		+	+	+					~
<i>SS2</i>	Control invasive weeds			+	+	+		+			~
<i>SS3</i>	Control non-native animals					+					~
<i>MO1</i>	Develop plan for non-destructive mosquito abatement measures			+	+	+	+				~
<i>FS1</i>	Expand research into effects of non-crop vegetation on food safety			+				+			
<i>WS1</i>	Salinas Valley Water Project					+				+	~
<i>WS2</i>	Agricultural water conservation practices	+				+				+	~
<i>WS3</i>	Urban water conservation practices	+				+				+	~
<i>EV1</i>	Economic valuation analysis										+
<i>EV2</i>	Form Landowner & Economic Working Group	+	+	+	+	+	+	+	+	+	+

lands should lead to improvement in water quality constituents in the waterways of the Reclamation Ditch Watershed. Management practices have varying effects on the export of water quality constituents from farms, and varying ratios of benefits to costs. Some examples of source control management practices are: retention basins, road seeding, vegetated furrows, and grade control.

WQ3: Water Quality – Evaluate City of Salinas Stormwater

The implementation of a monitoring program that will determine the degree to which City runoff contributes to water quality concerns should be addressed. The City of Salinas should work with local monitoring programs to devise a monitoring plan that would meet these criteria. Note that the city is required to conduct certain water quality monitoring activities under its NPDES permit, which may be sufficient to fully understand the City's contribution to water quality concerns in the Reclamation Ditch Watershed.

WQ4: Water Quality – Urban Water Quality Source Control

The extent of urban sources of water quality constituents is unknown relative to other sources in the watershed (See WQ3 above). Potential sources that may be revealed by monitoring including industrial effluent, highway runoff, runoff from residential construction sites, among others. Appropriate technologies and regulatory instruments exist for mitigating such sources, and these should be employed wherever sources are found to occur.

Currently, the City of Salinas requires that all new or re-development projects incorporate Best Management Practices, or Good Management Practice (GMP), to reduce potential impacts to water quality. The specific designs for which GMP's to be used are derived from the latest version of the California Stormwater Quality Association's Stormwater Management Practice Handbook for New Development or Redevelopment (CDM, 2004). Under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Permit, for both Phase I and II dischargers, is administered in the watershed by the CCRWQCB through responsible jurisdictions.

WQ5: Water Quality – Urban Water Quality Treatment Measures

The City of Salinas operates several stormwater detention basins that act as water quality treatment systems, by virtue of their ability to reduce runoff rates for storms of certain magnitudes. These basins were designed for flood control during larger storms (i.e. 10-year storms or larger) and not for smaller events such as a 2-year or less. Modifying the function of the existing urban storm water detention basins to detain 2-year storms or less was recommended by CDM (2004). Some of the City's detention basins have GMP's already, such as the two basins in the Westridge Shopping Center. CDM (2004) recommended that all detention basin outlets should have debris and

sediment traps to help reduce the transport of pollutants to downstream areas such as Markley Swamp and the Reclamation Ditch System.

WQ6: Water Quality – Vegetated Treatment Systems

Vegetated treatment systems (VTSs) (i.e. constructed wetlands, vegetated furrows, grassed waterways, etc.) can be used to both reduce sources of water quality constituents and treat those constituents that are detrimental in waterways. They should be located and managed so as to minimize risks relating to food safety and agricultural pests. Their planning and implementation requires collaboration between landowners, restoration groups, the RCD, and agencies such as NRCS and the Mosquito Abatement District. Constraints associated with VTSs include the risks associated with field pests (weeds, rodents, and insects) and maintenance costs to the landowner, County or City. Since their effectiveness, constraints, and opportunities are poorly understood, this Action is divided into research (WQ6a) and implementation (WQ6b) phases.

FL1: Reduce Flooding of Developed Land – Urban Runoff Volume Source Control

Urban runoff control will reduce the total volume of water flowing through the Reclamation Ditch System, thereby reducing flood risk. Urban runoff control can occur at multiple scales from individual parcels and homes through to whole storm drain systems. Practices that reduce the impervious area of developed land should be encouraged.

The burden of responsibility for runoff control from new developments or re-developments should be shifted more to the developer. City and County requirements state that new development or redevelopment projects must provide detention or retention facilities that will limit additional runoff into the Watershed’s drainage system. These requirements should be evaluated to ensure that they preclude development activities from exacerbating existing flooding concerns downstream.

FL2: Reduce Flooding of Developed Land – Bedload Monitoring Plan and Source Detection

Sediment runoff from farm, ranch, and urban lands collects in the Reclamation Ditch and Carr Lake (COS, 2004), as well as urban storm drains (CDM, 2004). The accumulated sediment reduces channel capacity and thus increases flood risk, requiring costly maintenance excavation by the City, County, and landowners. Much of the sediment is coarse bedload material consisting of sand and small gravel, but the dominant source of this is unknown. A monitoring plan for bedload source detection should be designed and implemented. Once significant source areas are detected, plans for their containment/improvement should be developed.

FL3: Reduce Flooding of Developed Land – Implement erosion-control and sediment-retention measures

Erosion-control and sediment-retention measures should continue to be implemented in areas identified by Action FL2. This Action is closely related to the WQ actions above, but specifically addresses reduction of the amount of sediment that in-fills channels, necessitating costly and excavation activities. Channel sedimentation can be reduced by reducing erosion in source areas and in upstream channels, and by using sediment retention measures such as basins. Sediment retention basins in particular are an effective means of capturing silts, sands, and fine gravel-sand reducing delivery of channel-filling sediments to downstream areas. Smaller basins on farms, in small grazed and urban drainages are desirable because they mitigate sediment problems close to the source. This allows immediate recycling of sediment back onto the land (where practical), and promotes greater awareness of erosion and sediment concerns among landowners, residents, farmers, and ranchers. Larger sediment basins can be installed alongside major channels. This potentially achieves an economy of scale through pooled maintenance resources and may be more easily managed at the City, County, and landowner level, but requires permitting associated with potential impacts to fish migration.

Golder Associates (2001) examined the technical feasibility of installing a 10 to 37 acre basin alongside Tembladero Slough just upstream of Castroville, as a mitigation for increased erosion from the Reclamation Ditch. The basin would be adjacent to the main channel, and designed to avoid obstruction of fish passage. They concluded that such a project would be “potentially feasible” but recommended other more efficient alternatives such as a project further upstream in the watershed. SWCCE (2002) recommended that sediment control measures should be in place upstream of Boronda Road in the Gabilan Creek Sub-Watershed above the City of Salinas. CDM (2004) also identified sediment control measures upstream of Boronda Road as a high priority for improved storm drainage function. Such measures should include erosion-control and other at-source practices, but could also include off-channel sediment retention basins alongside Gabilan and/or Natividad Creek. These basins could dramatically reduce the need for channel excavation in Carr Lake and the Reclamation Ditch. This would both reduce flooding, and allow for more natural channels in Carr Lake with benefits to open space, parkland, special status species habitat, and water quality.

FL4: Reduce Flooding of Developed Land – Limit Use of Flood Prone Areas

The goal of reducing flooding of developed land can be achieved either by reducing flooding, or reducing the use of lands that flood, or at least avoiding any development of flood prone land. Land use planning should limit the development of flood prone areas – using processes such as the Monterey County General Plan and the City of

Salinas General Plan. Opportunities should be explored for non-intensive, community-oriented, seasonal uses of flood prone land.

FL5: Reduce Flooding of Developed Land – Channel excavation

The County, City, and private landowners all periodically excavate sediment from sections of the ditch system. It is costly and in conflict with other goals such as improvement of riparian habitat and protection of special status species. Indirect methods such as urban and agricultural runoff source control are more sustainable if properly supported, and are thus more preferable, but they require longer-term collaboration and planning by all sectors of the community. Channel excavation should attempt to mitigate potential environmental impacts.

FL6: Flooding – Form Flood Working Group

Develop a Flood Working Group for the Reclamation Ditch Watershed (RDW-FWG). The group would assume responsibility for developing strategies for future needs of the system with a balanced approach. The group would work closely with RDIPAC, MCWRA, city governments, and other Working Groups (see *PK3 & EV2*). The Flood Working Group could provide recommendations to RDIPAC on a project specific level or on a watershed-wide scale. (RDIPAC is currently tasked with this responsibility, to advise and recommend actions to MCWRA's Board of Directors)

FL7: Flooding – Implement recommendations from the Carr Lake Multi-Purpose Flood Control Study (SWCCE, 2002)

The hydrology of Carr Lake was a critical factor in the 1998 flood. Two major rainfall events occurred in the same week. The second event caused major flooding because it occurred while the Lake remained full after the first event. The Carr Lake Multi-Purpose Flood Control Study recommended options for alterations to the Carr Lake area including culvert enlargement, and improved water management strategies (SWCCE, 2002). A 'through-flow' configuration of the system, or 'side-flow' system would essentially reserve the current flood-detention storage for the largest events using a system of levees and spillways. Thus, 10-year or smaller event would result in increased outlet flows under the side-flow configuration, while 25-year or larger events would result in considerably lower outlet flows through detention (SWCCE, 2002, Charts 7a to 8c). Because they would have a quantified flood risk with relatively long average recurrence intervals, the storage basins could be used for additional open space purposes that have low sensitivity to floods. A wider stream corridor is a component under the study (SWCCE, 2002, Exhibits 4-9).

FP1: Steelhead – Evaluate status of steelhead and fish passage in Reclamation Ditch Watershed

The current status of steelhead and other fish use of the entire Reclamation Ditch Watershed should be evaluated. The study area must include the full watershed from the

headwaters down to Potrero Road Tide Gates – including the Gabilan, Alisal, and Natividad Creek sub-watersheds.. Such a study should extend for a minimum of three years and should be done with close consultation of NOAA Fisheries and CDFG. All potential spawning habitat is currently on private property in the headwater and foothill reaches of the Gabilan Range. Landowner cooperation and participation is key.

PK1: Parklands / Open Space – Restore/Create Wetland / Open Space Areas

Historic wetlands could be restored to maximize benefits to water quality treatment, special status species habitat, and educational opportunities for local schools, parklands, and other recreational uses. Habitat restoration in general should be collaboratively planned in order to minimize conflicts with agricultural goals, such as zoning to avoid potential pest habitat in close proximity with agriculture. Potential improvements include weed eradication, restoration of native plants, and improvement of flow retention capacity

Existing riparian forest corridors and adjacent land could be targeted for Open Space preservation in the future. This would help to maintain migration corridors for wildlife, reduce impacts of flooding, and improve water quality objectives. Examples of riparian areas already reserved as open space or parklands include Natividad Creek Park, and the recently restored Lower Natividad Creek Park/Laurel Pond area. Areas identified as having restoration potential should be identified and prioritized based on feasibility and ability to coincide with other goals (i.e. Private property rights, flooding, and food safety).

PK2: Parklands / Open Space – Implement Recommendations from the Vision Plan for Carr Lake Regional Park

The open space of Carr Lake in the center of Salinas provides a unique opportunity for the City of Salinas by providing public open-space areas simultaneously with multi-use flood control and water quality improvement benefits. Implementing the conceptual recommendations made by the Vision Plan for Carr Lake Regional Park (Cameron et al. 2003) requires additional engineering and cost analysis to better understand the project's hydraulic and economic feasibility to build in a FEMA Floodway without causing flooding to surrounding areas and downstream of Carr Lake. A project could provide additional recreation facilities for the region, increase wetland habitat, and potential improvements in water quality conditions.

PK3: Parklands / Open Space – Form Natural Resources Working Group

Develop an Natural Resources Working Group for the Reclamation Ditch Watershed (RDW-NRWG) that will clarify environmental objectives for the informational benefit of land and infrastructure managers in the watershed, and help develop and oversee long term plans for water quality improvement, habitat protection and enhancement and species preservation. The group would work in close relationship with RDIPAC, MCWRA,

the City of Salinas, State and Federal Agencies, and other Working Groups (see FL6 & EV2). It could provide advice to RDIPAC on a site-specific level or on a watershed-wide scale.

SS1: Special Status Species – Describe and conserve habitat for Special Status Species

Through future planning, specific attention should be made to enhance and protect critical habitats that currently support Special Status plant and animal species (i.e. Endangered, threatened, or Species of Concern). The Watershed supports a variety of Special Status plant and animal species as well as Unique Vegetation Communities (See maps in Part A, Chapter 5). Efforts to locate and map additional occurrences of these species and communities should be made and areas with high species diversity and density should be considered for permanent protection. In the future, all new information obtained on Special Status Species should be incorporated into the California Department of Fish and Game's *California Natural Diversity Database (CNDDDB)*.

SS2: Special Status Species – Control Invasive Weeds

Removal of non-native weeds is of benefit to agricultural, urban, and private property interests. Efforts should be made to control non-native and invasive weed infestations throughout the watershed – especially in riparian areas where the spread of weeds can be rapid. Infestations should be treated. Collaboration with landowners would provide the highest level of effectiveness. Weed infestations found in habitats that support Special Status Species should receive highest priority. Annual or quarterly community involvement events such as “*Creek Clean Up Days*” or “*Salinas Creek Invasive Weed Wars*” are also potential ways to remove plants at a lower cost and gain community involvement with the Watershed. Funding opportunities are typically available to support these actions.

SS3: Special Status Species – Control Non-Native Animals

Aggressive non-native predators such as the red fox, feral cats, bullfrogs, and mosquitofish can have detrimental effects on populations of native species. Non-predatory species such as carp, are also destructive to both the native species and their habitat.

Efforts should be made to determine, or expand mapping of, the known distribution of such species in the Reclamation Ditch Watershed, especially piscivorous fishes that are detrimental to native fishes and amphibians. Species control plans should be included in future wetland restoration efforts, in areas that support Special Status Species, and in areas with high density/diversity of native species. Non-native predator control programs are conducted by the USFWS to protect snowy plovers near the Salinas River Lagoon (USFWS, 2002). Similar programs could potentially be implemented for other Special Status Species such as the Burrowing Owl.

MO1: Habitat Loss – Develop plan for non-destructive mosquito abatement measures

The Northern Salinas Valley Mosquito Abatement District (NSVMAD) should be represented at appropriate watershed planning forums such as the RDIPAC to ensure that mosquito control is as compatible as possible with other Watershed goals. Environmentally sensitive control measures should be encouraged. Actions that adversely impact habitat and species integrity should be avoided whenever possible, especially in stream habitats and other permanent waterbodies where sensitive species (i.e. amphibians and fish) may occur.

To date methods for mosquito control include chemical treatment, and widespread stocking of the predatory non-native, although effective, mosquitofish (*Gambusia spp.*).

FS1: Food Safety – Expand research into effects of non-crop vegetation and food safety

Food safety is a concern in the Salinas region. The environmental and public health (food safety) goals are in conflict. Research should determine any relationships between weedy, de-vegetated, and/or native habitats and the risk of vertebrate entrainment in harvesting.

Coliform contamination of water bodies should also be researched. This should examine potential sources, the possibility of in-situ growth promoted by the aquatic environment of ditches, and the relationship between fecal coliform tests as indicators, and any actual human pathogenic implications.

WS1: Achieve Sustainable Water Supply – Salinas Valley Water Project

The Salinas Valley Water Project is an initiative of MCWRA that will increase water supply to the lower Salinas Valley. The Project has three elements (reproduced from MCWRA information sheet):

- ***“Modification to the Nacimiento Dam spillway.*** *The spillway at Nacimiento Dam would be modified to increase the flexibility of reservoir operations and allow the reservoir to maintain higher water levels in the winter and spring months. The additional storage gained at Nacimiento would be released along with flows stored at San Antonio Dam for Basin recharge and diversion later in the year.*
- ***Reoperation of Reservoirs.*** *The proposed spillway modifications would change the ways Nacimiento and San Antonio reservoirs are operated in order to provide the source water for the SVWP, while assuring the provision of adequate flood control capacity. The modified operation would increase the amount of water available for recharge and diversion during the irrigation season.*
- ***Salinas River Recharge, Conveyance, Diversion and Distribution.*** *The Salinas River would be utilized to convey water to the proposed diversion facility. The facility would include an inflatable dam designed to operate from April to November. A*

proposed Salinas River surface diversion facility would divert river water to the existing Castroville Seawater Intrusion Project (CSIP) system for delivery to the CSIP service area for agricultural irrigation. Diverted river water would supplement the use of CSIP project water and would replace existing groundwater pumping in the CSIP service area. The diversion facility would form a shallow impoundment of water upstream of the facility when the dam is operational. This impoundment could extend up to 2 miles upstream.”

By providing water supply directly from a seasonal reservoir on the lower Salinas River, the project will reduce reliance on local groundwater extraction, thus reducing groundwater overdraft and seawater intrusion. By changing the local groundwater table beneath the Salinas River, the project may also facilitate longer periods of spring flow in the Salinas River, which may be of benefit to migratory fish. Property tax payers in the County approved the project in 2003, and a permitting process is underway.

WS2: Achieve Sustainable Water Supply - Promote Agricultural Water Conservation Practices

Numerous agricultural water conservation practices are advocated by technical outreach organizations such as the University of California Cooperative Extension, and are continually being adopted by growers. Practices include selection of the most efficient irrigation methods (e.g. drip, sprinkler, flood) for the crop and the field conditions, optimizing irrigation system design and operation, scheduling irrigations using crop water use models and/or soil moisture monitoring; enhancing soil structure using organic amendments and cover crops to promote infiltration; and grading fields to reduce the slope and minimize tailwater run-off.

WS3: Achieve Sustainable Water Supply - Promote Urban Water Conservation Practices

Numerous urban water conservation practices exist for reducing urban water consumption. Residents can install water-friendly landscaping, drip irrigation of plants, pressure-reducing main supply valves, gray-water recycling systems, water-use-efficient hot water systems, car-washing on pervious surfaces. Water purveyors can advocate practices to residents, charge increased rates for consumption above certain acceptable levels, and provide monthly and annual water use comparison charts to residents in their regular statements. Cities can also conduct outreach efforts, such as stenciling curbside drain inlets with information such as “Drains to the Bay”. Many of these practices are already implemented in the Watershed to some degree.

EVI: Maintain Economic Viability - Conduct Economic Valuation Analysis

Many of the above actions incur an economic cost, which needs to be quantified and which may be offset by economic benefits either directly or using various economic instruments. An analysis of these costs and benefits will allow stakeholders to

understand the impacts of management and regulation, and allow stakeholders to identify opportunities for collaborative, uni-lateral benefits.

EV2: Maintain Economic Viability – Form Landowner & Economic Working Group

Develop a Landowner and Economic Working Group for the Reclamation Ditch Watershed (RDW-LEWG) including farmers, ranchers, municipalities, Park districts, etc. The group would represent economic interests and provide advice on economic impacts of various proposed activities. The group would work in close relationship with MCWRA's Agricultural Water Advisory Committee (AWAC), the City of Salinas, and State and Federal Agencies and other Working Groups (see FL6 & Pk3). It could provide advice to AWAC on a site-specific level or on a watershed-wide scale. Collaboration of landowners and agency staff in management-oriented committees and working groups is a component of existing plans.

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6. Management Strategies

This chapter organizes the Management Actions from the previous chapters into a recommended strategy for the Watershed. These recommendations are not meant to be construed as requirements that must be carried out by any agency, entity, or individual. This is not a legal document. It has no legal requirements. No actual responsibility is assumed by any party as a result of that party being named in this chapter. This document should not be used as a sole substitute for the RWQCB's responsibility to conduct a scientifically based problem statement and source analysis using current water quality data. A more encompassing public outreach of stakeholders and the general public is required to adequately gauge the public's needs and gain consensus. The overall strategy focuses on source control and multi-purpose management of the channel system.

With respect to water quality source control, implementers of the Strategy should support:

- Ag source control
- Urban source control
- Grazing source control

With respect to management of the channel system for water quality, habitat, drainage/flood-control, and food safety, implementers of the Strategy should:

- Recognize that not all objectives can be met in every part of the channel system. Specifically, habitat and water quality treatment objectives tend to conflict with drainage, flood control, and possibly other objectives.
- Satisfy these conflicts by prioritizing different objectives in different parts of the channel system.

The following sections describe:

- Formation of responsible Working Groups
- Next steps
- Monitoring plan
- Management strategy success

Formation of responsible Working Groups

The Monterey County Board of Directors and MCWRA has convened the Reclamation Ditch Improvement Plan Advisory Committee (RDIPAC), since September 1999. This

committee has broad stakeholder representation, with special-purpose sub-committees convened at various times. It is recommended that RDIPAC remains the central vehicle for progress in the Watershed, with the additional participation of three independent Working Groups.

It is recommended that three Working Groups be formed to address Management Actions. These groups should report on the Monitoring Plan (see below) to RDIPAC. It is suggested that the groups be comprised primarily as follows (see Management Actions FL6, PK3, & EV2) and would circulate their minutes to each other and to RDIPAC:

- Reclamation Ditch Watershed Flood Working Group (RDW-FWG)
 - MCWRA
 - City of Salinas
 - Ag Community
 - Urban Community
- Reclamation Ditch Watershed Natural Resources Working Group (RDW-NRWG)
 - MCWRA
 - RWQCB
 - CCC
 - MBNMS
 - CDF&G
 - Mosquito Abatement District
 - Watershed Institute
 - MLML
 - Stakeholders
- Reclamation Ditch Watershed Landowner and Economic Working Group (RDW-LEWG)
 - MCWRA
 - Individual growers & shippers
 - Monterey County Farm Bureau
 - Grower Shipper Association
 - Ranching Community
 - City of Salinas

The Working Groups would be responsible for making recommendations to RDIPAC as listed in Table 6.1 and implement a monitoring plan. Reports by the Groups should describe progress and recommendations made by the Groups. The groups should collaborate on certain Actions, but each Action should be the primary responsibility of only one Working Group.

The RDIPAC should prioritize and moderate recommendations from Groups and develop innovative plans to attain the defined Goals and Actions. These Actions would then be

recommended by RDIPAC to MCWRA's BOD for consideration at an open public meeting..

Assignment of Actions to Working Groups

Table 6.1. Assignment of responsibilities to working groups. ‘***’ denotes primary responsibility. ‘*’ denotes collaborative responsibility. Actions listed are same as in Table 5.1.

Management Actions		Responsible Working Group		
		Flood	Natural Resources	Landowner & Economic
<i>WQ1</i>	Support Ag Waiver		*	**
<i>WQ2</i>	Support Ag Discharge Source Control		*	**
<i>WQ3</i>	Evaluate City of Salinas Stormwater		*	**
<i>WQ4</i>	Support City of Salinas urban water quality source control programs	*	**	*
<i>WQ5</i>	Implement urban water quality treatment measures		*	**
<i>WQ6</i>	Vegetated Treatment Systems (VTS)	*	**	*
<i>FL1</i>	Control urban runoff volume	*	**	
<i>FL2</i>	Bedload monitoring study to determine sources of channel sediment	**	*	
<i>FL3</i>	Implement erosion-control and sediment-retention measures	**	*	
<i>FL4</i>	Limit use of flood-prone areas	**	*	*
<i>FL5</i>	Sediment/vegetation removal (i.e. dredging & grubbing of banks)	**	*	
<i>FL6</i>	Develop Flood Working Group	**	*	
<i>FL7</i>	Implement recommendations from the Carr Lake Multi-Purpose Flood Control Study	**	*	
<i>FPI</i>	Conduct study to determine steelhead and fish passage status of in the watershed		**	
<i>PK1</i>	Parklands/Open Space – Restore/Create Wetland/Open Space Areas	*	**	*
<i>PK2</i>	Parklands/Open Space – Implement recommendations from the Vision Plan for Carr Lake Regional Park	**	**	*
<i>PK3</i>	Parklands/Open Space – Develop Natural Resources Working Group		**	
<i>SH1</i>	Conduct study to determine status of steelhead in the watershed		**	
<i>SS1</i>	Describe and conserve habitat for Special Status Species	*	**	*
<i>SS2</i>	Control invasive weeds	*	**	*
<i>SS3</i>	Control non-native animals	*	**	
<i>MO1</i>	Develop plan for non-destructive mosquito abatement measures	**	*	*
<i>FS1</i>	Expand research into effects of non-crop vegetation and standing water on food safety and mosquito control	*	*	**
<i>WS1</i>	Salinas Valley Water Project	**	*	
<i>WS2</i>	Agricultural water conservation practices	*		**
<i>WS3</i>	Urban water conservation practices	*		**
<i>EV1</i>	Economic valuation analysis	*	*	**
<i>EV2</i>	Develop Landowner & Economic Working Group			**

Monitoring Plan

This Monitoring Plan should be coordinated and evaluated with those existing and future programs, plans, and regulatory requirements, in conjunction with Management Actions and Goals identified herein. No specific responsibility for implementing such a monitoring plan is identified here. Possible monitoring parameters, within the categories listed below, could enhance existing monitoring plans and include the following:

- **General**
 - Revise Watershed Assessment and Management Strategy every 5 years
 - Collate and archive various reports pertaining to this Monitoring Plan.
- **Improve Water Quality.**
 - Monitor monthly for four months each summer, and three times during the peak hydrograph of each of three storms each winter.
 - Monitor at one site per 303(d)-listed waterbody in and downstream of the Watershed
 - Monitor the following parameters:
 - Stage (m)
 - Discharge (m³/s)
 - Water temperature (°C)
 - pH
 - Total dissolved solids
 - Dissolved oxygen (surface and bottom) (mg/L)
 - Nitrate, Ammonia, Phosphate (mg/L)
 - Organophosphate pesticides (ng/L)
 - Pyrethroid pesticides (ng/L)
 - Fecal coliform (CFU/100 mL)
- **Reduce Flooding of Developed Land.**
 - Fly aerial ortho-photography (or oblique if ortho not possible).
 - Produce flooded-areas map (as in this Assessment, for the 1995 flood)
 - Document flooding of any developed areas
 - Document flood damage (\$)
 - Analyze hydrographs to estimate recurrence interval of event
 - Report results to MCWRA and City of Salinas
- **Create Parklands and Natural Areas.**
 - Produce land-tenure and land-use map of watershed, highlighting total area of publicly accessible parks and natural areas
 - Survey urban populations to assess their park and open space needs and concerns

- **Determine Fish Passage and Steelhead Status.**
 - Coordinate with statewide Coastal Anadromous Salmonid Monitoring Plan (L.B. Boydston, Draft, 2004, <http://www.calmonitor.org>).
 - Report to MCWRA, RWQCB, NMFS, CDFG
- **Protect Rare & Special Status Species.**
 - Conduct a study and map habitats used by Special Status Species in the Watershed
 - Compile report for each Special Status Species to include:
 - Locations of historic and recent observations
 - Map of habitat, change in habitat, threats to habitat, and habitat restoration activities
 - Survey of habitat conditions, including presence of invasive species such as weeds, predators, and other competitors
 - Report results to CDFG, NOAA–NMFS, & USFWS
- **Reduce Mosquitoes.**
 - Request report from Mosquito Abatement District as to status of mosquito infestations in the Watershed, including costs of abatement and any impacts of infestations
 - RWQCB
- **Facilitate Food Safety & Agricultural Pest Control.**
 - Request report from Monterey County Health Department and State Department of Health Services as to status of any food safety incidents that may have occurred, including human health concerns and economic impacts
 - Request report from Agricultural Commissioners Office as to status of agricultural pest problems and estimated economic impacts
 - Report to MCWRA
- **Reduce Harbor Sedimentation.**
 - Request report from Moss Landing Harbor District as to status of harbor sediment issues and estimated economic impacts
 - Report to MCWRA and RWQCB
- **Achieve Sustainable Water Supply.**
 - Analyze any public well (water level) data that are available, particularly from long–term monitoring wells. Plot long–term trends over time.
 - Request report or analyze existing reports from MCWRA as to status of groundwater decline or recovery in Salinas Valley, and any activities relating to inter–basin transfers or desalinization etc.
 - Report results to MCWRA
- **Maintain Economic Viability.**
 - Monitoring plan beyond scope of present project, except for incidental tracking of economic impacts in agency reports as noted above.

Management Strategy Success

The success of this Management Strategy depends on being aware of potential Risks and taking advantage of Opportunities .

External risks faced by this Management Strategy include:

- **Availability of funding.** Everything in the strategy costs money, even if it may be offset by other less monetarily realizable values.
 - The City of Salinas has well-publicized financial difficulties, and did not win voter support for tax Measures to help correct this in 2004. The City would potentially be asked to fund its own expanded Stormwater monitoring program.
 - Agricultural source control practices cost money to implement. There are possible benefits to farmers in using erosion controls to prevent topsoil loss in farming operations.
- **Land availability.** Water quality treatment areas, parklands, certain flood control measures, and Special Status Species would all require additional land. To achieve these goals fully would potentially require acquisition of new lands or lands that are currently developed for agricultural or urban uses.
- **Changes in water quality policy and law.** The Strategy would be weakened if either the SWRCB policy on non-point source requirement such as the Ag Waiver was weakened, or if the State and Federal water quality laws were weakened.

In general, this Reclamation Ditch Watershed Assessment and Management Strategy represent progress. For the first time, the system has been recognized and described as a Watershed – an area where all land drains to a waterbody. This waterbody is required to provide different functions representing different stakes in the Watershed. The Management Strategy identifies multiple Goals for the Watershed, to be addressed by a range of Actions. A Management Strategy is suggested based around three Working Groups that should take responsibility for different components of the management agenda, and then prioritize, stimulate, track progress of Actions that work toward the Goals identified in the Strategy and make recommendations to RDIPAC, and MCWRA's committees and BOD. The Working Groups should also seek opportunities for mutual compromise.

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8. Acronyms and Scientific Units

The following are lists of all acronyms and scientific data units used in the present document.

Table 8.1 Acronyms used in the present study

ADE	Applied Development Economics
AMBAG	Association of Monterey Bay Area Governments
BMI	Benthic Macroinvertebrate
BMP	Best Management Practice
CAFF	California Alliance of Family Farmers
CAL-IP	California Invasive Plant Council
CCAMP	Central Coast Ambient Monitoring Program
CCC	California Coastal Commission
CCoWS	Central Coast Watershed Studies
CCRWQCB	Central Coast Regional Water Quality Control Board
CDFG	California Department of Fish & Game
CDPHBSE	California Department of Public Health Bureau and Sanitary Engineering
CEQA	California Environmental Quality Act
CIMIS	California Irrigation Management Information System
CNDDB	California Natural Diversity Database
CSUMB	California State University Monterey Bay
DOQ	Digital Orthoquad
DPR	Department of Pesticide Regulation
DWR	Department of Water Resources
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESF	Elkhorn Slough Foundation
FCSUMB	Foundation of California State University Monterey Bay
FDA	Food and Drug Administration
FOSC	Friends of Salinas Creeks
FOT	Friends of Tembladero
GEG	Grice Engineering and Geology
GMP	Good Management Practices
HES	Hagar Environmental Science
LWMC	Land Watch Monterey County
MBNMS	Monterey Bay National Marine Sanctuary
MCACO	Monterey County Agricultural Commissioner's Office
MCFB	Monterey County Farm Bureau
MCPD	Monterey County Planning Department
MCWRA	Monterey County Water Resources Agency
MLML	Moss Landing Marine Labs
MRWPCA	Monterey Regional Water Pollution Control Agency
NAS	National Academy of Science
NHD	National Hydrography Dataset
NOAA	National Ocean & Atmospheric Association
NSVMAD	Northern Salinas Valley Mosquito Abatement District

NPDES	National Pollution Discharge Elimination System
NRCS	National Resources Conservation Service
OCS	Oregon Climate Service
PAC	Parameter Assessment Card
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
QAPP	Quality Assurance Protection Plan
RCDMC	Resource Conservation District Monterey County
RDIPAC	Reclamation Ditch Improvement Plan Advisory Committee
RON	Return of the Natives
SMW	State Mussel Watch
SSC	Suspended Sediment Concentration
SVCC	Salinas Valley Chamber of Commerce
SWCCE	Schaaf and Wheeler Consulting Civil Engineers
SWRCB	State Water Resource Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TPC	Total (water column) Pesticide Concentration
TSMP	Toxic Substance Monitoring Program
TSS	Total Suspended Solids
UCSC	University of California Santa Cruz
USACE	United States Army Corp of Engineers
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey

Table 8.2 Scientific Units used in the present study.

°C	Temperature in Celsius (Fahrenheit = Temp C*[(9/5)+32]
cfs	Cubic feet per second
ft	Feet
in	Inches
km	Kilometers
m	Meters
m/s	Meters per second
m ³ /s	Cubic meters per second
mg/L	Milligrams per liter
MPN/100 ml	Most Probable Number per 100 milliliter
mS/cm	milliSiemens per centimeter
ng/L	nanograms per liter
ppt	Parts per thousand
µg/kg	Micrograms per kilogram