

ES.1 Introduction

Chapter 1, *Introduction*, of the *Salinas River Long-Term Management Plan* (LTMP) provides an overview of the need to develop the LTMP, purpose and goals, and the stakeholder engagement process.

The Salinas River—the longest river system on the central coast of California—provides critical ecosystem benefits and supports a multi-billion-dollar regional economy. Fertile soils in its floodplain, a highly favorable climate, and the use of river flows for aquifer recharge and irrigation make this valley one of the most productive agricultural regions in California. However, the successes of the region have also contributed to management challenges. Among these are maintaining stream flows for agriculture and species habitat; controlling periodic flooding and high levels of invasive plants; and dealing with poor water quality, loss of riparian vegetation, encroachment on the stream channel, and ad-hoc bank stabilization.

To help address the complex management challenges on the Salinas River, the Monterey County Water Resources Agency (MCWRA)—a local flood control and water agency with facilities along the river and jurisdiction over water resource management within Monterey County—has developed the LTMP. This multi-benefit management program is intended to serve the needs of MCWRA's facilities and operations; address river management challenges such as flood control, water supply, and water quality; and outline strategies for conserving and managing natural resources, including threatened and endangered species.

ES.1.1 Purpose and Goals

The purpose of the LTMP is to describe a multi-benefit management program that addresses needs related to MCWRA facilities and operations, as well as related issues such as flood risk reduction, water supply, water quality, natural resource conservation, threatened and endangered species management, and federal and state Endangered Species Acts compliance. The LTMP's primary goals are as follows.

- Identify long-term solutions for management of the Salinas River that include flood reduction, water resource management, stream maintenance, and habitat management for threatened and endangered species.
- Investigate the Salinas River Lagoon for the potential of reducing flooding and improving habitat conditions.
- Identify potential improvements to steelhead migration in the Salinas River utilizing management efforts and anticipated future projects.
- Develop the framework for implementing the LTMP that meets a variety of multi-benefit management goals, including implementation of the forthcoming groundwater sustainability plans for the Salinas Valley.
- Build upon and incorporate public/private partnerships, compatible with existing land uses and water rights.

- Document the historical conditions in the Salinas River watershed in Monterey County.
- Describe the existing conditions in the Salinas River watershed in Monterey County—including the physical, biological, and chemical changes in the system over time—and, to the extent possible, the sources driving those changes.

Because operating MCWRA facilities and managing the Salinas River Lagoon may result in incidental “take”¹ of threatened and endangered species, the LTMP will also support the future development of a habitat conservation plan (HCP), a long-term plan that will address affected federally listed species, establish measures for the conservation of species habitat, and serve as part of MCWRA’s application for take authorization from authorities. For the HCP to be approved and take authorization granted, MCWRA must prepare an environmental impact report (EIR) that complies with the California Environmental Quality Act (CEQA) and an environmental impact statement (EIS) that complies with the National Environmental Policy Act (NEPA). Accordingly, the LTMP is an important foundational step in the future development of the HCP, EIS, and EIR, as reflected in the LTMP’s final goal below.

- Inform development of a future MCWRA HCP and other planning documents.

ES.1.2 Planning Horizon

The LTMP is not subject to a specific (e.g., 20- or 30-year) planning horizon—instead, it is intended to remain flexible to guide both short- and long-term management needs.

ES.1.3 Stakeholder Engagement

Establishing a stakeholder engagement process to inform LTMP development was a critical first step. The stakeholder process was coordinated by MCWRA and its consultants. Engaging technical experts, regulatory agencies, and landowners was essential for developing a successful LTMP; these and other stakeholders, including members of the public, were involved throughout, providing input and influencing its development.

A planning group and topic-specific working groups were formed by MCWRA to organize and focus stakeholder input. The planning group consisted of approximately 30 members representing a wide variety of interests, including conservation organizations, business and development interests, landowners, agricultural interests, open space land-management organizations, and the general public. Among this group’s tasks were reviewing technical and policy issues and making recommendations for plan content.

Working groups delved into specific issues to provide insights and guidance to MCWRA, consultants, and the planning group. Groups were formed around four topic areas: the Salinas River Lagoon, stream maintenance, groundwater, and implementation.

MCWRA kept the public informed throughout the planning process by email, establishing and updating the LTMP website, and hosting a public meeting where members of the public could provide input and influence the development of the LTMP. All planning group meetings were open to the public.

¹ *Take*, as defined by the federal Endangered Species Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species.

ES.2 Planning Efforts in the Salinas River Watershed

Chapter 2, *Background*, describes MCWRA's jurisdiction and authorities, water management responsibilities, projects and programs, and related planning activities to provide context for the LTMP.

ES.2.1 Monterey County Water Resources Agency

MCWRA is a flood control and water agency whose mission and approach to water management balances water supply, flood protection, and environmental sensitivity. MCWRA owns and operates a range of flood control, water supply, groundwater augmentation, and hydroelectric facilities. The agency manages flood and stormwater through its operations at the Nacimiento and San Antonio Dams, conserves such waters through percolation and storage, monitors groundwater extraction, and supports groundwater recharge of the Salinas Valley. Under the Monterey County Water Resources Agency Act (Agency Act), MCWRA has jurisdiction over matters pertaining to water and water supply within the Salinas Valley and is authorized to work as a conjunctive-use agency, utilizing both aboveground and belowground storage facilities to ensure water supply reliability.

One of MCWRA's highest priorities is water conservation operations, primarily by maximizing the amount of groundwater recharge into the Salinas Valley aquifers, largely achieved through timely reservoir releases and a reduction in groundwater pumping through the operation of the Salinas River Diversion Facility (SRDF). Management of Nacimiento and San Antonio Dams is focused primarily on the regulated release of water from those reservoirs to maintain Salinas River streamflow to maximize groundwater recharge from the streambed, operate the SRDF, and provide flows for South-Central California Coast steelhead (steelhead). MCWRA also operates both Nacimiento and San Antonio Dams to enhance the recreation benefits of the reservoirs to the extent compatible with release requirements and constraints. When making reservoir releases, however, MCWRA must consider established agreements and permits with other agencies, while still meeting the primary goals of groundwater recharge, SRDF operation, and flows for steelhead.

In addition to water supply operations, MCWRA also operates its two dams to provide for safe conditions for downstream communities. This involves managing reservoir storage to ensure that there is adequate capacity to contain high levels of projected inflow during storm events. MCWRA coordinates maintenance activities along the Salinas River and its tributaries in partnership with and on behalf of landowners through a program known as the Salinas River Stream Maintenance Program (SMP).

ES.2.2 Current Planning Efforts

The following planning efforts—relevant to Salinas River management—are described in Chapter 2.

- Castroville Seawater Intrusion Project
- Central Coast Wetlands Group projects:
 - Moss Landing and Lower Salinas Valley Sea Level Rise Vulnerability Analysis
 - Water Balance and Flood Modeling for the Greater Monterey County Storm Water Resources Plan
 - Old Salinas River Enhancement Project

- California Rapid Assessment Method for Wetlands of the Salinas River Lagoon
- Greater Monterey County Integrated Regional Water Management Plan
- Greater Monterey County Storm Water Resources Plan
- Groundwater Sustainability Plans:
 - Salinas Valley Basin Groundwater Sustainability Plan
 - Marina Coast Water District Groundwater Sustainability Plan
 - City of Marina Groundwater Sustainability Plan
 - Arroyo Seco Groundwater Sustainability Plan
- Interlake Tunnel and Spillway Modification Project
- Pure Water Monterey
- Resource Conservation District of Monterey County's Salinas Watershed Invasive Nonnative Plant Control and Restoration Program
- Salinas River Lagoon Management and Enhancement Plan
- Salinas River Stream Maintenance Program
- Salinas Valley Water Project
- Transportation Agency of Monterey County's Regional Conservation Investment Strategy
- Upper Salinas–Las Tablas Resource Conservation District's Watershed Resources Inventory
- WaterSMART Basin Study

ES.3 Study Area

Chapter 3, *Historical and Existing Conditions*, describes the historical and existing abiotic and biotic conditions of the LTMP study area, including the physical characteristics, land uses, water uses, and biological resources. Additionally, the chapter summarizes the environmental pressures and stresses on the river hydrology and natural communities within the study area. The geographic scope of this LTMP is limited to the portion of the Salinas River watershed in which MCWRA conducts management activities. This is defined by the outermost boundary of MCWRA's primary zones of benefit (zones of benefit 9, 2B, and 2C), and by all subwatersheds in the Salinas River watershed that have a confluence with the Salinas River at or downstream of the confluence of the Nacimiento River. The study area includes 118 river miles of the Salinas River (69% of the total length of the Salinas River) and many of its primary tributaries: Arroyo Seco, Nacimiento River, San Antonio River, and San Lorenzo Creek.

ES.3.1 Physical Characteristics

ES.3.1.1 Topography, Geology, Soils, and Climate

The topography of the study area is characterized by the high elevations of the Coast Ranges to the west and the Gabilan and Diablo Ranges to the east of the Salinas River, respectively. This central

portion of the Coast Ranges is defined by the Sierra de Salinas and Santa Lucia Mountains. The Gabilan Range and Diablo Range characterize the eastern portion of the study area with elevations over 5,000 feet. The Salinas Valley comprises the lower elevations of the study area. The lowest points include the city of Salinas, portions of the Salinas River such as the SRDF and the Salinas River Lagoon, and the coastal dunes.

The Salinas Valley is underlain by the Salinian tectonic block, a geologic basement terrane consisting of metamorphic and granitic rock of Paleozoic to Mesozoic age. The Salinian Block is bordered on both east and west by tectonic blocks of the Franciscan Complex. The boundaries between these tectonic blocks are large-scale strike-slip faults: the San Andreas Fault Zone on the east, and the Sur-Nacimiento Fault Zone on the west. Millions of years of tectonic activity on these bounding fault systems transported the Salinian block hundreds of miles northward and inserted it between blocks of the Franciscan Complex.

The soils of the study area are derived from the underlying geologic formations, influenced by the historical and current patterns of climate and hydrology. Productive agriculture of the Salinas Valley is supported by deep, dark, fertile soils, such as the Salinas clay loams. The management area is dominated by the following four soil orders: mollisols, entisols, vertisols, and alfisols.

The study area is characterized by a Mediterranean climate with cool wet winters, and warm dry summers. The Pacific Ocean influences the climate close to the coast, where the weather is often overcast or has coastal fog and cool temperatures. The maritime climatic influence dissipates with increasing distance from the ocean. As such, the inland areas are warmer in the summer and colder in winter.

ES.3.1.2 Hydrology and Water Quality

The Salinas River watershed is the largest in the central coast of California draining approximately 4,240 square miles of land in Monterey and San Luis Obispo Counties. In the study area, the Salinas River is approximately 118 miles long and can be roughly divided into three major reaches based on the dominant channel morphology: upper watershed, Salinas River Valley, and the Salinas River Lagoon.

The Salinas River and its valley have a long history of flooding because of the broad valley topography and the flashy hydrology characteristic of the area. As agricultural and urban development in the floodplain has increased over time, the adverse effects of flooding have grown. Flooding along the Salinas River has caused significant damage and economic impacts to the region.

The Salinas Valley Basin is the largest coastal groundwater basin in Central California, and groundwater is a valuable resource for the valley's agriculture-based economy. Although the Salinas River is ultimately the primary water supply for the valley, most of the water used first infiltrates from the Salinas River into the underlying sediments before being extracted for use through groundwater pumping. Therefore, the Salinas Valley Basin serves as a critical reservoir for seasonal water storage, filled by wet season flows and depleted during the dry season when the agricultural water supply demand is greatest. The groundwater reservoir also provides critical storage during multi-year droughts, providing water supply when surface water resources are depleted. Nevertheless, conveyance of groundwater is a slow process. Typical time for groundwater to flow a mile down the valley within the alluvial aquifers is in the range of 10 to 20 years. The local rate of groundwater recharge and the aquifer thickness influence the quantity of available groundwater locally.

Water quality is a measure of the physical, chemical, and biological characteristics of water. The water quality of a stream is controlled by multiple factors, including the chemical and physical nature of streambed material (e.g., erodibility, grain size, rock type) and influences from outside the stream corridor, such as quality of groundwater and upstream runoff that may be recharging the stream system (Monterey County Water Resources Agency 2014).

The U.S. Environmental Protection Agency 303(d) listings that are impairing the beneficial uses for various segments of the Salinas River include: boron, copper, fecal indicator bacteria, mercury, nutrients, other organics, PCBs, pesticides, pH, salinity, temperature, toxicity, turbidity, water benthic community effects, and water temperature (U.S. Environmental Protection Agency 2018).

ES.3.2 Land Use

Agricultural and open space are the primary land use designations in the study area, as shown in Table ES-1, below. When the Salinas River approaches cities and unincorporated communities, the land use changes from agricultural to urban uses more typical of cities and communities, including residential, industrial, resource conservation, and public/quasi-public land uses.

Table ES-1. Area of Land Use Designations in the Study Area

Land Use Designation	Area (acres)	Percent Land Cover
Agricultural	1,046,954	60.6%
Open Space	590,476	34.3%
Urban	77,925	4.5%
Industrial	7,743	0.5%
Commercial	657	0.1%
Total	1,720,755	100%

Sources: County of Monterey 2018, County of San Luis Obispo 2018, County of San Benito 2015, GreenInfo Network 2016.

Note: The area does not sum to the total study area due to overlaps and gaps in the available source data.

ES.3.3 Biological Resources

ES.3.3.1 Communities and Land Cover Types

The LTMP uses the terms community and land cover type to classify and describe the biological setting of the study area. The term community means land cover types that are grouped together because of similarity in vegetation type, vegetation structure, ecological function, and current land use. The LTMP recognizes three types of communities: natural communities, semi-natural communities, and non-natural communities. Communities are composed of land cover types. Natural communities are an assemblage of species (plant and animal) that co-occur in the same habitat or area and interact through trophic and spatial relationships. Communities are typically characterized by reference to one or more dominant species (Lincoln et al. 1998). The wide range of climatic, topographic, and soil conditions in the study area contribute to the variety and uniqueness of the natural communities present. Ten broad categories of natural communities in the study area are coastal strand and dune, grasslands, shrublands, forests and woodlands, riparian, wetlands,

riverine, marine, estuarine, and aquatic (ponds, lakes). Three other semi-natural or human-made habitats described herein are agriculture, barren, and developed.

ES.3.3.2 Target Species

A total of 17 target species are identified in the LTMP (Table ES-2) and were selected because they met the following criteria.

- Known to occur in the proposed management area.
- Federally or state-listed or have potential to become listed in the foreseeable future.
- Potential to be impacted by MCWRA's proposed project activities.
- Sufficient data exist to adequately evaluate potential species impacts in the study area.
- Potential for beneficial effects to be realized through improved management.

These species are also those most likely to be considered for or included in the future HCP.

Table ES-2. Target Species

Common Name	Scientific Name	Status Federal/ State/Other ^a
South-Central California Coast steelhead	<i>Oncorhynchus mykiss</i>	FT/-/-
Tidewater goby	<i>Eucyclogobius newberryi</i>	FE/SSC/-
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT/-/-
Arroyo toad	<i>Anaxyrus californicus</i>	FE/-/SSC
California red-legged frog	<i>Rana draytonii</i>	FT/-/SSC
California tiger salamander	<i>Ambystoma californiense</i>	FT/ST/-
Bank swallow	<i>Riparia riparia</i>	-/ST/-
California least tern	<i>Sterna antillarum browni</i>	FE/SE/FP
Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE/SE/-
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT/-/SSC
Southern sea otter	<i>Enhydra lutris nereis</i>	FT/FP/-
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE/ST/-
Monterey spineflower	<i>Chorizanthe pungens</i> var. <i>pungens</i>	FT/-/1B.2
Sand gilia	<i>Gilia tenuiflora</i> ssp. <i>arenaria</i>	FE/ST/1B.2
Abbott's bush-mallow	<i>Malacothamnus abbottii</i>	-/-/1B.1
Davidson's bush-mallow	<i>Malacothamnus davidsonii</i>	-/-/1B.2
Santa Lucia purple amole	<i>Chlorogalum purpureum</i> var. <i>purpureum</i>	FT/-/1B.1

^a FE = Federally Endangered; FT = Federally Threatened; SE = State Endangered; ST = State Threatened; FP = State Fully Protected; SSC = State Species of Special Concern; 1B = California Native Plant Society Ranked rare or endangered in California and elsewhere; .1 = seriously endangered in California; .2 = fairly endangered in California.

ES.3.4 Environmental Pressures and Stresses

Changes in natural communities, altered river hydrology, and changes in climate are considered the primary pressures in the study area. Changes in natural communities include habitat loss, fragmentation and degradation, shifting distribution of natural communities, invasive species, and changes to the natural fire regime. Altered river hydrology includes altered flow from diversions and dams, which could degrade water quality in both the Salinas River and the Salinas River Lagoon. Changes in climate include sea level rise, prolonged drought, changes in average rainfall, changes in storm intensity and frequency, and change in summer fog.

ES.4 Management Overview

Chapter 4, *Management Plan*, describes the foundational assumptions, or drivers, that underpin the LTMP and which were developed through significant discussion and collaboration with stakeholders and the public. These drivers helped guide the direction, scope, and development of the LTMP and created the basis for its management objectives and associated actions.

Developing these objectives and actions required considering the important constraints, limitations, key issues, and needs that determine what can and should be achieved—these planning considerations are described in detail and help illustrate the unique environmental, engineering, and economic circumstances of the Salinas River system.

ES.4.1 Management Objectives and Actions

Comprising the management strategy, the LTMP's management objectives and actions—contained in LTMP Table 4-1, *Salinas River LTMP Management Objectives and Actions* and Table 4-2, *Salinas River LTMP Listed Species Objectives and Actions*—outline a comprehensive solution to the complex water resource management challenges along the Salinas River. Management objectives and actions are identified for six categories: general (applying to all of the Salinas River), the Salinas River Lagoon, stream maintenance, water resource management (surface and ground water), habitat and connectivity, and steelhead.

The LTMP's recommended management actions are designed to form a collective approach to river management. It is a goal of the LTMP to, “[d]evelop the framework for implementing the LTMP that meets a variety of multi-benefit management goals....” As such, while a single objective or action may have a relatively limited scope, the intent for LTMP implementation is that suites of management actions be considered and implemented together to meet “a variety of multi-benefit management goals.” For example, Lagoon management action A-LAG-3 calls for an evaluation of new engineered solutions for flood management, while A-LAG-11 calls for development of a sandbar management approach that is considerate of listed species habitat. Neither of these actions is proposed to take priority over the other, but rather be implemented in concert to consider multiple approaches to addressing multiple needs. Additionally, the management actions may be adapted over time.

It is important to acknowledge that most management actions will have implications for other actions or future management needs. For example, changes to the flow prescription in support of steelhead connectivity will affect, and have been affecting, management of riparian vegetation and sediment. Construction of new facilities to support flood management are likely to affect listed species and native vegetation communities. Management projects and activities that touch land or

water will have potential effects requiring environmental review (CEQA or NEPA) and regulatory permits.

ES.4.2 Planning Considerations

Development of the management objectives and actions was driven by a variety of important constraints, limitations, key issues, and needs regarding what should be achieved and what is feasible. Planning considerations are not management objectives or actions in and of themselves, but they do greatly inform the management objectives and actions, as well as other aspects of the LTMP, including the implementation framework. In some cases, the recommended management objectives and actions seek to help solve the problems stated in the planning considerations. In other cases, the planning considerations articulate constraints beyond the scope of the LTMP.

The planning considerations listed below were identified by MCWRA, stakeholders, and/or consultants throughout the LTMP development process, and draw from discussions held at four planning group meetings, five working group meetings, one public meeting, various written comments on meeting materials provided by stakeholders following the meetings, and by the LTMP consulting team.

- Opportunities exist for LTMP development.
- Regulations may drive management actions.
- The time is ripe for collaborative implementation.
- Management funding sources are needed.
- Re-think water management facility needs.
- Share the costs and benefits of river management.
- Flooding affects the community.
- Wildlife needs well-connected habitat in good condition.
- Ensure Lagoon sandbar management is multi-benefit.
- What happens to flood flows and reservoir releases?
- The river changes over time.
- There is support for recreation.

ES.5 Implementation

Chapter 5, *Implementation*, provides a discussion of how the LTMP could be implemented. The chapter discusses possible approaches to LTMP implementation administration, funding opportunities, and relationship to other planning efforts in the region, and summarizes regulations that may apply to LTMP management action implementation.

ES.5.1 Implementation Administration

Throughout development of the LTMP, stakeholders emphasized that successful implementation of the LTMP would depend on multiple agencies, organizations, and other stakeholders coming

together to manage the resources of the Salinas River. Because no entity has been identified to coordinate such collaboration, many stakeholders advocate the formation of a regional entity—possibly a special district, joint powers authority, state conservancy, nonprofit organization, or a coalition—that could not only manage the LTMP, but also support other planning efforts in the region. This entity would also serve as a conduit for funding and hold responsibilities for coordinating and/or executing LTMP actions, tracking progress of LTMP implementation, reviewing and revising the LTMP through adaptive management, and retaining and managing all data associated with implementation.

ES.5.2 Funding

Various funding opportunities were suggested by stakeholders, including the following.

- Adopted resolution or annual budgetary funding by the MCWRA Board of Directors and/or County Board of Supervisors.
- Voter-approved (Proposition 218) assessments, taxes, and/or fees.
- Federal, state, and local partnerships.
- Grants.
- Private and nonprofit sources (e.g., foundations, land trusts, The Nature Conservancy, partnering with landowners and growers).
- MCWRA land or other assets to sell or use as collateral to secure a loan.
- Engaging the County of San Luis Obispo for possible contributions.

ES.5.3 Coordination with Other Planning Efforts

Several existing planning efforts are expected to implement many of the management actions identified in the LTMP. Because these other planning efforts have different goals and are being led by different agencies and stakeholders, there is a risk that they may implement management actions inconsistent from this LMTP. Ensuring consistency and coordination with MCWRA's anticipated HCP and regional groundwater sustainability plans, several of which are under development, are primary concerns.

LTMP stakeholders expressed support for embracing partnerships between MCWRA, landowners, growers, and all other parties working toward better management of the Salinas River. Several existing or soon-to-be-adopted programs provide excellent partnership opportunities in implementation of management actions. In addition to groundwater sustainability plan development as noted above, some programs that are likely to present such opportunities include the following.

- Salinas River Stream Maintenance Program.
- Salinas Watershed Invasive Nonnative Plant Control and Restoration Program.
- Greater Monterey County IRWM Plan.
- Greater Monterey County SWRP.

For management actions that achieve similar goals and objectives across multiple plans, partnerships to acquire funding are expected to be particularly compelling and competitive, and are encouraged.

ES.5.4 Regulatory Compliance

Long-term management solutions for the Salinas River, including flood, water resource, and threatened and endangered species management will require compliance with various environmental regulations. These regulations provide for the protection of streams, floodplains, wetland and riparian vegetation, special-status species, and water quality. Laws and regulations commonly associated with ground-disturbing activities and which may apply to LTMP management actions are described.

ES.6 References

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