

CHAPTER 7: BENEFITS AND IMPACTS

CONTENTS

1.1	Project-Level Benefits	3
1.1.1	Increased groundwater storage/recharge	3
1.1.2	Improved water supply reliability	3
1.1.3	Improved water quality.....	4
1.1.4	Flood management	4
1.1.5	Increased recycled water	4
1.1.6	Habitat protection, restoration, and enhancement	4
1.1.7	Long-term sustainability of water supplies.....	5
1.1.8	Public education and environmental awareness.....	5
1.1.9	Reduced threat of wildfire	5
1.1.10	Open space preservation	5
1.1.11	Enhanced recreation and public access	5
1.1.12	Local prosperity.....	6
1.2	Project-Level Impacts.....	6
1.2.1	Water quality degradation.....	7
1.2.2	Reduced groundwater availability and reliability	7
1.2.3	Land use compatibility (rights-of-way)	7
1.2.4	Disturbance of habitat and endangered species	7
1.2.5	Energy consumption	8
1.2.6	Economic impacts	8
1.3	Plan-Level Impacts and Benefits	8
1.3.1	Interregional Benefits and Impacts.....	9
1.3.2	Benefits and Impacts to Disadvantaged Communities, Environmental Justice, and Native American Tribal Communities.....	9

This chapter provides a brief discussion of the potential benefits and impacts of implementing the Santa Cruz Integrated Regional Water Management (IRWM) Plan, including those affecting disadvantaged communities, environmental justice concerns, and Native American Tribal communities. Consistent with the California Department of Water Resources (DWR) requirements contained in the 2012 IRWM Grant Program Guidelines, the discussion is not exhaustive but rather provides a screening level analysis to provide a sense of the benefits and impacts of implementing the IRWM Plan. This overview of benefits and impacts will serve as a benchmark to help the Regional Water Management Group (RWMG) assess whether the anticipated benefits of the IRWM Plan have been realized and/or whether unanticipated impacts have occurred.

Impacts and benefits will be analyzed in more detail prior to the implementation of specific projects. A technical screening will be conducted initially for each project to evaluate whether the project is the most cost-effective option to achieve the desired objective. Additionally, environmental impact assessments will be conducted in accordance with the California Environmental Quality Act (CEQA) and, if applicable, the National Environmental Policy Act (NEPA). Additional regulatory permissions required by the various resource agencies will further help to describe potential impacts and benefits of the various projects contained in this Plan.

Implementation of this IRWM Plan will potentially generate a range of benefits and impacts, at the project, regional, and potentially interregional scale. The impacts and benefits are assessed based on performance measures as described in Chapter 8, Plan Performance and Monitoring. The impacts and benefits of Plan implementation will be reviewed and updated during each Plan performance review, which will occur on a five year interval concurrent with the plan update, or as resources allow.

The following briefly summarizes some of the more significant benefits of Plan implementation:

- *A more resilient water supply:* Development of alternative/supplemental water supplies would lead to enhanced water supply reliability that would have a reduced impact on streamflow and groundwater.
- *Improved water quality:* Water quality projects targeting key pollutants of concern, particularly bacteria, sediment and nitrates, would address key water quality concerns in the Region. Reliable and high quality water is directly linked to economic and environmental health and well-being.
- *Cost-effective projects that realize multiple benefits:* Opportunities for multi-benefit projects, which can achieve a multitude of goals and objectives for several stakeholders rather than a single entity, provide increased value to stakeholders and the communities they serve. Integrated planning and collaboration can lead to projects that achieve cost savings through cost-sharing opportunities, economies of scale, resource sharing, and other mechanisms. Existing resources can be optimized, duplication of efforts avoided, and larger scale efforts developed to provide cost savings to all involved.
- *Reduced flooding and flood-related impacts:* Implementation of the IRWM Plan could lead to reduced levels of nuisance flooding and economic impacts from larger floods when they occur.
- *Increased coordination and efficiency:* Completion and implementation of the Santa Cruz IRWM Plan equips agencies to overcome future challenges by coordinating resources and more effectively meeting the needs of the Region as a whole.

- *Reduced conflicts:* This IRWM Plan provides a guide for agencies and stakeholders to work together as a cohesive group to solve water resource problems in a holistic way and with a consensus-based approach. Ideally this will reduce interagency conflicts that may prevent projects from gaining the necessary support for successful implementation.
- *Improved local understanding of water resource issues:* Through consistent and coordinated public outreach and education programs, local understanding of regional water resource issues, conflicts, and solutions will improve. Maintaining a consistent message will improve public understanding of water resource management issues and encourage public support for funding much-needed water resource projects.

1.1 PROJECT-LEVEL BENEFITS

The projects included in the Santa Cruz IRWM Plan are summarized by project type. For each project, potential benefits and impacts are assumed to be similar to those identified for the specific project type. The projects contained in this Plan are expected to achieve the following types of benefits.

1.1.1 INCREASED GROUNDWATER STORAGE/RECHARGE

Increased storage and recharge will benefit each of the Region's groundwater basins, which are all in a state of overdraft. Typical projects may include those that aim to achieve the following:

- Enhance conjunctive management and groundwater storage
- Stormwater capture and recharge
- Implementation of low-impact development and retrofit of existing impervious areas
- Aquifer storage and recovery
- Construction of new and/or rehabilitation of recharge basins
- Hydrogeologic investigations and groundwater modeling

1.1.2 IMPROVED WATER SUPPLY RELIABILITY

Projects that diversify the Region's water supply portfolio, create new supplies, or improve efficiencies of existing supplies will improve the Santa Cruz Region's water supply reliability. Projects that would achieve this benefit include:

- Water use efficiency and water conservation projects
- New water supply pipelines and/or rehabilitation/repair projects
- Water system tie-ins, interconnections, and diversion structures
- Water transfer projects
- Groundwater extraction and/or treatment projects
- Water storage and treatment projects
- Upgrading wastewater treatment facilities to produce recycled water
- Water quality protection projects

1.1.3 IMPROVED WATER QUALITY

Water quality improvement projects will continue to be given strong emphasis within the Region, with a focus on non-point source pollution and the primary pollutants of concern. Projects that improve water quality include, but are not limited to:

- Stormwater projects (e.g., stormwater capture and recharge or stormwater management to reduce volume of urban runoff discharged to surface waters)
- Erosion and sediment control projects, principally from roads
- Continued inspection program for septic systems, requirements of upgrades where necessary
- Conjunctive management and groundwater storage
- Sewer collection improvements, particularly from private laterals
- Ecosystem restoration and revegetation projects
- Land conservation
- Nutrient and salinity management

1.1.4 FLOOD MANAGEMENT

Flooding is a concern for many areas within the Santa Cruz IRWM planning region. Many cities and communities are included in 100-year floodplains of the San Lorenzo and Pajaro Rivers and Soquel Creek. Flooding can occur from heavy rainfall, saturated soils, or a combination of these conditions. Also, increasing development leads to an increase in impervious surface areas and a decrease in natural vegetative cover, which reduces the detention and attenuation characteristics of the overland areas. To reduce potential property and structure damage and economic impacts, flood control enhancement may be provided by projects that:

- Capture and divert stormwater
- Improve levee systems (e.g., floodwalls or setback levees)
- Install pervious pavement
- Protect, restore, and manage floodplains
- Construct regional flood control infrastructure

1.1.5 INCREASED RECYCLED WATER

Increasing the amount of recycled water available for landscape, golf course, and school irrigation, industrial uses, and other uses, will lead to other benefits such as potable water offsets, reduced groundwater and stream extractions, and increased nutrient levels for landscape, and reduced wastewater discharges to the Monterey Bay National Marine Sanctuary.

1.1.6 HABITAT PROTECTION, RESTORATION, AND ENHANCEMENT

Projects that contribute to habitat protection and restoration have the ability to enhance the Santa Cruz Region's ecosystems and protect threatened, endangered, and sensitive species. The following types of projects would provide this benefit:

- Development of an alternative/supplemental water supply that would reduce dependence on existing sources and provide additional water for environmental uses
- Land conservation
- Species recovery
- Water quality protection projects that would result in surface water quality improvements
- Invasive species removal
- Restoration and enhancement of special aquatic features (e.g., wetlands, fish barrier removal)
- Stormwater management and pollution prevention
- Debris cleanup and habitat restoration
- Road management activities to reduce runoff and sediment discharge to streams

1.1.7 LONG-TERM SUSTAINABILITY OF WATER SUPPLIES

As discussed throughout this Plan, all of the Region's basins are in a state of overdraft. Conservation combined with development of alternative/supplemental water supplies are necessary to ensure the long-term sustainability of local water supplies, particularly in areas subject to seawater intrusion.

1.1.8 PUBLIC EDUCATION AND ENVIRONMENTAL AWARENESS

Many water conservation, water quality protection, and water supply projects include public education and environmental awareness components, creating multi-benefit projects or programs. Public outreach programs include, for example, those that help promote water conservation efforts, educate about forest stewardship which can improve water resources, discourage illegal dumping of trash and litter in watercourses, and encourage appropriate water management practices including appropriate collection and disposal of hazardous liquid wastes and pharmaceuticals.

1.1.9 REDUCED THREAT OF WILDFIRE

Wildfires threaten property, lives, and ecosystems, and can adversely impact flood management and erosion. There is already evidence that wildfires are becoming more frequent, longer, and more widespread, and are expected to increase in frequency and severity due to climate change. Ecosystem restoration and protection and fire preparedness (e.g., defensible space, chipping) activities help reduce the threat and impact of wildfire.

1.1.10 OPEN SPACE PRESERVATION

Open space preservation is a benefit that can be achieved through implementation of land conservation projects. Preserving open space contributes to other benefits such as environmental and recreational benefits, as well as stormwater control, reduced runoff, and flood management benefits.

1.1.11 ENHANCED RECREATION AND PUBLIC ACCESS

Reservoirs, parks, and the wilderness within the Santa Cruz Region are used by outdoor recreation enthusiasts throughout the year. Enhancing recreation and public access in the region will be achieved by projects that:

- Conserve and preserve open space and access to public land
- Remove and control invasive species
- Improve water quality
- Provide appropriate sanitation facilities at recreation sites
- Road management activities to reduce runoff and sediment discharge to streams
- Improve opportunities for public outreach and environmental education

1.1.12 LOCAL PROSPERITY

Local prosperity can be achieved by:

- Ensuring an adequate water supply to support the region's economy
- Avoiding costs of water supply infrastructure with the implementation of water conservation and water use efficiency projects
- Avoiding flood damage costs
- Avoiding impacts to the economy (e.g., businesses and agriculture) associated with water supply interruption
- Increasing tourism and recreational opportunities through improved water quality
- Providing additional jobs and benefiting the regional economy through construction and maintenance of proposed IRWM projects

1.2 PROJECT-LEVEL IMPACTS

Implementation of the projects described in this Plan may also have quantitative and/or qualitative impacts if the Santa Cruz IRWM Plan and/or its component projects are not managed or implemented properly. These impacts may include increased project costs to agencies and ratepayers, delayed construction and/or operation of planned facilities leading to delayed water supply and other benefits, negative impacts to surface water and/or groundwater quality, and more limited operational flexibility, especially in times of drought, leading to increased water rationing and associated pressure on water users and the environment.

Project-specific environmental compliance processes will be completed by project proponents prior to project implementation. These processes will determine the significance of project-related impacts. Each project must comply with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), if applicable, prior to and throughout implementation. Additional permitting requirements from resource agencies (e.g., California Department of Fish and Wildlife, Regional Water Quality Control Board, and Army Corps of Engineers) will provide information regarding potential impacts.

Negative impacts that could be associated with the implementation of projects and programs included in the Santa Cruz IRWM Plan are similar to those of other water infrastructure projects. In general, temporary, site-specific impacts related to construction and potential long-term impacts associated with project operation are anticipated. Short-term, site-specific construction impacts from implementing physical project facilities may include increased traffic and/or congestion, noise, and impacts to public services, utilities, and aesthetics. Other potential, longer-term impacts are described in more detail below.

1.2.1 WATER QUALITY DEGRADATION

Groundwater-related projects, such as projects that increase groundwater pumping or implement conjunctive use, could degrade water quality if not operated appropriately for the groundwater basin and conditions. In addition, projects that involve the implementation of potentially contaminating activities in groundwater recharge areas could result in negative impacts to groundwater quality.

Surface water quality could similarly be impacted by projects that encourage recreation and/or intensive development. Such projects have the potential to increase loading of nutrients, bacteria, and other contaminants to adjacent surface water bodies, negatively impacting water quality for water supply and environmental needs. Recreation-related projects also have the potential to increase erosion and sedimentation. Increased motor vehicle traffic and foot traffic can increase erosion and sedimentation to adjacent water bodies, negatively affecting water quality for water supply and environment/habitat purposes. Water quality issues associated with increased erosion and sedimentation can be detrimental to aquatic communities. Additionally, storm drains and channel modifications that are implemented to manage flood flows can contribute to erosion and sedimentation.

1.2.2 REDUCED GROUNDWATER AVAILABILITY AND RELIABILITY

Several areas of the Santa Margarita and Aromas groundwater basins have groundwater quality issues. Groundwater recharge projects could potentially mobilize existing contaminant plumes that could reduce overall groundwater availability and water supply reliability to users depending on the source. Increased groundwater pumping in the area would contribute to existing overdraft conditions, potentially degrading water quality and further decreasing overall reliability.

1.2.3 LAND USE COMPATIBILITY (RIGHTS-OF-WAY)

A potential impact of any project that includes construction of physical facilities is land use compatibility and potential concerns of nearby residents or businesses. The types of projects that could potentially have land use compatibility or rights-of-way issues include:

- Water conveyance facilities and pump stations
- Storage tanks or reservoirs
- Treatment plants
- Wastewater collection
- Recycled water distribution facilities

1.2.4 DISTURBANCE OF HABITAT AND ENDANGERED SPECIES

The Santa Cruz Region is a largely natural area with significant portions designated as rural or open space. The region provides habitat for numerous species, including special status species (i.e., endangered, threatened, sensitive, or candidate). Projects that involve facility construction have the ability to disturb surrounding habitat and endangered species, depending on the location, type of construction, and facilities. All projects implemented will comply with CEQA and NEPA, as applicable, and as part of that process will identify and implement mitigation measures for potential environmental impacts as necessary.

1.2.5 ENERGY CONSUMPTION

The water sector plays a significant role in California's energy consumption. Implementing certain projects may increase energy use. Water and wastewater treatment projects that require significant amounts of power may result in increased energy consumption in the region. Increased energy consumption can increase greenhouse gas emissions, further exacerbating projected climate change impacts.

1.2.6 ECONOMIC IMPACTS

Implementation of certain projects may have associated long-term economic impacts to agencies and ratepayers. Project financing has historically provided a challenge in the Santa Cruz Region. Even when grants and/or low-interest loans are available to subsidize project capital costs, agency rate revenues are sometimes insufficient to properly operate and maintain the project. Because funds available to implementing agencies are generally limited, it will be important to evaluate financing methods and avenues for potential projects prior to implementation in order to minimize potential economic impacts on ratepayers and agencies in the Region.

1.3 PLAN-LEVEL IMPACTS AND BENEFITS

A number of qualitative benefits could derive from IRWM Plan implementation, including a reduction of regional water related issues; increased information and data sharing; opportunities for collaboration on regional project development; identification of a more diverse and coordinated funding portfolio for project implementation; and programmatic-level economies of scale savings. Ongoing IRWM Plan implementation and updates could help to increase the public's understanding and acceptance of water issues and the strategies designed to address those issues. Finally, the IRWM planning effort could act as a venue for discussion and problem-solving of complex regulatory issues, particularly for water quality concerns.

Additionally, as previously stated, working on a regional basis aids in protecting the economy of the Santa Cruz Region and minimizing direct monetary impacts felt by disadvantaged communities (DACs) in the region through the stabilization of water and wastewater utility rates. IRWM planning and collaboration can lead to multi-benefit projects that achieve cost savings through cost-sharing opportunities, economies of scale, resource sharing, and other mechanisms. Existing resources can be optimized, duplication of efforts avoided, and larger scale efforts developed to provide cost savings to all involved.

At a planning level, impacts of the IRWM process are related to the increased responsibility for funding, administering, updating, and implementing the IRWM Plan. It has been the RWMG's experience that a significant amount of time and resources are needed to develop funding applications, administer grants, and manage and update the IRWM Plan. Much of the work to prepare this update was unfunded, requiring additional resources from the RWMG, particularly the County of Santa Cruz. Dedicated implementation will potentially entail: pursuit of grant and other funding sources; multiple forms of interpersonal contact involving stakeholder time commitments; project development, implementation, and monitoring; and plan performance monitoring and potential update.

1.3.1 INTERREGIONAL BENEFITS AND IMPACTS

Interregional projects such as the restoration and water quality projects in the Watsonville/Pajaro overlap area stand to provide benefits that extend beyond regional boundaries. The projects included in this Plan update benefit not only the local agencies and residents of the Santa Cruz Region, but multiple watersheds and the Monterey Bay National Marine Sanctuary.

- Reduced effluent discharges (and associated pollutant loadings) into the Monterey Bay National Marine Sanctuary due to increased recycled water use and water quality improvement projects
- Improved regional water supply and reliability for the Pajaro IRWM Region achieved through water conservation, recharge, and supplemental supply to the shared Aromas formation.

Project-dependent, construction-related impacts would most likely not impact other IRWM regions, as project and program facilities would be implemented within the Santa Cruz Region with temporary and local impacts, if any.

1.3.2 BENEFITS AND IMPACTS TO DISADVANTAGED COMMUNITIES, ENVIRONMENTAL JUSTICE, AND NATIVE AMERICAN TRIBAL COMMUNITIES

Protection of the people and economy of DACs and Native American tribal communities in the region, and addressing environmental justice concerns, are priorities for the Santa Cruz IRWM Plan. Environmental justice is addressed by ensuring that all stakeholders have access to the planning and decision-making process and that minority and/or low-income populations, such as DACs and Native American tribal communities, do not bear disproportionately high and adverse human health or environmental impacts. Working on a regional basis aids in protecting the economy of the Santa Cruz Region and minimizing direct monetary impacts felt by DACs and Native American tribes in the region through the stabilization of water and wastewater utility rates. Implementation of the region's flood management and stormwater projects will disproportionately benefit DACs and low-income communities given the heightened risk these areas face. The Amah Mutsun tribal band and other tribal groups in the Santa Cruz Region are also encouraged to participate in the IRWM planning process. Although there are no federally or state-recognized tribes actively engaged in the IRWM planning process, through the project review process the Steering Committee has sought to keep tribal representatives informed and engaged where there are potential benefits. Impacts of IRWM project implementation to DACs and Native American tribes will be kept to a minimum, and ongoing coordination and public involvement will aid in preventing possible impacts.

Regional coordination has been and will continue to be achieved through the noticing of public meetings, which will be held as needed to address public and stakeholder concerns, including routine reviews to ensure that DACs are not being adversely affected by project and Plan implementation. The RWMG is currently devoting additional effort to identify DAC's and their water-related needs in the region with supplemental funding for DAC assistance from DWR.