

## CHAPTER 10. IMPACTS AND BENEFITS

### 1.0 INTRODUCTION

Implementation of this Plan will potentially generate a range of benefits and impacts, at both the Plan and project-specific levels. The intent of this chapter is to describe, at a screening level, the impacts and benefits associated with the Integrated Regional Water Management Plan (IRWMP) implementation.

Prior to implementation of projects, a project-specific impact analysis will occur, associated with environmental compliance documents (e.g., California Environmental Quality Act [CEQA], National Environmental Policy Act [NEPA]). Please see **Chapter 9 Project Development and Implementation** for greater discussion of the timing and process for ensuring adequate environmental analysis at a project level.

### 2.0 PLAN-LEVEL IMPACTS AND BENEFITS

The benefits of Plan implementation are wide ranging and primarily qualitative. These benefits include: increased understanding and information sharing between area stakeholders and interests, opportunities for collaboration on project development and solving regional conflicts, identification of a more diverse set of funding sources to increase investment in the region for integrated projects that will benefit the region's water and environment, opportunities for cost savings and creating an economy of scale, creation of a venue to address regulatory issues facing the region, and benefits to other regional resources.

These benefits already have been experienced within the region during the Plan preparation phase and, with the continued activities of the Regional Water Management Group (RWMG) and various committees, will continue during the Plan implementation stage. In particular, inclusion of the Pit River Tribe in the group dialogue has served to highlight a variety of opportunities for increased communication and collaboration.

Additional benefits from Plan preparation have included the creation of the Project Review Committee (PRC) that has overseen the development and integration of over 80 projects from a diverse group of project sponsors, substantive collaboration on project integration, and development of a Website. The Website has provided an access point for data and information that assists water and resource managers in their activities, as well as informing the general public. The Website can, if maintained, continue to provide one-stop shopping for water/watershed planning and management for the region.

The capacity-building efforts associated with Plan preparation included three funding workshops to enhance local ability to bring resources into the region, and an updateable tab on the Website will provide access to current funding sources for proposed projects. Trainings on the use of Sacramento River Watershed Information Module (SWIM) data also increase the technical capabilities of area stakeholders to both share and access water management information. Project committee input has substantially broadened and improved project design.

At this point there are no negative impacts identified at the Plan level, except that the RWMG will have increased responsibility for funding, implementing, and managing the IRWMP. Review,

assessment, and revisions of the impacts and benefits section of the Plan will occur, as necessary, during annual Plan review.

## **2.1 Fostering Understanding and Information Sharing Within the Region**

Perhaps one of the greatest and most positive impacts this Plan can offer is to improve understanding of the diverse interests and points of view among stakeholders. If conflict resolution strategies offered in this Plan are pursued, greater collective efforts will help achieve proposed objectives.

Planning within a regional framework allowed stakeholders to evaluate whether it was best to respond to a watershed-wide need as opposed to a localized issue, to share knowledge and resources, and to minimize inter-entity conflict.

Ongoing posting of SWIM data will provide a ready repository of regional information that has been identified as a data gap in this Plan.

## **2.2 Opportunities to Collaborate on Project Development and Solving Regional Conflicts**

The Plan provides a vehicle for local entities not only to collaborate and develop joint projects of multiple benefits, but also to identify and problem-solve for issues and areas for which no projects are currently proposed. The Project Review Committee has proven to be a powerful venue for project development and integration and enabled stakeholders to be better informed and to collaboratively review the outcomes of both a project and its overall plan implementation. This allows for a more comprehensive overview of and feedback on the methodologies used, and cumulative magnitude and benefit of projects that can be implemented or developed in the future and linked together. It can also provide for a greater economy of scale by allowing for shared technical expertise, equipment, labor.

The ongoing efforts of this group will include developing projects for individual application to a variety of funding sources, including Proposition 84 – IRWM Implementation Grants. An additional significant outcome of the group effort has been the willingness of project sponsors to assist each other in developing project materials – a sharing of expertise that will only increase the overall capacity of the region to pursue funding for needed projects.

## **2.3 Identification of Diverse Funding Sources**

Admittedly, many project sponsors became involved with the planning process because they recognized an opportunity, through Plan participation, to access much-needed funding through Department of Water Resources (DWR) grant programs. While securing Implementation Grant funding is a distinct possibility, the Plan increases the potential for investment in the region to a much greater degree.

Funding entities wish to see that a proposed project is a component of a larger, deliberate process to achieve a stated goal. They anticipate greater benefit from the cumulative effects of a project, (i.e., that it is being implemented with similar projects, all aimed at watershed improvement). Further, most funding sources require demonstrated collaboration among stakeholders for the very reasons stated above: improved understanding, reduced conflict, better project design, data

sharing, and cost savings. Projects that are part of an adopted plan also demonstrate buy-in by local entities.

These combined factors of collaboratively developed projects, included in a deliberate local process and adopted by local entities, improve chances for individual projects or project suites to be funded by a variety of sources. The extensive work that went into project development for this Plan will queue up projects for both private and public resources, to a far greater degree than what DWR programs alone can offer.

## **2.4 Opportunities for Cost Savings**

Coordination also helped eliminate redundancy of project planning and development and provided for potential cost savings related to implementation. Integration of project suites will potentially allow for shared equipment, technical expertise, and personnel.

## **2.5 Venue to Address Regulatory Issues**

One of the prominent incentives for Northeastern California Water Association (NECWA) to pursue a Proposition 84 Planning Grant was to help develop solutions to water-quality issues or regulatory inaccuracies contributing to the 303(d) impairment listing of many regional stream segments.

An offshoot of this planning effort has been the formation of a small working group to pursue funding for an amendment to the Basin Plan that will address regulatory inaccuracies upon which the listings were based. If this effort can be fully implemented over time, it will result in better scientific defensibility and a corollary reduction in work effort and cost for local stakeholders who must demonstrate compliance. This working group demonstrates that the RWMG can serve as a meaningful venue for discussion and problem-solving for a wide array of issues, including regulatory compliance and processes.

## **2.6 Benefits and Impacts to Other Resources**

A short-term boost to the local economy and employment would occur from projects associated with this Plan, and long-term benefits could accrue from improvements to natural resources and habitat that support hunting, fishing, other recreational pursuits, and tourism. Energy conservation would result primarily from irrigation efficiency projects and improvements in municipal water delivery. Individual assessments of reductions in greenhouse gas emissions will be conducted as part of project evaluations and updated accordingly. Localized biomass and other alternative energy projects could conserve energy, employ construction workers, and potentially improve air quality.

## **3.0 BENEFITS AND IMPACTS FOR DISADVANTAGED COMMUNITIES (DACs)**

As discussed in **Chapter 3 Region Description**, a DAC is defined by the State of California as a community with an annual median household income (MHI) of less than 80 percent of the statewide MHI. As previously noted, 97 percent of the communities in the region are considered DACs, and 43 percent are considered severely disadvantaged (having less than or equal to 60 percent of the statewide MHI). CWC §10540(c)(7) states that identifying and considering water-related needs of DACs within the region is “*among the basic items an IRWM Plan must address.*”

IRWMPs must also consider Environmental Justice (EJ) when formulating objectives and projects that can alleviate inequitable distribution of environmental problems to DACs and provide access to clean air and water, parks, and other resources that improve quality of life. EJ issues arise where residents have been intermittently or frequently excluded from policy setting and decision making. Please see **Chapter 2 Stakeholder Involvement and Coordination** for a discussion of the extensive process employed to involve DACs in this planning effort.

Impacts to under-represented groups in the region would most likely be attributable to short-term construction, and to a lesser degree, restoration projects that are generally more remote. These impacts can include increased dust, noise, traffic disruptions and, in the case of restoration, sedimentation, temporary road closures, and potential short-term loss of access to recreation areas. Increases in fees and assessments for infrastructure projects can also occur, but these potential impacts are assessed in environmental compliance documents and mitigated where possible. The IRWM process is also able to bring in funding for project costs that otherwise might be borne by local DACs.

Benefits to DACs are primarily associated with infrastructure improvements and associated employment across the region. All of the community infrastructure projects in this Plan would *directly* benefit disadvantaged communities by any of the following: 1) providing clean domestic water supply for the first time, 2) through a proposed inventory of Tribal water needs, and 3) from infrastructure improvement that would assure community water quality and supply into the future. Proposals to improve parkland along Fall River would also benefit disadvantaged local residents although these benefits are not critical to water quantity or quality issues. Each project proposed in this Plan has been evaluated as to its ability to address DAC and EJ issues.

Numerous issues and objectives identified in this IRWMP address concerns of the Pit River Tribe. In addition to the infrastructure projects listed above, projects that address natural resource concerns and increase employment are of paramount interest to this community.

#### **4.0 PROJECT-LEVEL IMPACTS**

For the purposes of this section, project-level impacts have been identified based on the goals articulated in the Plan. A variety of possible project types will be implemented over time to address Plan goals.

Adverse physical impacts of Plan implementation are related to potential environmental or social impacts of project implementation. The projects submitted for inclusion in the Plan are in varying stages of development. Some are fully ready to proceed, while others are at the conceptual stage. An important aspect of project inclusion in the Plan is the specific and articulated assumption that disturbance to the landscape, or construction-related activities associated with implementation, will undergo environmental compliance evaluation under CEQA or NEPA. In many cases, projects such as feasibility studies, public education and outreach, and/or best management practice implementation would not result in direct physical environmental impacts. Additionally, small habitat restoration projects (under five acres with some provisions) are exempt from CEQA review.

Construction projects would result in environmental impacts that would be largely localized and/or temporary. The likely types of projects that would occur with Plan implementation are listed in the previous chapter in **Table 9-4 Project Development by Goal**. **Table 10-1** (at the end of this chapter) assesses at a screening level the probable physical impacts of implementing these project types.

## 5.0 REGIONAL IMPACTS FROM PROJECT IMPLEMENTATION

Plan-associated benefits far outweigh impacts, particularly since each project will necessarily undergo environmental review. This review will include assessing alternatives and developing mitigation to reduce negative impacts prior to project implementation.

The greatest area of impact will derive from costs and potential volunteer time to implement goals, objectives, and projects. Since the area has limited financial resources relative to more prosperous IRWM regions, the impact on volunteers and local agencies to oversee Plan implementation could be substantial, and/or slow or prevent some implementation measures.

Project-related impacts could temporarily delay services (e.g., infrastructure replacement), initiate rate increases, cause construction-related delays in traffic or facility use, and/or result in short-term disturbance to habitat from restoration activities. Again, the costs and benefits of each project will be weighed prior to funding.

### 5.1 Impacts from Failure to Implement the Plan

First and foremost, innumerable hours by watershed stakeholders were dedicated to this planning effort, not to mention the investment in the expertise of the Project Team. Previous watershed assessments alongside the IRWMP display a deep commitment to watershed stewardship; indeed, if the Plan were not implemented, an opportunity to repeat this exercise might not arise for some time to come.

The nature of some of the watershed's problems is severe: Some residents are without potable drinking water, and some natural resource problems threaten the survival of natural communities and species. Conservation of water for agricultural use has a direct link to the financial well-being of the region. In some cases, failure to implement may at best cause problems to deteriorate and, at worst, hasten irreparable damage to community infrastructure, culture, or natural resources.

Funding match has been obtained for many of the projects included in this Plan, and most of that match has associated time limitation. Failure to implement the Plan could promulgate loss of substantial match and thus investment in the region. In-kind contributions of volunteers and landowners would also be lost, cumulatively adding up to a substantial forfeiture of investment in a region that sorely needs resource-based infusions of capital.

### 5.2 Comparison of Regional Benefits and Impacts

Substantive benefits, and fewer and mostly short-term impacts, are likely to result from implementation of the goals, objectives, and projects included in the Upper Pit IRWMP. A qualitative assessment of benefits and impacts is included in **Table 10.1**, and is tied directly to the nine goals formulated by area stakeholders to improve watershed conditions and management. Quantitative measures linked with objectives will give the RWMG benchmarks by which to assess future benefits of the Plan.

Benefits displayed in the table are associated with improved water quality; water supply and availability for irrigation; aquatic and terrestrial communities, habitat, and ecological function; controlling and preventing infestations of invasive species; efficiency and reliability of community water supply and other water-related infrastructure; strengthening community watershed

stewardship and encouraging better coordination of data collection, sharing, and reporting; supporting community sustainability by strengthening natural resource-based economies; improving agency programs and policies by increasing accuracy and effectiveness; and providing adaptive management strategies to conserve energy and decrease greenhouse gas emissions.

## **6.0 INTERREGIONAL BENEFITS AND IMPACTS**

Interregional benefits from this IRWMP will primarily derive from improvements to water quality that could affect interconnected but out-of-region water bodies such as Lake Shasta and, ultimately, the Sacramento River, and from habitat improvements that affect migratory species and their well-being, such as waterfowl and trout. Benefits to other regions could also occur from clarification and amendment of regulations, such as upper-elevation-relevant modifications to the Irrigated Lands Regulatory Program (IRLP) and better notification of weather modification projects.

The relative physical isolation of the Upper Pit watershed makes it less likely for interregional impacts to occur. For example, it is not immediately proximal to large population centers, or sensitive natural areas.

Interregional impacts could result from Plan implementation in the following way: Since area stakeholders are opposed to out-of-region water transfers, potential out-of-region water use, especially from groundwater basins, would be highly unlikely. Fuel and fire management within the region could also have interregional impact: If regional management cannot reduce fuels loads, it is more likely that widespread, intense fires would spread elsewhere. The extent to which weather modification is pursued in the watershed also has potential effects on other regions, although the full spectrum of these effects is not scientifically documented at present. Future projects associated with the Plan would be evaluated for off-site, including interregional, impact prior to implementation.

**Table 10-1.**

**Potential Regional Benefits and Impacts from Implementation**

IRWMP Goal	Potential Benefits	Potential Impacts
<p><b>1. Improve Water Quality</b></p>	<ul style="list-style-type: none"> <li>• Improved health and safety for residents, including high percentage of DACs, from infrastructure improvements</li> <li>• Decreased treatment costs</li> <li>• Potential to increase cropland production</li> <li>• Potential to aid in removal of specific 303(d) listings and indirectly reduce monitoring efforts and costs</li> <li>• Improved habitat quality for wetland-dependent and stream-dependent species, and subsequent potential to increase species resiliency and populations</li> <li>• Collectively and substantively address irrigation water delivery system to relieve chronic contributing factors to water-quality degradation</li> <li>• Improved Tribal water management via a new RCD</li> </ul>	<ul style="list-style-type: none"> <li>• Short-term construction-related costs, and often site-specific disruptions to traffic, noise levels, water quality, habitat quality, service delivery, aesthetics, and cultural resources</li> </ul>
<p><b>2. Improve Water Supply and Availability for Irrigation</b></p>	<ul style="list-style-type: none"> <li>• Reduced vulnerability from climate-related reductions in seasonal or overall water supply</li> <li>• Better ability to address seasonal low flows</li> <li>• Potential to increase cropland production</li> <li>• Potential to better manage, understand, and prevent over-drafting of groundwater supply, and understand the relationship of surface and groundwater</li> <li>• Reduction in irrigation water-delivery losses of up to 50 percent through improved delivery systems</li> </ul>	<ul style="list-style-type: none"> <li>• Potentially reduced water supply available for habitat, fisheries, and wildlife, both in in-stream flow</li> <li>• Reduced groundwater recharge, including sources of recharge for springs and other wetlands</li> <li>• Indirect rises in temperature of some stream segments from stored water or loss of flow</li> <li>• Increased concern by conservation interests over the balance between agricultural and natural resource water use</li> <li>• Increased pumping costs and energy use if groundwater use rises</li> </ul>

**Table 10-1. *continued***

**Potential Regional Benefits and Impacts from Implementation**

IRWMP Goal	Potential Benefits	Potential Impacts
<p><b>3. Sustain/Improve Aquatic and Terrestrial Communities, Habitat, and Ecological Function</b></p>	<ul style="list-style-type: none"> <li>• Better habitat and species resiliency in the face of potential climate-related increased variability, or reductions in flow</li> <li>• Potential to increase natural recharge and storage to augment late-season low flows</li> <li>• Improved water quality from reduced sedimentation, decreased temperatures, and reduced introduction of surface water bacteria and nutrients</li> <li>• Enhanced habitat quality and habitat connection for both fish and wildlife that could indirectly increase population numbers and overall species health</li> <li>• Potential reductions in flood risks by reconnection of up to 1,000 acres with historic floodplains</li> <li>• Increased ecological function from additional shade canopy, improved summer base flows, increased wetland extent and function, decreased peak flows, and improved bank and channel stability</li> <li>• Reduced potential for large uncontrolled fires, and thus subsequent erosion and runoff and property loss by conducting forest health and small fuels reduction projects on at least 20,000 acres</li> <li>• Restored sage-steppe habitat on portions of the watershed to increase watershed function and habitat resiliency</li> <li>• Decreased invasive species extent and potential for invasion</li> <li>• Increased water quantity (in some cases) through more efficient water use practices and improved infrastructure</li> <li>• Increased quantity of riparian, wetland, and instream habitat</li> </ul>	<ul style="list-style-type: none"> <li>• Short-term construction-related, and often site-specific disruptions to traffic, noise levels, water quality, habitat quality, service delivery, aesthetics, and cultural resources</li> <li>• Short-term disturbance to wildlife and fisheries from restoration activities</li> <li>• Potential for introduction of non-native species from poorly managed equipment or limited restoration success</li> <li>• Alterations in downstream flow regimes from upstream restoration</li> <li>• Short-term reduction in air quality from prescribed fire</li> </ul>
<p><b>4. Control and Prevent the Spread of Invasive Species</b></p>	<ul style="list-style-type: none"> <li>• Expanded collaborative strategic weed management on at least 500 acres of noxious weeds annually</li> <li>• Increased aquatic health and resiliency of the Fall River by implementing Eurasian watermilfoil pilot projects establishing four monitored locations, 30,000 weevils cultured and stocked, and five randomly selected sites sampled with fully assessed results</li> <li>• Prevented introduction and/or expansion, or reduction of non-native animal species (e.g., muskrat, non-native bass, quagga mussels, and/or address genetic mixing)</li> </ul>	<ul style="list-style-type: none"> <li>• Additional herbicide contamination if application protocols not properly followed</li> </ul>

**Table 10-1. *continued***

**Potential Regional Benefits and Impacts from Implementation**

IRWMP Goal	Potential Benefits	Potential Impacts
<b>5. Improve Efficiency and Reliability of Community Water Supply and Other Water-Related Infrastructure</b>	<ul style="list-style-type: none"> <li>• Reduced potential for contamination of water supply from leak detection and replacement projects</li> <li>• Greater security of water supply to local communities, including DACs, from provision of improved and/or redundant infrastructure</li> <li>• Reduced vulnerability from potential climate-related reductions in seasonal or overall water supply</li> <li>• Increased opportunities for per-capita water conservation from metering and education</li> <li>• Greater flood attenuation in two DACs and an outlying rural area, also addressing EJ concerns</li> <li>• Decreased potential for loss of life or property</li> <li>• Decreased flood insurance costs</li> <li>• Decreased habitat degradation from bank erosion during flooding events</li> <li>• Improve water treatment facilities and methods in three DACs</li> <li>• Potential expansion of wetland acreage</li> <li>• Improved water quality from reduction in sedimentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short-term construction-related costs, and often site-specific disruptions to traffic, noise levels, water quality, habitat quality, service delivery, aesthetics, and cultural resources</li> <li>• Potential loss of riparian/wetland acreage (not including Alturas)</li> </ul>
<b>6. Strengthen Community Watershed Stewardship and Encourage Better Coordination of Data Collection, Sharing, and Reporting</b>	<ul style="list-style-type: none"> <li>• Improved stewardship at lower overall cost through sharing best management practices and restoration success stories</li> <li>• Enhanced access to data from participation in SWIM and by updating and sharing the IRWMP Website</li> <li>• Increased understanding and reduction in conflict between Tribal stewardship perspectives and others</li> </ul>	<ul style="list-style-type: none"> <li>• Increased costs to provide education and coordination in a watershed with few financial resources</li> </ul>
<b>7. Support Community Sustainability by Strengthening Natural Resource-Based Economies</b>	<ul style="list-style-type: none"> <li>• Increased temporary employment from implementing projects associated with this Plan</li> <li>• Increased sustained employment from pursuing other initiatives, such as potential biomass, fuel reduction, and stewardship contracting projects</li> <li>• Increased recreational opportunities and tourism from development of parks, habitat improvement, and invasive species reduction projects</li> </ul>	<ul style="list-style-type: none"> <li>• Initial costs associated with startup of projects and with habitat improvements</li> </ul>

<b>Table 10-1. <i>continued</i></b>		
<b>Potential Regional Benefits and Impacts from Implementation</b>		
<b>IRWMP Goal</b>	<b>Potential Benefits</b>	<b>Potential Impacts</b>
<b>8. Improve Agency Programs and Policies by Increasing Accuracy and Effectiveness</b>	<ul style="list-style-type: none"> <li>• Decreased costs and work efforts to meet regulatory requirements</li> <li>• Improved relationships between area stakeholders and agencies</li> <li>• Enhanced information sharing over projects that could have adverse impacts on the watershed</li> <li>• EJ concerns will be alleviated by posting of water advisories for impaired water bodies in both English and Spanish</li> </ul>	
<b>9. Provide Adaptive Management Strategies to Conserve Energy and Decrease Greenhouse Gas Emissions</b>	<ul style="list-style-type: none"> <li>• Improved economic efficiencies from cost savings related to energy use</li> <li>• Decreased use of fossil fuels tied to greenhouse gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Initial costs to install energy efficiency measures</li> </ul>