

Chapter 1 Executive Summary

1.0 Introduction

The Yuba County Integrated Regional Water Management (IRWM) planning effort is a formal collaborative process that supports all aspects of water management in the Yuba County IRWM Plan area. The IRWM Plan was initially developed by many organizations and adopted by 12 agencies in Yuba County in 2008. The 2015 IRWM Plan Update has been developed with the help of volunteer agencies and stakeholders over a two-year period following a public process that included: ten Regional Water Management Group (RWMG) meetings; a number of Core Group meetings that addressed climate change vulnerabilities and adaptation strategies; several public workshops throughout the Plan area; and outreach to disadvantaged, Latino, Hmong, and Tribal communities. The 2015 Plan Update has added focus areas, given the recent drought declaration, the release of the Governor's updated *California Water Action Plan* (2014), and potential groundwater legislation.

This IRWM Plan Update articulates the challenges and issues the Yuba region faces, and defines the objectives it hopes to accomplish. The challenges are significant, as is the opportunity to improve the situation by working together and with the California Department of Water Resources (DWR). This Plan prominently considers the complexities of managing water supply and quality, uncertainty, and the needs of Disadvantaged Communities, and focuses on identifying resources to ensure a sustainable future.

This Update provides the framework for all entities to work together to address these challenges for a more sustainable water management future, and is being produced and sponsored by Yuba County Water Agency (YCWA), one of the Plan area's major water purveyors. It is funded in part through a Proposition 84 IRWMP Planning Grant from DWR. The Plan Consultant Team is led by Katie Burdick of Burdick & Company, hereinafter referred to as the Project Team.

The Project Team has developed a website, yubairwmp.org, to collect and disseminate information, has met with stakeholders, and has developed a process to evaluate and integrate implementation projects. This framework enables the Plan to be adapted to changing conditions and meet current and future water management challenges.

Acronyms Frequently Used in this IRWMP

DAC	Disadvantaged Community
DWR	Department of Water Resources
GHG	Greenhouse Gas
IRWM	Integrated Regional Water Management
MOU	Memorandum of Understanding
RDS	Robust Decision Support
IRWMP	Integrated Regional Water Management Plan
RMSs	Resource Management Strategies
RWQCB	Regional Water Quality Control Board
RWMG	Regional Water Management Group
SWRCB	State Water Resources Control Board
YCWA	Yuba County Water Agency

1.1 The Yuba County IRWM Plan Area

The Yuba County IRWMP region is situated within the northern region of California’s Central Valley and encompasses Yuba County. The region extends from the Sierra Nevada foothills to the Sacramento Valley floor, where the Yuba River flows into the Feather River near Marysville. The Plan area can be divided into two distinct zones: the lower watershed (i.e., valley floor) and upper watershed (i.e., foothill and mountain areas), both of which are within the lower reaches of the Yuba River watershed. While these distinct zones have some differing water management issues, they are linked by shared use of resources, including surface water of the Yuba, Feather, and Bear Rivers and their tributaries. The Yuba County IRWM Plan area overlaps in its upper reaches with the Cosumnes American Bear Yuba (CABY) IRWM Plan area, and in small part near its western boundary with the North Sacramento Valley IRWM Plan area.



In developing the Yuba County IRWMP boundaries in 2008, stakeholders considered the following unique challenges of the Yuba County Plan area:

- a groundwater basin that has physical and institutional separations from the adjacent groundwater basins;
- the Lower Yuba River Accord, which manages flows to protect Chinook salmon and steelhead trout and is highly dependent on local surface water and groundwater conjunctive management operations;
- local flood control issues, such as those associated with Olivehurst, within the jurisdictions of local agencies in Yuba County;
- an agricultural-based economy that is experiencing urban development; and
- foothill and mountain areas with limited access to groundwater that share surface water resources with the valley floor area of the county.

1.2 2015 IRWM Plan Update Process

The IRWM Plan Update focuses on developing and describing integrated and coordinated planning to identify solutions to water-related issues associated with water supply, water quality, environmental resources, and

flood and stormwater management across the boundaries of the Plan area’s district jurisdictions. The Plan seeks to:

- improve resiliency in the face of uncertain water supply conditions and climate change;
- improve interconnections between existing supplies and infrastructure to improve reliability, especially in dry years;
- identify new water storage facilities or practicable alternatives to increase water supply;
- promote watershed management practices that protect and restore forests, fisheries, and freshwater ecosystems; and
- increase flood protection and enhance floodplain functions and habitat.

The 2015 Update Process included multiple steps in developing the IRWM Plan and projects; some of which were coincidental rather than sequential:

IRWMP Steps
Formulate and adopt a governance structure, including a Regional Water Management Group (RWMG) to oversee the development of the Plan
Gather information on the region’s water management
Develop and implement a stakeholder involvement strategy with a diverse representation of interests and with an emphasis on engaging disadvantaged and/or traditionally under-represented communities
Coordinate with a parallel climate and water management modeling process conducted by the Stockholm Environmental Institute (SEI) that will help determine optimum projects for the region
Identify a list of water management issues within the region to be addressed by the Plan
Develop goals and objectives and management strategies that address identified issues
Work with stakeholders to develop projects that address identified issues and meet goals and objectives
Determine methods and tools to monitor both implementation of projects and the Plan goals and objectives, and provide a means to amend and update the Plan
Provide a blueprint for funding the Plan administration and for implementing projects
Adoption of the Plan by RWMG members

1.2.1 Elements of the 2015 IRWM Plan

1.2.1.1 Issues

Early in the Yuba County IRWM Plan Update process, the Project Team conducted in-person and phone interviews with stakeholders identified through the stakeholder outreach and engagement process. One of the central objectives of these initial interviews was to identify regional issues and water-related conflicts. By reviewing the issues and conflicts from the original IRWMP, conducting more than two dozen interviews, and facilitating discussions at the first and second RWMG meetings, the Project Team was able to generate, and the RWMG to confirm, a final issues and conflicts list, as follows.

Primary Issues	Associated Problem Statements Each of the following statements is prefaced by “The need to:”
Water Storage	<ul style="list-style-type: none"> ▪ Develop new water storage or identify alternatives to new storage that would increase water supply as a result of projected future uncertainties.
Infrastructure	<ul style="list-style-type: none"> ▪ Develop new infrastructure as well as repair, replace, and retrofit aging infrastructure to ensure adequate and reliable water supply.

Primary Issues	Associated Problem Statements Each of the following statements is prefaced by “The need to:”
Wastewater Management	<ul style="list-style-type: none"> ▪ Improve wastewater management and manage water quality impacts from spills and discharges while addressing the rising costs of operation and regulatory compliance.
Water Use Efficiency/ Water Conservation	<ul style="list-style-type: none"> ▪ Promote and implement policies and practices to increase water use efficiency <i>and</i> water conservation in municipal and agricultural sectors.
Groundwater	<ul style="list-style-type: none"> ▪ Promote integrated management of groundwater and surface water. ▪ Educate the public to protect groundwater resources, especially from contamination and overuse. ▪ Understand where groundwater and surface water are connected and where they have been disconnected. ▪ Protect groundwater and groundwater-dependent ecosystems, especially to address the projected impacts of climate change.
Flood Management	<ul style="list-style-type: none"> ▪ Improve integrated flood management to ensure better emergency preparedness. ▪ Increase flood protection and enhance floodplain functions and habitat. ▪ Create multi-stakeholder collaboration for flood management to achieve multiple economic, public safety, and ecological benefits.
Water Quality Contamination: Urban and Agricultural Run-off	<ul style="list-style-type: none"> ▪ Maintain and improve water quality by mitigating for urban and agricultural runoff.
Sediment Management	<ul style="list-style-type: none"> ▪ Manage sedimentation to maintain and/or increase water-holding capacity in reservoirs, and to implement erosion control to prevent contamination in water courses and water management operations.
Recreation	<ul style="list-style-type: none"> ▪ Promote and implement comprehensive recreational planning with a focus on regional economic development in the Lower Yuba River and beyond to improve local economies, improve habitat, and reduce human impact and threats to public safety.
Forest Health	<ul style="list-style-type: none"> ▪ Promote management policies and practices that protect forests and water supply and quality. ▪ Steward healthy forests, employ fire and fuels management, and restore watershed health vulnerable to the impacts of climate change.
Environmental Flows	<ul style="list-style-type: none"> ▪ At minimum, maintain quantity, timing, and quality of stream flows required to restore and protect freshwater ecosystems.
Invasive Species	<ul style="list-style-type: none"> ▪ Identify and manage for aquatic and terrestrial invasive species and their impacts on water supply infrastructure and watershed health.
Fisheries	<ul style="list-style-type: none"> ▪ Recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible.
Land Use and Land Conservation	<ul style="list-style-type: none"> ▪ Address the connection between land use planning and water. ▪ Enhance recreational and economic development opportunities through land conservation efforts. ▪ Protect working landscapes being lost to development, particularly ranch/ag lands, and the watershed benefits they provide.
Legacy Mining Toxins	<ul style="list-style-type: none"> ▪ Address the physical and chemical hazards of abandoned mine lands with a focus on watershed-scale remediation from the most toxic mine tailings.
Regulatory Compliance	<ul style="list-style-type: none"> ▪ Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration. ▪ Ensure a regulatory framework allowing for local and regional authority to respond to water and watershed management.

Primary Issues	Associated Problem Statements Each of the following statements is prefaced by “The need to:”
	<ul style="list-style-type: none"> Promote consistent enforcement of environmental protections to achieve the recovery of economically and culturally important species.
Climate Change	<ul style="list-style-type: none"> Respond to projected climate change impacts on water supply reliability, water quality, public safety, and watershed health, and develop regional and interregional adaptive management strategies.

1.2.1.2 Conflicts

Conflicts are characterized by prolonged disagreement and/or seemingly divergent, irreconcilable approaches toward addressing or resolving an issue.

Issues where a conflict or divergence was identified	Characterization of Conflict/Divergence
Water Storage	<ul style="list-style-type: none"> Stakeholders differ over whether new storage facilities should be considered for out-of-region water transfers, and whether groundwater storage should be intentionally developed by pumping down existing aquifers.
Fisheries	<ul style="list-style-type: none"> Stakeholders differ over how and where anadromous fish should be recovered.
Regulatory Compliance	<ul style="list-style-type: none"> Divergence exists among stakeholders over agency requirements and how to address regulations.

Conflicts surrounding fisheries and the interrelated conflicts of regulatory compliance and out-of-region water transfers have long been a source of discord in the region. Yet, even amidst protracted litigation and negotiations, diverse groups of stakeholders are engaged in dynamic, ongoing discussion and collaborations to seek solutions or viable compromise. The Lower Yuba River Accord and ongoing collaborative, multi-party processes, such as the River Management Team and the Yuba Salmon Forum, illustrate some of these efforts. Disagreement persists over the National Marine Fisheries Service’s Biological Opinion for Yuba River anadromous fisheries.

1.2.1.3 Goals & Objectives

In coordination with the Project Team, the RWMG developed updated goals and objectives to address identified issues for the Yuba County IRWM Plan area. No single objective was determined to be higher priority than the others, as the RWMG indicated that a prioritization or ranking of objectives could erode efforts to promote integrated, multi-objective solutions to water and watershed management issues. The RWMG identified the following seven goals and corresponding objectives:

1 Ensure adequate and reliable water supply that meets the diverse needs of the region

- 1.1 Improve water supply system capacity, flexibility, and efficiency, including, but not limited to, optimizing existing water storage, upgrading and retrofitting aging infrastructure, and developing new infrastructure, where necessary
- 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse
- 1.3 Protect and restore water supplies that support watershed health
- 1.4 Promote disaster preparedness and conservation planning efforts
- 1.5 Maintain and enhance flood control infrastructure to protect water supplies

- 1.6 Preserve water supplies that support recreational opportunities, ecosystem services, and agricultural uses
- 1.7 Support regulatory compliance of state and federal water supply standards
- 1.8 Promote regional education and outreach regarding water conservation, water supply issues and needs

2 *Protect, restore, and enhance water quality for water users and in support of healthy watersheds*

- 2.1 Protect and improve water quality by mitigating for urban, agricultural, and wildland (sediment) run-off
- 2.2 Minimize water quality impacts from flood, effluent discharge, and wastewater spills
- 2.3 Promote recreational activities and programs that minimize or mitigate impacts to water quality
- 2.4 Protect and improve the water quality generated by healthy, forested watersheds
- 2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems and fisheries
- 2.6 Support regulatory compliance with state and federal water quality standards
- 2.7 Protect public and ecosystem health from the physical and chemical hazards of Abandoned Mine Lands (AMLs)

3 *Preserve and restore watershed health and promote environmental stewardship*

- 3.1 Steward healthy forests through fire and fuels management, erosion control measures, wetland and groundwater-dependent ecosystems restoration
- 3.2 Identify and manage for aquatic and terrestrial invasive species and their impact on water supply infrastructure and watershed health
- 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible
- 3.4 Enhance floodplain function and wildlife habitat while achieving multiple flood management benefits and maintaining public safety
- 3.5 Promote watershed-level remediation of legacy mining toxins
- 3.6 Support environmental protections to prevent the extinction of economically, ecologically, and culturally significant species
- 3.7 Steward the region's biodiversity and ecological resources that directly provide opportunities for public access, recreation, and education

4 *Enhance regional economic development by supporting recreational opportunities and sustainable agriculture*

- 4.1 Promote comprehensive recreation planning and implementation with a focus on regional economic development
- 4.2 Enhance river access points to encourage recreational use while managing for human impacts to watershed health
- 4.3 Create recreational river corridor linkages while enhancing migration corridors for plants and animals
- 4.4 Explore opportunities to increase water-dependent tourism throughout the region while building local communities' capacity to manage their recreational amenities
- 4.5 Protect and restore working landscapes, particularly ranch/ag lands, and the watershed benefits they provide

4.6 Promote regulations that support local and regional economic resiliency by working with and among regulatory agencies to: 1) reduce regulatory conflicts, 2) ensure consistent enforcement of regulations, and 3) reduce costs and difficulty of meeting regulatory compliance

5 *Protect public safety through emergency and drought preparedness and integrated flood management*

5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection, and enhance regional and interregional collaboration

5.2 Support regional and interregional collaboration to improve drought and emergency preparedness

6 *Address climate vulnerabilities and reduce greenhouse gas emissions*

6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations

6.2 Improve data, modeling, and technical analyses to better understand the impacts of climate change on regional and interregional water supply and watershed health

6.3 Increase system flexibility and resiliency to adapt to climate variability

6.4 Promote alternative energy and energy efficiency throughout the region

6.5 Promote education about climate change and its impacts on water management and watershed health throughout the region

6.6 Promote regional and interregional collaborations to implement climate change adaptive management strategies

7 *Promote equitable distribution of resources to disadvantaged communities and Tribes across the region*

7.1 Support DAC and Tribal project development/ implementation activities by providing ongoing outreach, proposal and funding development assistance, and training

7.2 Prioritize ongoing participation of DACs and Tribes in the Regional Water Management Group

7.3 Foster partnerships to build the capacity of DACs and Tribes throughout the region to manage their own recreational amenities

7.4 Promote regional education and outreach in collaboration with DACs and Tribes

1.2.1.4 Resource Management Strategies

After identifying the issues and objectives, the RWMG considered the strategies and approaches necessary to address them. DWR Guidelines require the IRWM Plan to document the range of Resource Management Strategies (RMSs) considered to meet the IRWM objectives and identify which RMSs were incorporated into the IRWM Plan. The majority of the tools described in the 2009 California Water Plan RMS section were identified by the RWMG as having potential for use in meeting the IRWM Plan objectives, listed below:

RMSs Considered in the Yuba County IRWMP

Reduce Water Demand

1. Agricultural Water Use Efficiency
2. Urban Water Use Efficiency

Improve Operational Efficiency and Transfers

3. Conveyance – Delta
4. Conveyance – Regional/Local
5. System Reoperation
6. Water Transfers

Increase Water Supply

7. Conjunctive Management and Groundwater Storage
8. Recycled Municipal Water
9. Surface Storage – Regional/Local

Improve Water Quality

10. Drinking Water Treatment and Distribution
11. Groundwater Remediation/Aquifer Remediation

12. Matching Quality to Use
13. Pollution Prevention
14. Urban Runoff Management

Improve Flood Management

15. Flood Risk Management

Practice Resources Stewardship

16. Agricultural Lands Stewardship
17. Economic Incentives (Loans, Grants, and Water Pricing)
18. Ecosystem Restoration
19. Forest Management
20. Recharge Area Protection
21. Water-dependent Recreation
22. Watershed Management

Other Strategies

23. Irrigated Land Retirement
24. Land Use Planning and Management

1.2.2 Stakeholders and Outreach

1.2.2.1 Public Outreach Process

Extensive recruitment was undertaken to ensure that the broadest possible spectrum of stakeholders and interested parties were included early enough in the process to ensure their participation all aspects of Plan development. After Plan adoption, these stakeholders will also be integral to helping the IRWMP fulfill its function by incorporating those objectives and resource management strategies into their respective planning efforts and budgets, and by securing funding and implementation of its programs and projects.

A formal inventory was conducted in summer 2013 to determine which groups, agencies, and organizations were currently underrepresented in the RWMG and overall process. This inventory revealed there were a variety of non-profit organizations, as well as Tribal, Latino and Hmong communities that had not been recruited or participated in the previous effort.

The Project Team next employed a two-phased approach to stakeholder outreach. Phase 1 focused on recruitment of existing and new stakeholders to participate and guide the Update process. Phase 2 efforts focused on project and plan development. During Phase 1, all key stakeholders from the 2008 IRWMP process were contacted and asked for their recommendations on additional contacts. The Project Team also conducted multiple interviews with interested stakeholders during Phase 1 to understand the individual concerns. During Phase 2 the Project Team focused on members and participants who were likely to include

projects in the IRWMP. Phase 2 involved intensive coordination with multiple phone calls and emails to maximize participation.

In order to promote the greatest amount of public participation in the Yuba region, access to IRWM planning information was also provided via the Yuba County IRWMP website (yubaregion.org), via telephone and U.S. Post Service outreach, via Spanish-speaking consultant to the Latino community, and during public meetings that were noticed in several local newspapers.

Outreach to Disadvantaged (DAC), Latino and Hmong, Native American Tribal Communities

The 2015 IRWMP Update involved collaboration with disadvantaged, Latino and Hmong, and Tribal communities to identify economic trends and conditions in the watershed and impacts of Plan implementation that affect these communities. The Project Team initiated a systematic outreach to DAC representatives and residents. This effort relied heavily on in-person interviews and focused on identifying critical water needs, as well as identification of instances where availability of water was limited or compromised.

To better understand the water needs of the Latino community in Yuba County, members of the Alliance for Hispanic Advancement were contacted via one-on-one, in-depth interviews. Person-on-the-street interviews were also conducted Yuba County communities with the largest Latino populations. Due in part to language and perception-based isolation, the Latino community is not engaged in water planning processes, and the information and engagement opportunities being generated by these processes are not effectively reaching this audience. It is therefore a high priority for any comprehensive water planning to proactively engage this community.

The initial outreach strategy to Tribal entities included drafting a letter inviting identified Tribal contacts to a meeting to discuss IRWM and project development, conducting the scheduled meeting using facilitators familiar with Tribal process, following up on meeting action items, and identifying additional opportunities for a subsequent Tribal meeting. For outreach purposes, it is important to note that Federally Recognized Tribes generally have paid staff and clear points of entry for communication efforts, whereas Non-Federally Recognized Tribes often do not. Further, individual Non-Federally Recognized Tribes members may themselves be geographically dispersed, making outreach more difficult.

Latino, Hmong, and Native American Tribal Communities Contacted During Preparation of the Yuba County IRWMP Update	
Tribal Entities	
Nevada City Rancheria	Pakan-Yani Band of Strawberry Valley Rancheria
Washoe Tribe of Nevada and California	Maidu/Miwok
Tsi Akim Maidu	Nisenan/Maidu
United Auburn Indian Community	Enterprise Rancheria of Maidu Indians
Concow Maidu Tribe of Mooretown Rancheria	Maidu Nation
Greenville Rancheria Tribe of Maidu Indians	Tyrone Gorre
Mechoopda Indian Tribe of Chico Rancheria	Maidu Cultural and Development Group
Shingle Springs Rancheria	Colfax-Todd Valley Consolidated Tribe
Tyme Maidu Tribe of Berry Creek Rancheria	Susanville Indian Rancheria
Hispanic Community	
Alliance for Hispanic Advancement	North Valley Hispanic Chamber
La Cooperativa Campesina de California	Ampla Health
Hmong Community	
Hmong American Association	Hmong Cultural Center of Butte County
Hmong Women's Heritage Association	

1.2.2.2 Stakeholder Involvement

The RWMG consisted of members from government agencies and special districts and non-profit organizations. Of the 46 entities on the RWMG, a near majority participated regularly in direction on plan content, project development and integration, and public outreach. This effort resulted in cooperation across geographies, political boundaries, and project types.

Level of Involvement of Yuba County IRWMP Update Stakeholders Recruited in 2013-2015	
ACTIVE MEMBERS	
AquAlliance	Olivehurst Public Utility District
Bear Yuba Land Trust	Wheatland Water District
Browns Valley Irrigation District	Reclamation District 784
Butte County Water and Resource Conservation District	Yuba County Public Works
Camptonville Community Partnership	South Yuba River Citizens League
City of Wheatland	Yuba County Water Agency
Cordua Irrigation District	Tahoe National Forest
Hallwood Irrigation Company	Linda County Water District
North Yuba Water District	
TARGETED MEETINGS ONLY	
Foothills Water Network	Yuba County Planning Division
City of Marysville	The Sierra Fund
Marysville Levee Commission	American Rivers
Beale Air Force Base	South Yuba Water District
Ducks Unlimited	Sutter County Resource Conservation District
Three Rivers Levee Improvement Authority - TRLIA	Reclamation District 817
Reclamation District 2103	Reclamation District 10

Level of Involvement of Yuba County IRWMP Update Stakeholders Recruited in 2013-2015 <i>(continued)</i>	
Ramirez Water District	Trout Unlimited
California Department of Fish & Wildlife	
MAILING LIST ONLY	
California Sports Fishing Protection Alliance	Plumas Mutual Water District
California Water Service	Yuba County Agricultural Commissioner
Camp Far West Irrigation District	Gold Country Flyfishers
District 10 Landowners	Trust for Public Land
Dry Creek Mutual Water Company	Sutter County Water Resources Division
Brophy Water District	

These RWMG participants have identified projects and actions for the Yuba County IRWM planning region that will create mutually beneficial water management outcomes and produce projects with multiple benefits.

1.2.2.3 Governance Structure

The RWMG acted in an initial decision-making role for the duration of Plan preparation, and will be replaced by a new governance entity upon Plan adoption. Attendance at RWMG meetings during Plan preparation was a determinant of ability to participate in formal decisions; participation in two out of three meetings was the minimum for eligibility to vote. No attendance limit was placed on participating in discussions and debate about Plan content or process. All decisions were by consensus or, if consensus could not be reached, then by a 75 percent supermajority vote.

1.2.3 Climate Change

DWR Guidelines require an in-depth analysis of climate change. The Yuba region analysis was unique in this regard because parallel, but coordinated, analyses addressed climate change during Plan preparation. The Project Team involved stakeholders via an advisory Core Group made up of individuals from the RWMG to identify regional climate vulnerabilities and help determine adaptation strategies that could make the region more “climate resilient.”

Meanwhile, team members from the Stockholm Environmental Institute used a Robust Decision Support (RDS) process with the Core Group that integrated natural, social, and political aspects of water resource management in a quantitative model to evaluate possible futures and project outcomes. In this way, it further refined project development, and aids local agencies in choosing the most efficacious and cost-effective solutions to water management. Note: the SEI process extends beyond the Plan preparation period, but its findings could affect project development or aspects of the Plan via future updates.

In summary, both evaluations helped identify observed and projected climate trends and impacts affecting or potentially affecting the Yuba County IRWM region. A summarized list follows:

1.2.3.1 Climate Effects Anticipated in the Yuba County IRWMP Region

- Reduced streamflow and water supply resulting in increased conflicts between human and environmental uses

- Reduced water quality from rising temperatures, eutrophication, increased algal growth, release of mercury methylation, increased sedimentation from increased winter runoff, and decreased vegetative cover due to fire
- Increased flooding with greater storm intensity and higher winter precipitation
- Inability of water infrastructure designed for a historic flow regime to accommodate increased winter peak flows
- Increased wildfire potential and catastrophic wildfire
- Upslope movement of vegetative communities as temperatures rise
- Potential fragmentation and/or degradation of habitat for stream-dependent species and elevationally dependent species in particular
- Greater numbers of both terrestrial and aquatic invasive species
- Reduced viability for heat-sensitive crops—berries, mandarin oranges, grapes, and apples;
- Effects on the region’s recreation industry from lower summer flows, both rafting and reservoir-based use

Stakeholders and the Project Team considered these trends and effects, determined likely regional climate vulnerabilities, and identified a range of adaptation strategies to reduce climate impacts and increase regional climate resiliency. A synopsis of strategies follows

1.2.3.2 Adaptation Strategies

Water Supply

- Add storage projects
- Conserve and/or recycle water
- Dredge reservoirs
- Increase and improve groundwater monitoring and management

Flooding

- Upgrade levees
- Implement headwaters meadow restoration

Wildlife and Habitat

- Provide off-channel salmon habitat
- Dam removal
- Provide habitat requirements for fish and wildlife, especially species of concern
- Manage for ecosystem structures and processes

Fire and Fuels

- Implement fuel reduction projects
- Creating fire-safe zones around critical facilities
- Provide better public education about fire safety

Socioeconomics

- Change cropping practices
- Local agency and public involvement in State policy and regulatory processes
- Increased monitoring of both surface and groundwater processes and quality
- Consider incentives for agricultural and municipal customers that meet conservation targets
- Create biomass utilization projects

Through stakeholder involvement and deliberation, as well as technical expertise and familiarity with local conditions, the Yuba region will be more resilient to climate impacts and better able to prevent negative effects related to human health and the local economy, as well as damages to natural resources.

1.3 Project Development Process

The central means of implementing the IRWMP is through project implementation, making it essential for the project development process to be aligned with the development of issues, goals, and objectives. Project sponsors demonstrated through the project application process how their proposed projects addressed the regionally identified issues, while meeting the goals and measurable objectives. Ultimately, 60 project applications were submitted to the Yuba County IRWM region by 15 project sponsors.

1.3.1 Project Solicitation Process

The project applications were distributed by the Project Team via the stakeholder email distribution list and by posting on the Yuba County IRWMP website. A project development workshop was convened to 1) provide an overview of the project development timeline; 2) review the Project Solicitation Form; 3) allow project proponents the opportunity to briefly present the projects they intended to submit to be considered for Plan inclusion; and 4) discuss project integration opportunities. The full project solicitation process is shown below.

Project Development Process
Project sponsors hold one-on-one conversations with stakeholders in pursuit of forming project partnerships
Project Team distributes Project Solicitation Form materials to stakeholders via email distribution list and posts form to Yuba County IRWM website
Project development and integration workshop
Project application deadline
Project Team conducts circuit-riding to assist in filling out forms; facilitate integration; brainstorm options for multi-stakeholder, multi-objective projects; gather input on review criteria; and assist in clarifying process for getting projects to 'ready to proceed' status.
<ul style="list-style-type: none"> • Preliminary project list presented to RWMG at meeting • Process for project review identified • Draft project review criteria developed • Partnership confirmation and project integration occurs
<ul style="list-style-type: none"> • Project list finalized • Process for project review criteria refined and approved • Final project descriptions distributed for RWMG review
<ul style="list-style-type: none"> • Cost/benefit questionnaire and greenhouse gas (GHG) inventories completed for projects • Project sponsors make project presentations at RWMG meeting • Project review conducted and projects confirmed for IRWMP inclusion at RWMG meeting
<ul style="list-style-type: none"> • Draft project chapter completed and distributed to RWMG for review • RWMG comments received for draft project development chapter • Project development chapter refined

The Project Solicitation Form served as the primary project application for the Yuba IRWM region. To demonstrate economic feasibility for projects, each project sponsor completed a questionnaire as part of the application process. In the Project Solicitation Form, project sponsors were asked to describe how each project mitigates for greenhouse gas (GHG) emissions as well as the process by which the project proponents considered GHG emissions reduction among project alternatives. Projects are also required to calculate GHG emissions associated with project implementation/construction.

Through a consensus decision, the RWMG determined it would not rank or prioritize projects. It was the view of the group that ranking projects sets up a de facto project selection process for funding purposes. The RWMG confirmed that the role of the IRWMP project review process is to collaboratively develop projects for Plan inclusion (not for funding) that as a complete suite would effectively implement the IRWMP. The RWMG further asserted that ranking would create unnecessary competition and conflict among project proponents. Instead, the RWMG decided that they would apply the project review criteria to all of the projects (including conceptual projects) and, in doing so, work to get as many projects as possible to an enhanced status of readiness. Another factor affecting the RWMG’s decision to forego project ranking is the region’s ongoing interest in diversifying its funding of projects beyond DWR’s Implementation Grant programs. By maintaining a list of unranked projects, the region is able to maximize its responsiveness to the specific priorities of different and varied funding programs.

1.3.2 Creating the Final IRWM Plan Project List

At the close of the project presentations, the RWMG unanimously approved all of the projects for inclusion in the Yuba County IRWMP without exception. The complete list of projects and their sponsors is shown below.

Project Title	Project Sponsor
Yuba Gold Fields Integrated Flood Mgmt., Habitat, & Recreation Project	American Rivers
Yuba Land Conservation Easements	Bear Yuba Land Trust
Yuba Watershed Forest and Fuels Project	Bear Yuba Land Trust
Camptonville Water System Improvement Project (Phase II)	Camptonville CSD
Citywide Storm Drain Improvement Project	City of Wheatland
Dry Creek Levee Improvement Project	City of Wheatland
North Stormwater Detention Basin Rehabilitation	City of Wheatland
Reclaimed Water Feasibility Study	City of Wheatland
Stormwater Program Management - Equipment Purchase	City of Wheatland
Wastewater Treatment Plant Improvement	City of Wheatland
Wheatland Water Supply Reliability	City of Wheatland
Well System Monitoring Rehabilitation	City of Wheatland
Marysville Ring Levee Project	Marysville Levee District
Challenge Water Storage Tank Replacement	North Yuba Water District
Dobbins Oregon House Canal Improvement Project	North Yuba Water District
Forbestown Ditch Improvement Project	North Yuba Water District
Forbestown Water Storage Tank and Pipeline Replacement	North Yuba Water District
New York Flat Road Water Transmission Main	North Yuba Water District
Rackerby Water Storage Tank Replacement	North Yuba Water District
Recycled Water Distribution System	Olivehurst PUD
Olivehurst Water Main Replacement	Olivehurst PUD
Acquisition of Landside Urban Levee Maintenance Corridors	RD 784
Chestnut Pump Station Reconstruction	RD 784
Edgewater Detention Basin and Pump Station 5 Improvements	RD 784
Pump Station 1 Reconstruction	RD 784
Pump Station 2 System Improvement	RD 784
Pump Station 10 Improvements	RD 784
FSRP LAN29 Critical Repair Project - Right Bank Bear River Set-back Levee	RD 817
Dry Creek Levee Feasibility Study	RD 817
Bear River and Dry Creek Levee Feasibility Study	RD 2103
Daguerre Point Dam Fish Passage Improvement	South Yuba River Citizens League

Project Title	Project Sponsor
Water Conservation Education	South Yuba River Citizens League
Yuba River Recreation Projects	South Yuba River Citizens League
Yuba Salmon Education	South Yuba River Citizens League
Yuba Salmon Habitat Restoration	South Yuba River Citizens League
Lower Yuba Environmental Flows	South Yuba River Citizens League
Hydrilla Eradication and Canal Lining	Sutter County RCD
Yuba County Airport Drainage Improvements	Yuba County
Linda Drainage Improvements	Yuba County
Olivehurst Drainage Study	Yuba County
Olivehurst Pump Station	Yuba County
Groundwater Model Project (Phase 2)	Yuba County Water Agency
Irrigation Water Measurement Implementation	Yuba County Water Agency
New Bullards Bar Outlet Capacity Increase	Yuba County Water Agency
North Area Irrigation Water Reuse	Yuba County Water Agency
South Yuba Canal Fish Screen	Yuba County Water Agency
Agricultural Water Conservation Evaluation	Yuba County Water Agency
Forecast Coordinated Operations	Yuba County Water Agency
Groundwater Monitoring Program	Yuba County Water Agency
Long-term Water Supply Sustainability Study	Yuba County Water Agency
Narrows II Powerhouse Intake Extension	Yuba County Water Agency
New Bullards Bar Reservoir Reoperation Manual	Yuba County Water Agency
New Colgate Powerhouse Tailwater Depression	Yuba County Water Agency
Regional Feather River Diversion Feasibility Study	Yuba County Water Agency
Regional Flood Management Agency	Yuba County Water Agency
Subsidence Monitoring	Yuba County Water Agency
Surface Water Measurement Program	Yuba County Water Agency
Lower Yuba River Accord Implementation	Yuba County Water Agency
Lower Yuba River Accord Implementation -Fisheries Actions	Yuba County Water Agency
Yuba County Levee Project	Yuba County Water Agency

1.4 Financing Strategies

Two types of ongoing funding are needed to implement the plan: funding the administration of the IRWM program, such as annual Plan evaluation and amendment and governance issues, and funding to implement projects. Program funding will likely come from RWMG partners in the form of donations and in-kind support, and/or administrative line items included in project grants.

Project funding far exceeds the state's IRWM Program funding capacity. Therefore, funding and financing for projects proposed under this Plan are anticipated to come from public and private grants, user fees, and in-kind donations.

1.4.1 Plan Funding

YCWA took a lead role in the IRWM process, both as the planning grantee and administrator, and by making space, support staff, and electronic media available for RWMG meetings. The RWMG is currently staffed by a Project Team preparing this Plan and funded by the IRWM Planning Grant. Once the IRWMP is complete and adopted, the RWMG will need to secure ongoing revenues to support the cost of implementation (e.g.,

coordinator support, securing necessary staffing to help prepare DWR Implementation Grant proposals and other sources of funding, potential technical updates to the Plan, and RWMG-related costs for meetings, such as meeting venues, technical media, postage, and copying).

The RWMG determined that within four years, YCWA may be able to bring an increased level of participation/investment to the Yuba County IRWM. In the interim, RWMG members have agreed to approach their respective organizations to secure funding in support of maintaining the IRWM. Each entity that ultimately adopts the Memorandum of Understanding and becomes a member of the RWMG after the planning process will be asked to recruit funds through board approval.

Foundation and public grants are a secondary source of support. Public, private, and family foundations connected to the watershed or its attributes could be approached, both for technical reports and general RWMG support. Additionally, stakeholders may be able to include support for Plan updates within future DWR IRWM Planning Grant applications.

1.4.2 Project Funding

A wide variety of sources could be sought to meet the needs of natural resources, infrastructure, and disadvantaged communities. These include: revenue bonds, property tax assessments, user fees, special districts; State grant sources, such as Proposition 84 and Proposition 1E programs; federal funding, such as EPA's Source Reduction Assistance and U.S. Fish & Wildlife Service's North American Wetlands Conservation Act grant programs; and a variety of private foundations.

1.5 Plan Implementation

1.5.1 Plan-related Implementation Actions

The RWMG will convene a meeting to evaluate Plan performance at least once annually, and more often if needed, to enhance chances for project funding, to respond to revisions to guidelines or updates to regulations, to take advantage of opportunities to improve the Plan, and to recognize and document circumstances in the watershed that substantively affect the Plan. The schedule for evaluation will be set forth when the RWMG adopts the Plan.

At minimum, the evaluation will consist of measuring Plan progress against the adopted Plan-level performance measures developed during the first evaluation session. As part of its adaptive management strategy to stay current and revise the Plan, the RWMG will compare implemented projects and their outcomes against objectives metrics to determine progress toward achieving the Plan's goals and objectives. New scientific data, regional conditions, or natural resource events could substantively alter the understanding of issues or solutions within the watershed. Potential alterations to the Plan goals or objectives will necessarily need to consider and address changes in water demand, water supply, water quality, and effects on DACs. The RWMG will write up its Plan evaluations (annually at minimum) and will post evaluations on the Yuba County IRWMP website.

The RWMG will be replaced by a formal MOU-based governing body after Plan adoption. Subsequent adoption by individual entities is a prerequisite to membership in the new governing body. This group will oversee all aspects of Plan implementation including pursuit of funding for projects, updating and revising the

Plan, continuing to develop and advance new projects, and continued recruitment of and management of relations with regional stakeholders.

1.5.2 Project-related Implementation Actions

Project outcomes will be assessed relative to the objective metrics in the IRWMP. Sponsors of existing and future projects will be expected to provide measures and outcomes for their projects which provide specific quantitative measures. Project sponsors will submit relevant information about projects and project performance to the RWMG's data management system via its website, and will be responsible for development of monitoring plans for their respective project when applying to a funding source and will specify both who will conduct the monitoring and how it will be funded. The IRWMP indicates that specific monitoring group will evaluate the monitoring plans at regular intervals. As findings and the resulting lessons learned from monitoring become available, they will be a valuable tool in improving project design in the future, amending resource management strategies, and altering objectives to be more responsive to watershed needs.