

Section 6: Goals and Objectives

The goals and objectives presented in this section represent the foundational intent of this *Integrated Regional Water Management Plan* (IRWM Plan). Formulating meaningful and relevant goals and objectives for the Westside Sacramento Region (Region) Plan required more collaboration and collective interaction than the work documented in any other section of this Plan. The goals and objectives were developed over an 11-month period, with about 15 conversations among various combinations of the Coordinating Committee, stakeholder group, and Consultant Team. The draft goals and objectives were circulated for review and comment to the stakeholders five times to allow for thorough consideration and refinement of what ultimately will direct the Plan. The objectives were further refined in 2018 to meet the 2016 Plan Standards (DWR 2016).

6.1 Planning Terms

People familiar with the discipline of planning recognize that different agencies and organizations use similar terms in slightly different ways in their processes. During the overall IRWM planning process, the Consultant Team established and used the following terms:

- Planning process goals,
- Plan goals, and
- Plan objectives.

Within this Plan, the term “goal” means a desired outcome or result for which effort will be made to accomplish it.

The “planning process goals” set near the beginning of the Plan development process describe what the Coordinating Committee intended to accomplish by the time the Plan is adopted. These are presented in Section 1.3.1.

The “Plan goals,” which are presented in Section 6.3, give a high-level perspective of what the Plan is intended to address (and by inference, what it is not intended to address). The Plan goals are written so that they will be relevant over the entire planning horizon and beyond, and they may never be fully realized. In other words, effort towards achieving the Plan goals is expected to continue indefinitely. For

example, the first goal, “Acknowledge and respect the cultural values and resources of the Region,” is one that the stakeholders should always strive to achieve and improve.

In contrast, the term “objective” means a specific and tangible outcome that is intended to be achieved by or during a designated time. The Plan objectives, presented in Section 6.4, were developed using “SMART” criteria, meaning that each objective should be specific, measurable, attainable, relevant, and time-based. When crafted properly, SMART objectives help to promote actions that lead to measurable results consistent with Plan goals. The Plan objectives allow people to measure and track progress toward improving integrated water management within the Region over time.

In some cases, the Plan objectives include specific dates for completion (for example, Objective 4). In other cases, they are to be worked toward throughout the planning period (for example, Objective 1). In a few cases, the intended completion date of an objective may depend on completing another objective (for example, Objective 6).

6.2 Process for Developing Goals and Objectives

The Plan goals and objectives were developed between January and December 2012 using an iterative and collaborative approach that included three phases:

- Identify challenges and opportunities within the Region,
- Propose draft Plan goals and discuss, review, and refine them, and
- Propose draft Plan objectives and discuss, review, and refine them.

The first step was to identify the water-related challenges and opportunities that stakeholders believed to be important in the Region now. Once the stakeholder group had identified a representative list of challenges and opportunities (see Section 5), Plan goals were proposed by individual stakeholders, the Consultant Team, and members of the Coordinating Committee. The draft Plan goals were

discussed, reviewed, and refined over several months until broad agreement on them was reached.

6.3 Plan Goals

The Plan goals are listed alphabetically below:

1. **Acknowledge and respect the cultural values and resources of the Region.**

In 2010, the Westside Region included in its nearly 3,000 square miles a diverse population of almost 400,000 people and nearly 530,000 acres of farmland. With a long history of changing culture and landscapes, the Region remains home to a number of Native American tribes. This goal is intended to highlight the diverse cultural values and resources in the Region and to promote collaboration to preserve that diversity.

2. **Improve education and awareness throughout the Region about water, watershed functions, and ecosystems and the need for sustainable resource management to protect community health and well-being.**

Natural scientists and resource management professionals recognize the complex interdependencies between people, their use of water, watersheds, and associated ecosystems. Unfortunately, many others do not recognize or appreciate this interdependence. This goal underscores the importance of educating the citizens of the Region about their roles in this complex and dynamic water system and what they can do to help their communities and ecosystems to be healthy and thrive over the long term.

3. **Improve the collective understanding of watershed characteristics and functions (natural and human-induced) within the Region as needed to respond effectively to evolving water resources management challenges and opportunities (e.g., climate change).**

As mentioned before in this Plan, the watersheds within the Region are complex and dynamic. As human activities and water uses have changed and continue to change, the watersheds and other resources have also changed. This goal highlights the importance of continuing to learn more about the characteristics and functions of the watersheds in order to respond strategically and skillfully to future changes.



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Swainsons Hawk

4. **Improve the form and function of degraded natural channels.**

Unfortunately, many of the natural channels in the Region have been altered significantly as land uses, water management, and flood protection practices have changed. In many cases, these changes have degraded important habitats and the water conveyance capacities of the channels. This goal emphasizes the need to improve the form and function of natural channels to allow them to provide multiple benefits and require less human intervention and maintenance over time.

5. **Improve water-related public health across the Region and emphasize improvements for populations most in need.**

Water plays a critical role in the public health of citizens within the Region. Everyone relies on water supplies for household use, sanitation, and food production. Also, the quality of the water for drinking and recreation can affect the health of people suddenly and over time. Several of the areas within the Region include Tribal communities and citizens who are considered economically disadvantaged. These population segments can be disproportionately challenged in achieving health. This goal emphasizes the need to continue to focus on improving public health, especially for those citizens who need support the most.

6. Preserve and enhance water-related recreational opportunities.

People enjoy a wide variety of recreational opportunities related to the water features of the Region. This goal acknowledges that efforts to sustain and enhance recreational opportunities into the future are an important component of integrated water management.

7. Preserve, improve, and manage water quality to meet designated beneficial uses for all water bodies within the Region.

A number of water quality concerns and challenges for surface water and groundwater exist throughout the Region. The level of concern or challenge about the water quality depends upon how the water is being used and the specific water body or aquifer being considered. This goal highlights the importance of improving the water quality within some water bodies as appropriate to water uses and of preserving water quality levels that are now within desirable ranges.

8. Promote reasonable use of water and watershed resources.

Water and natural resources within the Region play a central role in the health and well-being of its citizens. As population grows, it becomes increasingly important to use water and natural resources sustainably. One way to support sustainability is to avoid wasting water and other natural resources and to continue to implement cost-effective conservation and efficiency improvements. Work towards achieving this goal will help reduce the Region's dependence on the Sacramento-San Joaquin Delta for water supply.

9. Protect and enhance habitat and biological diversity of native and migratory species.

Much of the riparian habitats within the Region have been affected negatively by changes in land use, water management, and flood protection practices over the past 100 years. This goal underscores the importance of protecting and improving the remaining habitats in ways that benefit native and migratory species.

10. Provide reliable water supplies of suitable quality for multiple beneficial uses (e.g., urban, agriculture, environmental, and recreation) within the Region.

As shown in Section 3, people within the Region have many different uses for water that produce

a variety of benefits. Providing these water supplies at the desired time, place, quantity, and quality requires (and will continue to require) significant effort and investments in maintaining and improving infrastructure and other systems to conjunctively manage groundwater and surface water, which will reduce dry-year dependence on the Sacramento-San Joaquin Delta. Supply reliability must also take into account potential changes in the amount, intensity, timing, quality, and variability of water resources, and potential impacts of sea level rise on SWP supplies.

11. Reduce the risks of disruptive natural and human-caused disturbances affecting the Region's water resources, including flooding, fire, and significant institutional interruptions that reduce resources management services.

People face numerous hazards within the Region that could harm their health and well-being. This goal highlights the importance of continuing to monitor, understand, and mitigate the range of hazards related to water and watershed management (such as floods, wildfires, budgetary crises, etc.) that could negatively impact the citizens of the Region.

12. Support improved regional water management through governance throughout the Region that uses science and collaboration to make fair and equitable decisions and investments.

This goal acknowledges the wide array of stakeholders and diverse interests within the Region and commits water managers within the Region to continue to use science and open, fair, and collaborative approaches to managing water resources and making decisions about investments that affect many people.

13. Support sustainable economic activities consistent with local and state government planning efforts within the Region.

This goal highlights the fact that all water management activities within the Region are carried out to support a stable and growing economy for citizens and communities over the long term. Among the many factors influencing economic stability and growth, integrated water management is one of the most crucial factors. Local and state government must continue to improve integrated water management to achieve the economic stability that is desired.

6.4 Plan Objectives

Once a draft list of Plan goals was formed, the Project Team began proposing potential Plan objectives that met the SMART criteria. The first-draft Plan objectives were presented in April 2012 and discussed, reviewed, and refined over seven months, leading to the 24 broadly supported Plan objectives listed below. The Plan objectives are organized according to the 10 focus areas identified for the challenges and opportunities (see Section 5).

Given the number of objectives and range of activities needed to meet them, the Project Team and stakeholders decided to prioritize the objectives to help focus efforts during Plan implementation. The Project Team set initial priorities for the objectives by evaluating their *importance* and *urgency*. The *importance* assigned to each objective reflects the significance or consequence to the Region as a whole of satisfying that objective compared with other objectives. The *urgency* assigned to each objective reflects the degree to which that objective warrants speedy attention or action compared with other objectives. The preliminary prioritization was then presented during stakeholder meetings and reviewed, discussed, and refined.

Table 6-1 summarizes the objectives, which are grouped by focus area. The table also indicates the importance and urgency of each and the Plan goals they address. Table 6-2 shows the relationship between Plan goals and objectives. Table 6-3 presents the objectives according to importance and urgency, showing which have the highest priority.

The narrative that follows these tables presents the full statement of each objective, along with how to qualitatively and quantitatively measure whether it has been accomplished, which Plan goals it addresses, its importance and urgency, and other information.

6.4.1 Education and Awareness Focus

- 1. Provide and promote use of educational curricula for K-12 students designed to increase awareness of watershed and resource stewardship and how individual stewardship relates to community health and well-being, from July 2013 through the planning period.**

Qualitative Measurement

None

Quantitative Measurement

- Availability of curricula suitable to each grade and student population within the Region.
- Number of schools contacted each year to promote use of curricula.
 - Target: Contact 50% of all schools in Region each year.
- Number of students who receive instruction from grade-suitable curricula.
 - Target: Reach 30% of student population within the Region each year starting in 2014.

Addresses Plan Goals

2, 3, 8, and 12

Priority

Importance = Medium

Urgency = Low

Notes

- One opportunity for the Region is to host an education summit as part of Plan implementation that could result in new targets that would replace the current ones.
 - A cooperative, statewide effort, called the California Education and Environment Initiative (EEI), is already in place to help K-12 students learn about the environment and how it relates to their everyday lives. Curriculum information provided by the California Department of Education can be found at <http://www.dec.ca.gov/ci/sc/ee/>.
- 2. Provide educational information for the adult population designed to increase awareness of watershed and resource stewardship and how individual stewardship relates to community health and well-being within the Region, from July 2013 through the planning period.**

Qualitative Measurement

None

Quantitative Measurement

- Number of people who receive the educational materials/messages within the Region each year.
 - Target: 10% of population annually.

Table 6-1: Summary of Objectives

Summary of Objective	Importance*	Urgency**	Plan Goals
Education and Awareness Focus			
1. Provide/promote use of educational curricula for K-12 students	Medium	Low	2, 3, 8, 12
2. Provide educational information to encourage stewardship by public	Medium	Low	2, 3, 8, 12
Habitat Focus			
3. Restore native vegetation/form/function in riparian/aquatic corridors	Medium	Medium	1, 4, 6, 9
4. Quantify extent of suitable life-cycle habitat for threatened/endangered/imperiled (T/E/I) native fish	High	Medium	3, 6, 9, 12
5. Prioritize/plan/schedule improvements to life-cycle habitat for threatened/endangered/imperiled native fish	High	Medium	3, 6, 9, 12
6. Increase availability of suitable life-cycle habitat for threatened/endangered/imperiled native fish	High	Medium	4, 6, 9
Invasive Species Focus			
7. Prevent colonization by quagga/zebra mussels and eliminate/prevent spread of New Zealand mud snail	High	High	6, 9, 10, 13
8. Establish invasive plant management plan	Medium	Medium	3, 4, 6, 9, 11, 12
9. Implement invasive plant management plan	Medium	Medium	4, 6, 9, 11
Infrastructure Focus			
10. Create asset management plan for key water management infrastructure	Medium	Low	2, 3, 7, 10, 11, 12, 13
Reasonable Use Focus			
11. Meet 20% by 2020 conservation targets	Medium	Medium	8, 10, 13
12. Increase adoption of agricultural best management practices (BMPs)	Medium	Medium	4, 7, 8, 10, 13
Recreation Focus			
13. Maintain and increase water-related recreational opportunities	Medium	Low	6, 13
Risk Management Focus			
14. Provide adequate flood protection	High	Medium	4, 5, 11, 13
15. Manage watershed activities to reduce large erosion events	Medium	Medium	4, 6, 7, 8, 11
Understand Watershed Function Focus			
16. Monitor state/federal Delta programs	Medium	High	3, 12
17. Monitor conditions/improve understanding to support sustainable groundwater basins	High	Low	3, 7, 10, 12, 13
18. Maintain and enhance watershed and natural resource monitoring network and information sharing	High	Medium	2, 3, 7, 10, 11, 12, 13
Water Quality Focus			
19. Address pollutant sources to meet runoff standards and total maximum daily load (TMDL) targets	High	Medium	5, 6, 7, 9
20. Minimize accidental wastewater spillage/discharges	Medium	Medium	5, 6, 7, 9, 13
21. Reduce public health risks by reducing contaminants in drinking water sources	Medium	Medium	3, 7, 10, 13
22. Meet all drinking water and wastewater discharge-standards	High	High	5, 6, 7, 9, 13
Water Supply Focus			
23. Provide 100% reliability of municipal and industrial (M&I) water supplies	High	Medium	1, 7, 10, 13
24. Provide agricultural water supplies to support a robust agricultural industry	High	Medium	1, 10, 13

* The "importance" assigned to each objective reflects the significance or consequence to the Region of satisfying this objective compared with other objectives.

** The "urgency" assigned to each objective reflects the degree to which this objective warrants speedy attention or action compared with other objectives.

Table 6-2: Relationship between Plan Objectives and Plan Goals

		Plan Goals													
		1	2	3	4	5	6	7	8	9	10	11	12	13	
Summary of Objectives	1. Provide/promote use of educational curricula for K-12 students		●	●					●					●	
	2. Provide educational information to encourage stewardship by public		●	●					●					●	
	3. Restore native vegetation/form/function in riparian/aquatic corridors	●			●		●			●					
	4. Quantify extent of suitable life-cycle habitat for T/E/I native fish			●			●			●				●	
	5. Prioritize/plan/schedule improvements to life-cycle habitat for T/E/I native fish			●			●			●				●	
	6. Increase availability of suitable life-cycle habitat for T/E/I native fish				●		●			●					
	7. Prevent colonization by quagga/zebra mussels and eliminate/prevent spread of New Zealand mud snail						●			●	●				●
	8. Establish invasive plant management plan			●	●		●			●			●	●	
	9. Implement invasive plant management plan				●		●			●			●		
	10. Create asset management plan for key water management infrastructure		●	●					●			●	●	●	●
	11. Meet 20% by 2020 conservation targets									●		●			●
	12. Increase adoption of agricultural BMPs				●				●	●		●			●
	13. Maintain and increase water-related recreational opportunities						●								●
	14. Provide adequate flood protection				●	●							●		●
	15. Manage watershed activities to reduce large erosion events				●		●	●	●				●		
	16. Monitor state/federal Delta programs			●										●	

		Plan Goals												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Summary of Objectives	17. Monitor conditions/improve understanding to support sustainable groundwater basins			●				●			●		●	●
	18. Maintain and enhance watershed and natural resource monitoring network and information sharing		●	●				●			●	●	●	●
	19. Address pollutant sources to meet runoff standards and TMDL targets					●	●	●		●				
	20. Minimize accidental wastewater spillage/discharges					●	●	●		●				●
	21. Reduce public health risks by reducing contaminants in drinking water sources			●				●			●			●
	22. Meet all drinking water and wastewater discharge standards					●	●	●		●				●
	23. Provide 100% reliability of M&I water supplies	●						●			●			●
	24. Provide agricultural water supplies to support a robust agricultural industry	●									●			●

Table 6-3: Objectives Arranged by Importance/Urgency

Summary of Objective	Importance*	Urgency**
7. Prevent colonization by quagga/zebra mussels and eliminate/prevent spread of New Zealand mud snail	High	High
22. Meet all drinking water and wastewater discharge standards	High	High
4. Quantify extent of suitable life-cycle habitat for T/E/I native fish	High	Medium
5. Prioritize/plan/schedule improvements to life-cycle habitat for T/E/I native fish	High	Medium
6. Increase availability of suitable life-cycle habitat for T/E/I native fish	High	Medium
14. Provide adequate flood protection	High	Medium
18. Maintain and enhance watershed and natural resource monitoring network and information sharing	High	Medium
19. Address pollutant sources to meet runoff standards and TMDL targets	High	Medium
23. Provide 100% reliability of M&I water supplies	High	Medium
24. Provide agricultural water supplies to support a robust agricultural industry	High	Medium
17. Monitor conditions/improve understanding to support sustainable groundwater basins	High	Low
16. Monitor state/federal Delta programs	Medium	High
3. Restore native vegetation/form/function in riparian/aquatic corridors	Medium	Medium
8. Establish invasive plant management plan	Medium	Medium
9. Implement invasive plant management plan	Medium	Medium
11. Meet 20% by 2020 conservation targets	Medium	Medium
12. Increase adoption of agricultural BMPs	Medium	Medium
15. Manage watershed activities to reduce large erosion events	Medium	Medium
20. Minimize accidental wastewater spillage/discharges	Medium	Medium
21. Reduce public health risks by reducing contaminants in drinking water sources	Medium	Medium
1. Provide/promote use of educational curricula for K-12 students	Medium	Low
2. Provide educational information to encourage stewardship by public	Medium	Low
10. Create asset management plan for key water management infrastructure	Medium	Low
13. Maintain and increase water-related recreational opportunities	Medium	Low

* The “importance” assigned to each objective reflects the significance or consequence to the Region of satisfying this objective compared with other objectives.

** The “urgency” assigned to each objective reflects the degree to which this objective warrants speedy attention or action compared with other objectives.

Addresses Plan Goals

2, 3, 8, and 12

Priority

Importance = Medium
Urgency = Low

Notes

Agencies in neighboring IRWM Regions who intend to conduct similar public education campaigns likely will be able to coordinate and share resources (e.g., the Regional Water Authority in the American River Basin Region has expressed interest in collaborating on this objective).

6.4.2 Habitat Focus

3. Restore native vegetation and form and function along riparian corridors, canals, and other aquatic sites throughout the Region through 2040 to provide stream shading, habitat enhancement, and increased biological diversity.

Qualitative Measurement

None

Quantitative Measurement

- Acres restored along corridors, canals, and ditches; number of native plants planted; improved connectivity of habitat corridors; etc.
 - Target: Support goals established within natural community conservation plans (NCCPs), habitat conservation plans (HCPs), and other habitat planning documents for the Region. (See Section 2 for a list of existing habitat planning documents and a summary of goals and targets within them.)

Addresses Plan Goals

1, 4, 6, and 9

Priority

Importance = Medium
Urgency = Medium

Notes

As habitat planning documents are added or updated, these targets need to be updated as well.

4. Quantify the extent of suitable life-cycle habitat currently accessible to T/E/I native fish within the Region by December 31, 2014.

Qualitative Measurement

None

Quantitative Measurement

Existence of documentation of extent of suitable life-cycle habitat currently accessible to T/E/I native fish within the Region.

Addresses Plan Goals

3, 6, 9, and 12

Priority

Importance = High
Urgency = Medium

Notes

- Will require compilation of a list of the T/E/I native fish species within the Region.
- Will require definition of criteria for "suitable habitat currently accessible" for each species.
- This objective is linked to Objectives 5 and 6.

5. Prioritize, plan, and schedule improvements in suitable life-cycle habitat accessible to T/E/I native fish within the Region by December 31, 2015.

Qualitative Measurement

None

Quantitative Measurement

The existence of a document with planned, prioritized, and scheduled improvements.

Addresses Plan Goals

3, 6, 9, and 12

Priority

Importance = High
Urgency = Medium

Notes

This objective is linked to Objectives 4 and 6.

6. Increase availability of suitable life-cycle habitat for T/E/I native fish identified by Objective 5.

Qualitative Measurement

None

Quantitative Measurement

Increase in area (such as number of acres of suitable spawning area) of suitable life-cycle habitat that is accessible to target species.

Addresses Plan Goals

4, 6, and 9

Priority

Importance = High
Urgency = Medium

Notes

This objective is linked to Objectives 4 and 5.

Quantitative Measurement

Existence of an invasive plant management plan for the Region or integration of existing plans.

Addresses Plan Goals

3, 4, 6, 9, 11, and 12

Priority

Importance = Medium
Urgency = Medium

Notes

- Lake County has a countywide plan that could be integrated with other plans or serve as a basis for a Region-wide plan.
- This objective is linked to Objective 9.

6.4.3 Invasive Species Focus

- 7. Prevent colonization of any regional water body by quagga mussels or zebra mussels and eliminate or prevent the spread of New Zealand mud snails from Putah Creek during the planning period.**

Qualitative Measurement

None

Quantitative Measurement

Presence (or absence) of target invasive species by location within the Region.

Addresses Plan Goals

6, 9, 10, and 13

Priority

Importance = High
Urgency = High

Notes

A number of aquatic invertebrate prevention programs are operational within the Region now.

- 8. Establish an invasive plant management plan (including specific and measurable targeted outcomes for species of concern and a schedule to accomplish target outcomes) for the entire Region by December 31, 2015.**

Qualitative Measurement

None

- 9. Implement programs and projects to meet the outcomes defined in the invasive plant management plan developed through Objective 8 (according to the schedule provided in that plan).**

Qualitative Measurement

None

Quantitative Measurement

Measures appropriate to the targeted outcomes identified in the invasive plant management plan created through Objective 8.

Addresses Plan Goals

4, 6, 9, and 11

Priority

Importance = Medium
Urgency = Medium

Notes

This objective is linked to Objective 8.

6.4.4 Infrastructure Focus

- 10. Create an asset management plan for key water management infrastructure within the Region consistent with the guidance provided**

in the *International Infrastructure Management Manual*, by December 31, 2015.

Qualitative Measurement

None

Quantitative Measurement

Existence of asset management plan.

Addresses Plan Goals

2, 3, 7, 10, 11, 12, and 13

Priority

Importance = Medium
Urgency = Low

Notes

The California Emergency Management Agency "critical infrastructure protection" criteria and the work done for existing natural hazard mitigation plans may be useful bases for identifying key water management infrastructure within the Region and setting investment priorities.

6.4.5 Reasonable Use Focus

11. Meet 20% by 2020 statewide water conservation targets by December 31, 2020.

Qualitative Measurement

None

Quantitative Measurement

Water conservation measured in gallons per capita per day (gpcd) as defined by the Water Conservation Act of 2009 and California Department of Water Resources (DWR) guidance methodologies. Use Urban Water Management Plans (UWMPs) to measure progress. The 2015 interim and 2020 compliance targets for each urban water supplier in the Region are summarized in the following table:

Table 6-4: Water Use Reduction Targets

Urban Water Supplier	Baseline (gpcd)	2015 Interim Target (gpcd)	2020 Compliance Target (gpcd)
City of Vacaville	189	176	164
City of Rio Vista	310	279	248
City of Davis	215	194	172
City of Dixon	170	165	161
City of West Sacramento	293	264	234
City of Woodland	290	261	232

Addresses Plan Goals

8, 10, and 13

Priority

Importance = Medium
Urgency = Medium

Notes

- The UWMP compliance targets were re-evaluated during the 2015 UWMP development cycle. Water use efficiency is important to all water agencies but particularly important to agencies that use imported water diverted from the Sacramento River; meeting this objective will be one of the primary means to reduce the Region's dependence on the Delta for water supply.
- It is understood that water conservation also contributes to reductions in energy consumption through the water energy nexus.

12. Increase adoption of locally cost-effective agricultural BMPs throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Compliance with Senate Bill SBX7-7.
- Number of required efficient water management practices (EWMPs) adopted.

- Number of optional EWMPs adopted.
- Number of BMPs adopted beyond EWMPs.

Addresses Plan Goals

4, 7, 8, 10, and 13

Priority

Importance = Medium
Urgency = Medium

Notes

- EWMPs are a subset of all potential BMPs.
- A list of EWMPs can be found in California Water Code §10608.48(c).
- Other agricultural BMPs include actions to protect or improve water quality, improve soil conservation, or reduce impacts on habitat.
- Since agricultural water users can divert up to 600,000 acre-feet per year (AFY) from the Sacramento River, use of EWMPs is critical to reducing the Region’s dependence on the Delta for water supply.

6.4.6 Recreation Focus

13. Maintain and increase water-related recreational opportunities within the Region throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Describe maintenance activities that benefit water-related recreation performed annually.
- Describe additional or enhanced water-related recreational opportunities provided annually.

Addresses Plan Goals

6 and 13

Priority

Importance = Medium
Urgency = Low

Notes

- Because some areas within the Region rely more heavily on water-related recreational opportunities as part of the local economy than other areas, actions to maintain water-related recreation may hold a higher priority

for those areas (e.g., communities surrounding Clear Lake).

- Maintaining recreational opportunities is also closely related to water quality. For example, algal blooms can impact recreational use of waterbodies due to toxins, odors, and scum that they can produce.

6.4.7 Risk Management Focus

14. Provide adequate flood protection for all urban and rural areas within the Region by December 31, 2050.

Qualitative Measurement

None

Quantitative Measurement

- Change in calculated level of flood protection.
 - Targets: Provide flood protection consistent with the Central Valley Flood Protection Plan. For urban and urbanizing areas, meet the urban level of flood protection; for other developed areas, meet the Federal Emergency Management Agency (FEMA) standard of flood protection; for rural areas, provide the level of protection warranted for the assets subject to damage.

Addresses Plan Goals

4, 5, 11, and 13

Priority

Importance = High
Urgency = Medium

Notes

While the completion date for this objective is 2050, projects that contribute toward meeting this objective are expected to be implemented within the current planning horizon of 2040.

15. Manage watershed activities and conditions to reduce the risk of large erosion events that could increase undesirable sediment loading to water bodies throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Number of large erosion events documented each year.
- Number of preventive measures taken and repairs made to reduce large erosion events.

Addresses Plan Goals

4, 6, 7, 8, and 11

Priority

Importance = Medium
Urgency = Medium

Notes

Tracking progress on this objective will require establishment of a definition of (and possibly criteria to identify) a “large erosion event.”

6.4.8 Understand Watershed Function Focus

16. Monitor planning of state and federal water-related projects and programs in the Delta and estimate potential local impacts throughout the planning period.

Qualitative Measurement

- Scientific information and studies available that characterize potential impacts to Region.
- Active participation and engagement in identified state and federal water resources planning and projects.

Quantitative Measurement

None

Addresses Plan Goals

3 and 12

Priority

Importance = Medium
Urgency = High

Notes

None

17. Monitor conditions and improve understanding to support sustainable use of

groundwater basins within the Region throughout the planning period.

Qualitative Measurement

- Sufficient information available to understand and predict status of aquifer functions over the long term.
- Understanding of opportunities to improve regional water supply portfolio through conjunctive management, which supports means to potentially reduce dry-year dependence on Delta Water supplies.

Quantitative Measurement

Prevent long-term declines in groundwater levels and quality throughout the Region.

Addresses Plan Goals

3, 7, 10, 12, and 13

Priority

Importance = High
Urgency = Low

Notes

- Potential long-term declines of groundwater levels can be assessed by computing and reporting a 10-year moving average of groundwater levels at key locations for active aquifers each year within the Region. Comparing the 10-year moving average for each year should filter out most effects of annual variability in local precipitation, groundwater use, and recharge.
- Potential long-term declines in water quality can be assessed by computing an annual average for key constituents from select groundwater wells in active aquifers. The aquifers and constituents to be tracked for each aquifer need to be identified.

18. Maintain and enhance monitoring network and information sharing to support management of watersheds and natural resources within the Region throughout the planning period.

Qualitative Measurement

- Availability of important information.
- Ease of access to data and information across agency boundaries.

Quantitative Measurement

None

Addresses Plan Goals

2, 3, 7, 10, 11, 12, and 13

Priority

Importance = High
Urgency = Medium

Notes

- See Section 10 for more detail related to data collection and management.

6.4.9 Water Quality Focus

19. Address pollutant sources to meet runoff standards and satisfy targets as described in specific TMDLs within the Region throughout the planning period.

Qualitative Measurement

Actions taken to address pollutant sources.

Quantitative Measurement

- Compliance with runoff standards described in stormwater permits.
- Progress toward meeting targets identified in TMDLs within the Region.

Addresses Plan Goals

5, 6, 7, and 9

Priority

Importance = High
Urgency = Medium

Notes

The following table summarizes the existing TMDLs within the Region:

20. Minimize accidental spillage/discharges of wastewater to receiving waters throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Number of spills reported per year.

- Volume of wastewater spilled that reached receiving waters.
 - Target: Zero spills per year of wastewater that reaches receiving waters.

Addresses Plan Goals

5, 6, 7, 9, and 13

Priority

Importance = Medium
Urgency = Medium

Notes

None

21. Reduce public health risks by reducing contaminants of concern in drinking water sources throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Improvements in source water quality for constituents of concern.
- Cost savings for meeting quality standards for drinking water at point of delivery.
- Reductions in concentration of constituents of concern in drinking water at point of delivery.
- Reductions in occurrence of harmful algal blooms.

Addresses Plan Goals

3, 7, 10, and 13

Priority

Importance = Medium
Urgency = Medium

Notes

This objective highlights that there are multiple ways within a watershed to meet drinking water standards and that cleaner sources of water can reduce public health risk.

Table 6-5: TMDLs within the Region

Water Body	Pollutant	Resolution No.	Target	Compliance Date
Clear Lake	Nutrients	R5-2006-0060	87,100-kilogram (kg) average annual discharge to lake of phosphorus (5-year rolling average).	By 10 years after approval by Office of Administrative law (OAL).
Clear Lake	Mercury	R5-2002-0207	Methylmercury concentration in fish tissue shall not exceed 0.09 and 0.19 mg methylmercury/kg wet weight of tissue in trophic level 3 and 4 fish, respectively.	Regional Water Board will review the progress toward meeting the fish tissue objectives for Clear Lake every 5 years.
Cache Creek, North Fork Cache Creek, and Bear Creek	Mercury	2005-0146	Average methylmercury concentration shall not exceed 0.12 and 0.23 mg methylmercury/kg wet weight of muscle tissue in trophic level 3 and 4 fish, respectively.	Regional Water Board will review the progress toward meeting the water quality objectives and the basin plan requirements at least every 5 years.
Sacramento and Feather Rivers	Diazinon and Chlorpyrifos	R5-2007-0034	Chlorpyrifos: 0.025 µg/L 1 hour average; 0.015 µg/L 4-day average. Concentrations are not to be exceeded more than once in a 3-year period. Diazinon: 0.16 µg/L 1 hour average; 0.10 µg/L 4-day average. Concentrations are not to be exceeded more than once in a 3-year period.	Compliance is required by August 2008. Regional Water Board staff will meet at least annually to consider effectiveness of management measures in meeting water quality objectives and load allocations.
Sacramento-San Joaquin Delta	Methylmercury and Total Mercury	R5-2010-0043	Total loads for Sacramento River: 1,385 g/yr. Total loads for San Joaquin River: 195 g/yr. Individual load and waste load allocations differ by source type.	No later than 2030.
Sacramento-San Joaquin Delta	Diazinon and Chlorpyrifos	R5-2006-0061	Chlorpyrifos: 0.025 µg/L 1 hour average; 0.015 µg/L 4-day average. Concentrations are not to be exceeded more than once in a 3-year period. Diazinon: 0.16 µg/L 1 hour average; 0.10 µg/L 4-day average. Concentrations are not to be exceeded more than once in a 3-year period.	Compliance with water quality objectives, load allocations, and waste load allocations is required by December 1, 2011.
Sulphur Creek	Mercury	R5-2007-0021	During low flow conditions: maximum concentration of 1,800 ng/L; during high flow conditions: maximum concentration of 35 mg/kg.	Regional Water Board will review the progress toward meeting the water quality objectives and the basin plan requirements at least every 5 years.

22. Meet all drinking water and wastewater discharge standards within the Region throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

Compliance with all relevant quality standards.

Addresses Plan Goals

5, 6, 7, 9, and 13

Priority

Importance = High
Urgency = High

Notes

Basin plans designate or establish for the waters within a specified area beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation to achieve the objectives. The basin plans containing the water quality standards for the Central Valley Region are:

- *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin.*

State Implementation Policy (SIP) establishes a standardized approach for permitting discharge of toxic pollutants to non-ocean surface waters in a consistent manner.

- *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California, State Water Resources Control Board, California Environmental Protection Agency, 2005.*

The U.S. Environmental Protection Agency (USEPA) promulgated numeric water quality criteria for higher-priority toxic pollutants and other water quality standard provisions to be applied to waters of the State of California to protect human health and the environment.

- California Toxics Rule (CTR).

The California Safe Drinking Water Act authorizes the California Department of Public Health to protect the public from contaminants in drinking water by establishing maximum contaminant

levels (MCLs) that are at least as stringent as those developed by the USEPA.

- Title 22, California Code of Regulations Division 4, Environmental Health Chapter 15, Domestic Water Quality and Monitoring Article 4, Primary Standards A— Maximum contaminant levels.

6.4.10 Water Supply Focus

23. Provide 100% reliability of M&I water supplies of appropriate quality to meet forecasted demands within the Region throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Number of days in reporting year that M&I water suppliers invoke drought ordinances.
- Number of days rationing is required in reporting year.
 - Target: Zero days of rationing per year.

Addresses Plan Goals

1, 7, 10 and 13

Priority

Importance = High
Urgency = Medium

Notes

- "Forecasted demands" include the amount of water estimated to be necessary to satisfy fire suppression needs.
- Meeting this objective can be accomplished through a variety of approaches, such as increased supplies, conjunctive management, water transfers, long-term demand management, etc.
- Satisfaction of this objective should include consideration of availability of alternative supplies should a drinking water source become contaminated or otherwise disrupted.
- Measures that improve regional water supply reliability take into account and help address potential climate change impacts on water

resources such as variability of flows and sea level rise impacts on SWP supplies.

24. Provide agricultural water supplies of appropriate quality to support a robust agricultural industry within the Region throughout the planning period.

Qualitative Measurement

Changes in agricultural outputs within the Region over time.

Quantitative Measurement

- Groundwater levels and quality throughout the Region.
 - Target: Prevent long-term declines in groundwater levels and quality throughout the Region.
- Annual surface water deliveries for agricultural use compared with contracted amounts.
 - Target: Provide 100% reliability for contracted annual deliveries by Solano County Water Agency.

Addresses Plan Goals

1, 10, and 13

Priority

Importance = High
Urgency = Medium

Notes

- This objective is written differently than Objective 23 for M&I water supplies primarily

because there are no “forecasted demands” for agriculture within the Region.

- While it is true that “a robust agricultural industry within the Region” relies on many factors, a consistent water supply of appropriate quality is a major factor.
- Since agriculture uses a large proportion of the applied water in the Region, conjunctive management of surface water and groundwater is critical to achieving this objective as well as to reduction of dry-year reliance on Delta water supplies.

6.5 Prioritized Climate Change Vulnerabilities

As discussed in Section 3.5, California is seeing the effects of climate change as evidenced by changing snowpack, sea level, river flows, storm intensity, temperature and winds. Mitigating and adapting to climate change will be a significant challenge to water and flood managers in California in the coming century.

6.5.1 Adapting to Conditions of Climate Change

The climate change vulnerabilities identified in Section 3 were prioritized according to their relative linkage to Plan objectives. The following table summarizes climate change vulnerabilities with associated objectives and objective priorities:

Table 6-6: Prioritized Climate Change Vulnerabilities

Climate Change Vulnerability Area /Sub-topic		Associated Objectives	Priority
Water Demand	1.2 Water use varies more than 50% seasonally in parts of the Region.	12	Medium
	1.3 Climate sensitive crops are grown within the Region.	12	Medium
	1.5 Water use curtailment measures are effective and can harden demand.	12	Medium
	1.4 Groundwater supplies in parts of the Region lack resiliency after drought events.	17	High

Climate Change Vulnerability Area /Sub-topic		Associated Objectives	Priority
Water Supply	2.1 A portion of the water supply comes from snowmelt through the CVP/SWP.	11 and 12	Medium
	2.5 The Region faced a drought which it failed to meet local water demands.	11 and 12	Medium
	2.6 The Region has invasive species management issues at facilities, conveyance structures or in habitat areas.	7, 8, and 9	High
Water Quality	3.1 Increased wildfires are a threat in the Region.	15	Medium
	3.2 Part of the Region relies on surface water bodies with current or recurrent water quality issues related to eutrophication, such as... algal blooms.	19	High
	3.4 Beneficial uses for some water bodies cannot always be met due to water quality issues.	19	High
	3.5 Part of the Region observes water quality shifts during rain events that impact treatment facility operation.	15, 23, and 24	High
Sea Level Rise	4.5 There's a portion of the Region that floods at extreme high tides or storm surges.	14	High
Flooding (increased intensity, timing, quality and variability of runoff and recharge)	5.1 The Region has critical infrastructure that lies within the 200-year floodplain.	14	High
	5.2 A part of the Region lies within the Sacramento-San Joaquin Drainage District.	14	High
	5.3 Aging critical flood protection infrastructure exists in the Region.	10 and 14	High
	5.4 Flood control facilities have been insufficient in the past.	10 and 14	High
	5.5 Wildfires are a concern in parts of the Region.	15	Medium
Ecosystem and Habitat Vulnerability	6.1 The Region includes inland aquatic habitats vulnerable to erosion and sedimentation issues.	3, 4, 5, and 6	High
	6.2 The Region includes estuarine habitats which rely on freshwater flow.	3, 4, 5, and 6	High
	6.3 Climate-sensitive fauna or flora populations live in the Region.	3, 4, 5, and 6	High
	6.4 Endangered and threatened species exist in the Region.	4, 5, and 6	High
	6.5 The Region relies on aquatic or water-dependent habitats for recreation.	13	Medium
	6.6 Rivers in the Region have quantified environmental flow requirements or known water quality/quantity stressors to aquatic life.	3, 4, 5, 6, and 15	High
	6.8 The Region includes the Bay-Delta which is a habitat described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change.	4, 5, and 6	High

6.5.2 Mitigating the Effects of Climate Change

In 2006, the legislature passed the California Global Warming Solutions Act of 2006 (AB 32) requiring the California Air Resources Board (CARB) to develop a GHG emissions limit consistent with emissions in 1990 and adopt rules and regulations to achieve this statewide GHG emissions limit by 2020. In 2016, the Legislature passed Senate Bill 32 (SB 32), which

included targets to further reduce GHG emissions to 40 percent below 1990 levels by 2040. In response to AB 32, in 2008 CARB developed a Scoping Plan to reduce GHG emissions in California. The Scoping Plan was updated in 2017 and includes the State's 2030 interim target for GHG emissions and identifies new policies and actions to accomplish the State's goals.

The indicated IRWM Plan objectives are consistent with the following 2017 AB 32 Scoping Plan objectives:

Table 6-7: Ab 32 Scoping Plan Objectives

Scoping Plan Objectives	Opportunities in Water	Associated Objectives
Reduce GHG emissions in the electricity sector	Decrease water demand (results in a decrease in electrical demand)	11 and 12
	Facility upgrades with modern, electrically-efficient components	10
Transition to cleaner fuels that have a lower carbon footprint	Produce and use digester gas to power facilities	10, 6, 21, 23 and 24
	Produce and compress digester gas to power fleet vehicles	10, 6, 21, 23 and 24
Approve and implement strategy to reduce highly potent GHGs.	Diversion of organics from landfill disposal	10, 6, 21, 23 and 24
Carbon Sequestration in Natural and Working Lands	Incorporate native plants with high carbon uptake in design	3