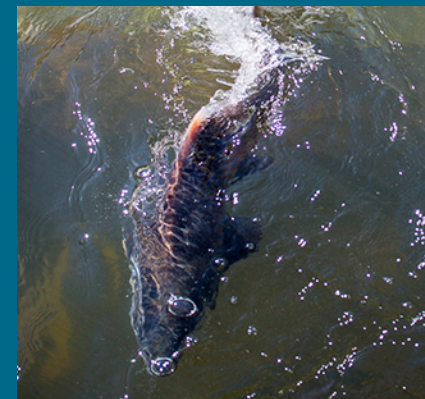
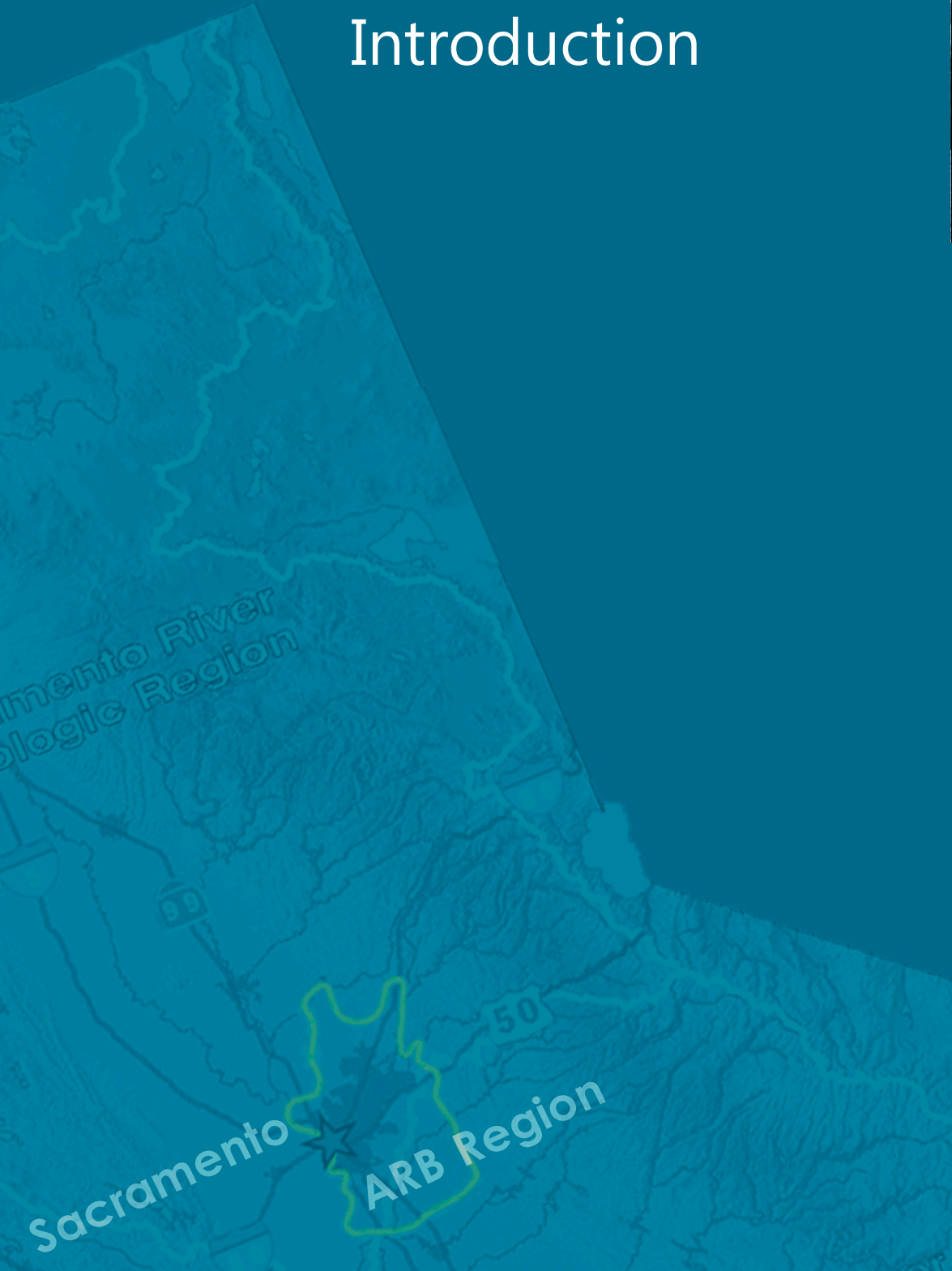


# Section 1 Introduction



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11 **Abbreviations and Acronyms**

12	ARB	American River Basin
13	DWR	California Department of Water Resources
14	IRWMP	Integrated Regional Water Management Plan
15	NAB RDCP	North American Basin Regional Drought Contingency Plan
16	Reclamation	U.S. Department of the Interior, Bureau of Reclamation
17	RWA	Regional Water Authority
18	RWRP	Regional Water Reliability Plan
19	SWRP	stormwater resource plan
20	WFA	Water Forum Agreement
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# 1. INTRODUCTION

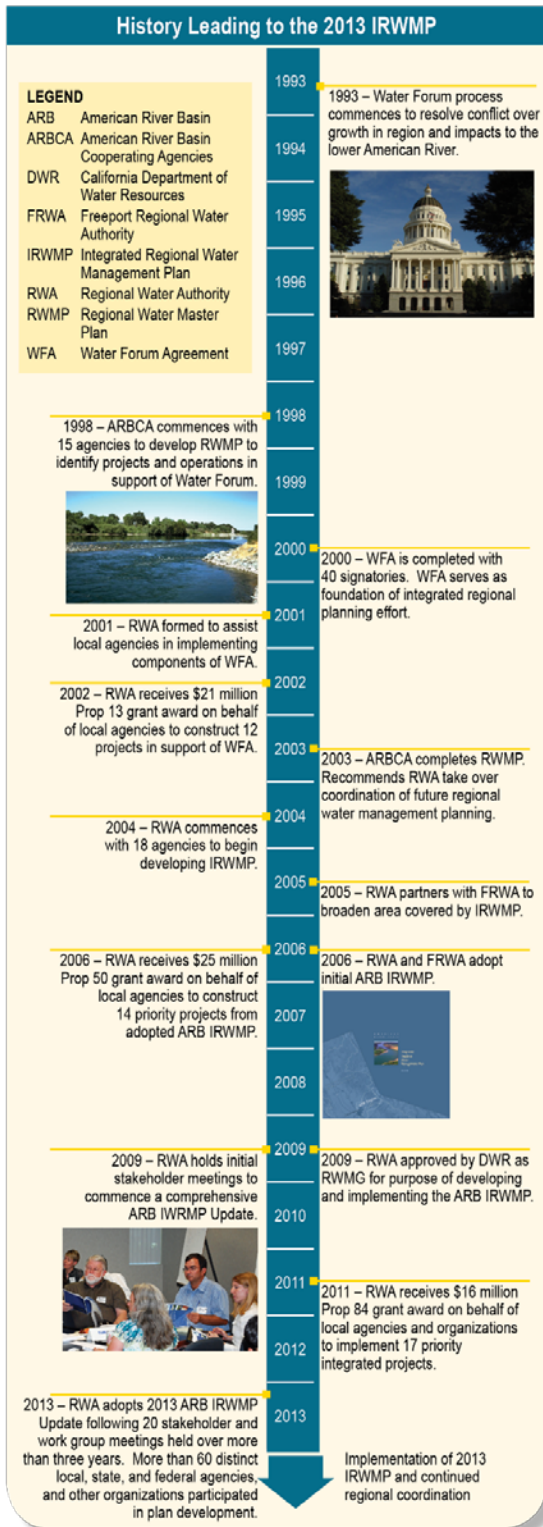
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The California Department of Water Resources (DWR) broadly defines integrated water management as "...a philosophy and practice of coordinating the management of water and related resources for the purpose of maximizing economic and societal benefits while maintaining the sustainability of vital ecosystems" (DWR 2012d). An Integrated Regional Water Management Plan (IRWMP), then, is the application of this concept within a region with a breadth and focus defined locally by stakeholders. The stakeholders identify major water and related resource management issues, develop goals and objectives for addressing these issues and, ultimately, implement projects that help meet these goals and objectives. The stakeholders would also monitor and evaluate the region's progress in meeting those goals and objectives set in their IRWMP. For over two decades, stakeholders dependent on the natural resources of the greater Sacramento region have been engaged in planning and implementing regional plans and projects to meet water supply demands and protect our environment. The 2018 American River Basin (ARB) IRWMP Update represents the latest iteration of our ongoing effort to achieve this balance between sustainable water resources and related ecosystems.

## 1.1. Background and Purpose

The greater Sacramento region has long recognized the need to better integrate water resources planning and development with consideration of protection of the natural environment. For decades, attempts to further develop water resources on the lower American River resulted in divisive litigation. In 1993, a diverse group of stakeholders recognized the need for regional solutions and began discussions to address long-term reliable water supplies for urban, agricultural, environmental, and recreational water needs. Following a nearly 7-year facilitated effort, the Water Forum Agreement (WFA) was signed in April 2000. The WFA serves as the foundation of regional integrated planning and has more than 40 signatories representing citizens groups, business interests, environmental groups, and public agencies. The WFA includes seven integrated management elements needed to meet the co-equal objectives of: (1) providing a reliable water supply for planned development to the year 2030, and (2) protecting and preserving the lower American River (from Folsom Dam to the confluence with the Sacramento River).

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1 In July 2001, water suppliers in the greater  
 2 Sacramento region formed the Regional Water  
 3 Authority (RWA) as a joint powers authority, in  
 4 part, to help implement elements of the WFA on a  
 5 regional basis. In April 2004, RWA began an effort  
 6 to develop an IRWMP, which resulted in the May  
 7 2006 adoption of the first ARB IRWMP. The 2013  
 8 ARB IRWMP Update relied on extensive  
 9 stakeholder input to comprehensively revise and  
 0 update the previous goals and objectives and added  
 1 many new stakeholder-derived considerations, such  
 2 as vision and principles, to the plan. During  
 3 development of the 2013 ARB IRWMP Update, the  
 4 breadth of stakeholders was expanded well beyond  
 5 the original WFA.

6 Since adoption of the 2013 ARB IRWMP Update, a  
 7 number of events occurred that have underscored the  
 8 need to increase the resiliency of the Region’s water  
 9 systems to the impacts of climate change and other  
 0 uncertainties. These events are summarized in  
 1 **Figure 1-2.**

**Figure 1-1. History Leading to the 2013 ARB IRWMP Update**





**2014**  
Drought State of Emergency declared.

- Sustainable Groundwater Management Act passes.
- Prop 1 Water Bond (AB 1471) passes, authorizing \$7.55 billion in funds for supply and watershed protection projects.
- Senate Bill 985 passes, requiring agencies to develop stormwater resource plans to receive Prop 1 funds.
- RWA receives \$9.8 million Prop 84 grant award on behalf of local agencies and organization to implement 17 projects addressing drought resiliency/adaptation.

**2015**

- Water right curtailments throughout California.
- Mandatory 25% statewide reduction in water use are enacted.
- PCWA receives \$200,000 Reclamation WaterSMART grant on behalf of local agencies to develop North American Basin RDCP.
- RWA receives \$1.7 million Prop 84 grant award on behalf of local agencies and organizations to implement four priority projects in 2013 ARB IRWMP Update.
- Water levels in Folsom Reservoir reach historic low.

**2016**

- Sacramento and San Joaquin Rivers Basin Study is completed.
- Executive Order B-37-16 passes, seeking to establish long-term conservation measures throughout California.
- North American Basin Drought Planning Task Force is formed.
- Local agencies develop Water Shortage Contingency Plans.
- Region receives \$650,000 WaterSMART grant award to develop American River Basin Study.

**2017**  
Drought State of Emergency lifted.

- Sacramento River Funding Area receives \$3.7 million Prop 1 grant award to ensure DAC involvement in IRWM planning efforts.
- RWA receives \$250,000 Prop 1 planning grant award on behalf of local agencies and organizations to update 2013 ARB IRWMP.
- RWA holds initial stakeholder meetings to commence comprehensive ARB 2018 IRWMP Update.
- GSAs are formed.
- El Dorado County Water Agency receives \$400,000 Reclamation WaterSMART grant award on behalf of local agencies and organization to develop ARB Water Marketing Strategy.
- North American Basin RDCP is completed.

**2018**

- Flooding throughout the ARB Region. Sacramento Weir opened for first time in over a decade.
- Local groundwater management authorities receive \$3 million in funding for development of groundwater sustainability plans for the North American, South American, and Cosumnes Subbasins.
- Prop 68 passes, authorizing \$1.19 billion in funding for water infrastructure and flooding projects.
- Regional Water Reliability Plan is finalized.
- ARB SWRP and West Slope SWRP are finalized and adopted.
- 2018 ARB IRWMP Update is finalized and adopted following four stakeholder workshops over two years.

**LEGEND**

AB	Assembly Bill	Prop	Proposition
ARB	American River Basin	RDCP	Regional Drought Contingency Plan
DAC	disadvantaged community	RWA	Regional Water Authority
GSA	Groundwater Sustainability Agency	SAFCA	Sacramento Area Flood Control Agency
GSP	Groundwater Sustainability Plan	SWRP	Storm Water Resource Plan
IRWMP	Integrated Regional Water Management Plan		



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**Figure 1-2. Noteworthy Events from 2013 to 2018 ARB IRWMP Update**

***Section 1***  
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1 Governor Edmund G. Brown Jr. declared a Drought State of Emergency in January 2014. Over the next  
2 three years, California continued to experience record-low levels of precipitation and snowpack. Balancing  
3 urban, agricultural, industrial, and environmental water needs became increasingly challenging. Following  
4 unprecedented water conservation and winter storms, Governor Brown declared an end to the drought in  
5 April 2017. However, many parts of the Region experienced localized flooding in the winter of 2017. The  
6 drought and recent flooding illustrate the need to continue to assess the Region’s vulnerabilities to climate  
7 change and implement mitigation and adaptation measures across all water sectors.

8 In response, regional stakeholders accelerated a series of projects and planning efforts to (1) increase the  
9 Region’s resiliency to drought and the impacts of climate change, and (2) develop opportunities to expand  
10 a regional conjunctive use program. These efforts built on over two decades of collaborative water  
11 resource management, as well as partnerships with several state and federal agencies, including DWR and  
12 the U.S. Department of the Interior, Bureau of Reclamation (Reclamation). Agencies in the Region  
13 completed the North American Basin Regional Drought Contingency Plan (NAB RDCP) in fall 2017.  
14 The NAB RDCP was a collaborative planning effort to explore opportunities to collaborate and cooperate  
15 to increase the resiliency of the Region’s water resources in the face of future climate and drought  
16 conditions. The effort was partially supported by a grant from Reclamation’s WaterSMART Drought  
17 Response Program. More recently, agencies have collaborated on a Regional Water Reliability Plan  
18 (RWRP) to increase the reliability of water supply for public needs. Funded by the agencies, the RWRP  
19 builds upon the NAB RDCP, but further expands the scope of identified constraints and opportunities to  
20 expand a regional conjunctive use program. The NAB RDCP and RWRP, in conjunction with local  
21 climate action and sustainability plans, provide the foundation for achieving long-term water resource  
22 reliability in the Region going forward.

23 The 2018 ARB IRWMP Update incorporates lessons learned during the drought and recent flooding and  
24 builds upon regional adaptation planning efforts and local climate action and sustainability plans. It also  
25 reflects significant changes in water management policy, regulation, and funding opportunities that have  
26 occurred in the last five years. For example, the Sustainable Groundwater Management Act, passed in 2014,  
27 enacted landmark reforms that could significantly alter how the Region’s groundwater resources are  
28 managed. In that same year, Senate Bill 985 required agencies to develop new stormwater resource plans  
29 (SWRP) to receive Proposition 1 funds for stormwater projects. The ARB SWRP and West Slope SWRP  
30 were finalized in July 2018 and are incorporated into this IRWMP.

1 The 2018 ARB IRWMP Update was developed with significant stakeholder input. Public and stakeholder  
2 feedback was provided in four Planning Forums and multiple comment processes held over a year. This  
3 comprehensive update to the 2013 ARB IRWMP includes the following new information:

4 1. Updated –

5 a. ARB Region boundaries.

6 b. All basic water-related, environmental, and socioeconomic data.

7 c. Water quality conditions.

8 d. Goals, principles, objectives, and strategies for meeting water resource management needs.

9 e. Regional climate change vulnerabilities and adaptation measures.

10 f. Plan performance and monitoring to include policies and procedures for adaptive management.

11 g. IRWMP and project financing and implementation.

12 h. Projects list.

13 2. Coordinating with and incorporating other local and regional planning efforts, such as groundwater  
14 sustainability plans, SWRPs, and local climate action and sustainability plans.

## 15 **1.2. Document Organization**

16 The 2018 ARB IRWMP Update is organized into the following sections:

- 17 • **Section 1 – Introduction.** This section introduces the 2018 ARB IRWMP Update and details how  
18 it meets the DWR 2016 IRWMP Guidelines.
- 19 • **Section 2 – Region Description.** This section describes the Region’s institutional, water resources,  
20 and environmental setting. It also describes the Region’s vulnerabilities to impacts of climate  
21 change as well as the adaptation and mitigation actions to those impacts. This section concludes  
22 with a description of the technical analysis used in developing this IRWMP.
- 23 • **Section 3 – Planning Coordination and Integration.** This section describes the process by which  
24 RWA coordinates and interacts with its stakeholders, the public, and disadvantaged communities.



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1 This section also includes the IRWMP’s relation to local water and land-use planning, neighboring  
2 planning efforts, and state of California and federal agencies.

3 • **Section 4 – IRWMP Governance.** This section provides an overview of the Planning Forum,  
4 Advisory Committee, and RWA as the Regional Water Management Group. These elements of the  
5 governance structure evolved throughout the planning process. This section also explains the  
6 process of IRWMP adoption.

7 • **Section 5 – IRWMP Framework.** This section describes how the 2018 ARB IRWMP Update was  
8 developed. It details the vision, goals, principles, objectives, and strategies that guide  
9 implementation. It also describes how implementation projects were identified and prioritized, and  
10 how identified strategies will help the Region adapt to the impacts of climate change.

11 • **Section 6 – IRWMP Implementation.** This section describes how the 2018 ARB IRWMP Update  
12 will be implemented, including options for financing, performance monitoring, and data  
13 management. It describes the potential impacts and benefits of implementation, and how the 2018  
14 ARB IRWMP Update will be adopted and adapted to future situations.

15 • **Section 7 – References.** This section lists the references used and cited throughout the IRWMP  
16 document.

17 **1.3. IRWMP Standards**

18 **Table 1-1** lists the required components of an IRWMP (per DWR’s 2016 Guidelines) and indicates the  
19 section(s) of the 2018 ARB IRWMP Update in which each component is addressed.

20 **Table 1-1. Location of 2018 ARB IRWMP Update Components**

	Description	Location in 2018 ARB IRWMP Update
A. Governance		
1.	Description of RWMG responsible for development and implementation of the plan.	Section 4.2.4
2.	Description of the RWMG and individual project proponents who adopted the plan.	Section 4.3
3.	Description of IRWM governance structure.	Section 4.2
4	Description of how chosen governance addresses and ensures the following:	
4a.	Public outreach and involvement processes.	Sections 3.1, 4.2
4b.	Effective decision making.	Section 4.2
4c.	Balanced access and opportunity for participation in the IRWM process.	Sections 3.1, 4.2

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**Table 1-1. Location of 2018 ARB IRWMP Update Components (contd.)**

	<b>Description</b>	<b>Location in 2018 ARB IRWMP Update</b>
4d.	Effective communication both internal and external to the IRWM region.	<b>Sections 3, 4</b>
4e.	Long-term implementation of the 2018 ARB IRWMP Update.	<b>Sections 4.2.3, 6.6</b>
4f.	Coordination with neighboring RWMG efforts and state and federal agencies.	<b>Sections 3.4, 3.5</b>
4g.	Collaborative process used to establish 2018 ARB IRWMP Update objectives.	<b>Sections 3.1, 5</b>
4h.	How interim changes and formal changes to the 2018 ARB IRWMP Update will be performed.	<b>Sections 5.6, 6.6</b>
4i.	Process for updating or amending the 2018 ARB IRWMP Update.	<b>Sections 5.6, 6.6</b>
<b>B. Region Description</b>		
1.	Description of watersheds/water system.	<b>Sections 2.6, 2.8</b>
2.	Description of internal boundaries within the region.	<b>Section 2.2</b>
3.	Water supply and demand projections for a minimum 20-year planning horizon.	<b>Section 2.9</b>
4.	Current and future water quality conditions.	<b>Section 2.6</b>
5.	Description of the social and cultural makeup of the regional community and the identification of important cultural or social values.	<b>Section 2.5.7</b>
6.	Description of economic conditions and important trends within the region.	<b>Section 2.5</b>
7.	Description of major water-related objectives and conflicts.	<b>Section 2.10, 5</b>
8.	Explanation of how the IRWM regional boundary was determined.	<b>Section 2.1</b>
9.	Identification of neighboring or overlapping IRWM regions.	<b>Section 2.4</b>
10.	Explanation of how plan will help reduce dependence on the Sacramento-San Joaquin Delta for water supply.	<b>Section 2.3</b>
11.	Description of likely climate change impacts on the region.	<b>Section 2.10, Appendix C</b>
<b>C. Objectives</b>		
1.	Description of measureable regional planning objectives that address climate change adaptation and mitigation.	<b>Sections 5.5, 5.6</b>
2.	Description of objective development process.	<b>Sections 3.1, 5</b>
3.	Objective prioritization process.	<b>Section 5.5</b>
<b>D. Resource Management Strategies</b>		
1.	Description of RMS consideration process.	<b>Section 5.6.7</b>
2.	Description of how the effects of climate change on the region are factored into the RMS.	<b>Section 5.6.8</b>
3.	Description of how RMS reduce energy consumption.	<b>Section 5.6</b>
4.	Evaluation of RMS and other adaptation strategies and ability of such strategies to eliminate or minimize those vulnerabilities.	<b>Section 5.6</b>
5.	Range of RMS considered to meet the IRWM objectives.	<b>Section 5.6</b>
6.	Description of RMSs incorporated into 2018 ARB IRWMP Update.	<b>Section 5.6</b>

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**Table 1-1. Location of 2018 ARB IRWMP Update Components (contd.)**

	<b>Description</b>	<b>Location in 2018 ARB IRWMP Update</b>
<b>E. Integration</b>		
1.	Description of stakeholder/institutional integration.	<b>Section 3</b>
2.	Description of resource integration.	<b>Sections 3.1, 5, 6.4</b>
3.	Project Implementation integration.	<b>Sections 3.1, 5.7, 6.5</b>
<b>F. Project Review Process</b>		
1.	Procedures for submitting a project to the RWMG.	<b>Section 5.7</b>
2.	Procedures for review of projects considered for inclusion into the 2018 ARB IRWMP Update, including consideration of climate change mitigation and adaptation.	<b>Section 5.7</b>
3.	Description of project review factors.	<b>Section 5.7</b>
4.	Procedures for displaying the list of selected projects.	<b>Section 5.7</b>
<b>G. Impacts and Benefits</b>		
1.	Discussion of potential impacts and benefits within the region from 2018 ARB IRWMP Update implementation.	<b>Section 6.5</b>
2.	Discussion of benefits and impacts between regions.	<b>Section 6.5</b>
3.	Impacts and benefits directly affecting disadvantaged communities.	<b>Section 6.5.4</b>
4.	Impacts and benefits directly affecting environmental justice concerns.	<b>Section 6.5.4</b>
5.	Impacts and benefits directly affecting Native American tribal communities.	<b>Section 6.5.4</b>
<b>H. Plan Performance and Monitoring</b>		
1.	Group(s) responsible for IRWM implementation evaluation.	<b>Section 6.3</b>
2.	Frequency of evaluating project implementation performance.	<b>Section 6.3</b>
3.	Tracking via data management systems.	<b>Sections 6.3, 6.4</b>
4.	Description of process for using "lessons learned."	<b>Sections 6.3, 6.6</b>
5.	Responsibility for development of project-specific monitoring plans and activities.	<b>Section 6.3</b>
6.	Stage of project development that a project-specific monitoring plan will be prepared.	<b>Section 6.3</b>
7.	Typically required contents of a project-specific monitoring plan.	<b>Section 6.3</b>
8.	Description of policies and procedures that promote adaptive management, and process for adapting the IRWMP and projects as conditions change, new tools are developed, and new information becomes available.	<b>Section 6.6</b>

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**Table 1-1. Location of 2018 ARB IRWMP Update Components (contd.)**

	<b>Description</b>	<b>Location in 2018 ARB IRWMP Update</b>
<b>I. Data Management</b>		
1.	Overview of data needs.	<b>Section 6.4.1</b>
2.	Description of typical data collection techniques.	<b>Section 6.4.2</b>
3.	Description of stakeholder data contributions to regional data management systems.	<b>Section 6.4.2</b>
4.	Entity responsible for maintaining data in the Region's data management systems.	<b>Section 6.4.2</b>
5.	Description of the validation or QA/QC measures.	<b>Section 6.4.2</b>
6.	Explanation of how data collected for project implementation will be transferred or shared between members of the RWMG and other interested parties.	<b>Section 6.4.2, 6.4.4</b>
7.	Explanation of how the data management system supports the RWMG's efforts to share collected data.	<b>Section 6.4.2</b>
8.	An outline of how the data saved in the data management system will be distributed and remain compatible with state databases.	<b>Section 6.4.2, 6.4.4</b>
<b>J. Finance</b>		
1.	List of known, as well as, possible funding sources, programs, and grant opportunities for the development and ongoing funding of the IRWMP.	<b>Section 6.1. 6.2</b>
2.	List of funding mechanisms for projects that implement the IRWMP.	<b>Section 6.2</b>
3.	Explanation of the certainty and longevity of known or potential funding for the IRWMP and projects.	<b>Section 6.2</b>
4.	Explanation of how O&M costs for projects that implement the IRWMP would be covered and the certainty of O&M funding.	<b>Section 6.2</b>
<b>K. Technical Analysis</b>		
1.	Description of the technical information sources and data sets used to develop the water management needs in the IRWMP.	<b>Section 2.11</b>
2.	Description of studies, models, or other technical methodologies used to analyze the technical information and data sets.	<b>Section 2.11</b>
<b>L. Relation to Local Water Planning</b>		
1.	List of local water plans used in the 2018 ARB IRWMP Update.	<b>Section 2.10, 3.3, 3.2, Appendix C, Appendix F</b>
2.	Discussion of how the 2018 ARB IRWMP Update relates to planning documents and programs established by local agencies.	<b>Section 3.2</b>
3.	Description of the dynamics between the IRWMP and local planning documents.	<b>Section 3.2</b>
4.	Description of the consideration and incorporation of water management issues and climate change and adaptation and mitigation strategies from local plans into the IRWMP.	<b>Section 2.10, Section 3.2, Section 3.3, Appendix C</b>

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**Table 1-1. Location of 2018 ARB IRWMP Update Components (contd.)**

	<b>Description</b>	<b>Location in 2018 ARB IRWMP Update</b>
<b>M. Relation to Local Land-Use Planning</b>		
1.	Description of current relationship between local land-use planning, regional water issues, and water management objectives.	<b>Section 3.3</b>
2.	Description of future efforts to establish a proactive relationship between land use planning and water management.	<b>Sections 3.3, 5.5</b>
3.	Description of the information sharing and collaboration with regional land use planning to manage multiple water demands.	<b>Section 3.3, Appendix C</b>
<b>N. Stakeholder Involvement</b>		
1.	Description of the public process that provides outreach and an opportunity to participate in IRWMP development and implementation to the appropriate local agencies and stakeholders.	<b>Sections 3.1, 4.2</b>
2.	The process used to identify, inform, invite, and involve stakeholder groups in the IRWM process during development and implementation of the 2018 ARB IRWMP Update.	<b>Sections 3.1, 4.2</b>
3.	A discussion on how the RWMG will identify and involve DACs and Native American tribal communities in the IRWM planning effort.	<b>Section 3.1.4, 3.1.5, Appendix E</b>
4.	Description of the decision making process, including IRWM committees, roles, or positions that stakeholders can occupy and how a stakeholder goes about participating in those committees, roles or positions, regardless of their ability to contribute financially to the IRWMP.	<b>Sections 3.1, 4.2</b>
5.	Discussion regarding how stakeholders are necessary to address the objectives and resource management strategies of the IRWMP.	<b>Sections 4.2, 5.5, 5.6</b>
6.	Discussion of how collaborative processes will engage a balance of interest groups in the IRWM process regardless of their ability to contribute financially to the IRWMP's development or implementation.	<b>Section 3.1</b>
<b>O. Coordination</b>		
1.	Process for coordination of projects and activities with local participants and stakeholders.	<b>Sections 3.1, 5.7</b>
2.	Identification of neighboring IRWM efforts and description of coordination between efforts.	<b>Section 3.4</b>
3.	Discussion of any ongoing water management conflicts with adjacent IRWM efforts.	<b>Section 3.4</b>
4.	Discussion of state, federal, and local agencies important to the development of the IRWMP and implementation of projects.	<b>Sections 3.1, 3.5</b>

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**Table 1-1. Location of 2018 ARB IRWMP Update Components (contd.)**

	Description	Location in 2018 ARB IRWMP Update
<b>P. Climate Change</b>		
1.	Discussion of the IRWM region's vulnerabilities to the effects of climate change.	<b>Section 2.10, Appendix C</b>
2.	Discussion of potential adaptation responses.	<b>Section 2.10, Appendix C</b>
3.	Process that considers GHG emissions when choosing between project alternatives.	<b>Section 5.7.2</b>
4.	List of prioritized vulnerabilities based on the vulnerability assessment and the IRWM's decision making process.	<b>Section 2.10.1, Appendix C</b>
5.	Description of how the IRWMP considers changes to the amount, intensity, timing, quality and variability and runoff and recharge and effects of sea level rise on water supply.	<b>Section 2.10, Section 5</b>
6.	Description of plan for further data gathering and analysis.	<b>Section 2.10, 2.11</b>

Key:

- ARB = American River Basin
- DAC = disadvantaged community
- GHG = greenhouse gas
- IRWM = Integrated Regional Water Management
- IRWMP = Integrated Regional Water Management Plan
- NA = not applicable
- O&M = operation and maintenance
- QA/QC = quality assurance/quality control
- RMS = resource management strategy
- RWMG = Regional Water Management Group
- state = state of California

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