

9. DATA MANAGEMENT

Data management is a crucial aspect of successful implementation of the ARB IRWMP and its component projects. This section discusses the adequacy of available data and monitoring efforts, the sources of existing and future data that will benefit the region, the process for gathering and managing data, how data will be disseminated to stakeholders and the public, and how data integration will support statewide monitoring programs.

9.1. Adequacy of Available Data and Monitoring Efforts

The hydrologic system surrounding the American River Basin has been extensively monitored for many years. Many of the historical, current and future monitoring programs pertaining to the ARB will be useful to the development and implementation of the plans and projects included in the ARB IRWMP. The requisite data types will include stream flows, surface water deliveries, groundwater elevations, groundwater pumping, precipitation, water demands, locations and sizes of water-related facilities, political and agency boundaries, land use, contaminant plume locations and extents, locations of sensitive habitats and species, and hydrogeologic data. These data will be collected from various federal, State, and local agencies, some of which are shown in **Table 9.1**. Data may also be collected from existing numerical models, such as CALSIM, IGSM, HEC models, H2ONet, and hydraulic and hydrologic models. Working with the agencies shown in **Table 9.1** and its members and associate members, the ARB IRWMP effort has, and will continue an exhaustive search for all data relevant to the ARB IRWMP on an ongoing basis. Any data gaps that are identified will need to be filled through new monitoring activities, new studies, and/or installation and use of new measurement systems.

Table 9.2 outlines data requirements for the priority projects included in the ARB IRWMP. The data will include at a minimum, any data relevant to surface water, groundwater, stormwater, and ecosystem restoration.

9.2. Existing Monitoring Efforts

There are various monitoring programs throughout the ARB region whose results, when shared, can provide a complete picture of the state of the entire American River Basin. These monitoring programs are for surface water, groundwater, stormwater, and other related parameters. These existing programs are described in the following sections.

Table 9.1 Sources of IRWMP Data

Federal	State	Local
National Climate Data Center	California Irrigation	SSCAWA
National Resource Conservation District	Management Information System (CIMIS)	Sacramento County
Corps	DFG	Placer County
Reclamation	DHS	El Dorado County
USFWS	DWR	City Planning Departments
USGS	RWQCB	SAFCA
NMFS	SWRCB	SGA
AFRPA	California Natural Diversity Database (CNDDDB)	Reclamation District 1000
EPA	UC Davis	American River Basin Water Purveyors
WRCC	CDPR	
TNC		

Table 9.2 Required Data for Priority Projects Outlined in the IRWMP

Data Type	Water Supply	Stormwater and Flood Plain Management	Groundwater Management	Ecosystem Restoration	Recycled Water	Water Quality
Stream & River Flows	X			X		X
Stream & River Water Quality		X		X	X	X
Locations of Sensitive Habitats and Species				X		X
Surface Water Deliveries	X		X			X
Groundwater Surface Elevations	X		X			
Groundwater Pumping	X		X			X
Hydrogeologic Data			X			
Precipitation	X	X	X			X
Water Demand	X		X		X	
Water Related Facilities - Location & Size	X	X	X		X	X
Political and Agency Boundaries	X	X	X	X	X	X
Land Use	X	X	X	X	X	X
Contaminant Plume Locations and Extents	X		X			X

9.2.1. Surface Water Supply and Quality Monitoring

Surface water flow monitoring is conducted on stream gages on major rivers and streams, such as the American, Sacramento and Cosumnes and Bear Rivers. These gages are owned and maintained primarily by DWR and USGS. These data are available to the ARB IRWMP through websites, such as DWR's California Data Exchange and USGS' Water Data. Lower American River flows are closely monitored by the Reclamation, who controls the release of water from Folsom Dam. Reclamation also maintains reservoir levels on Folsom Lake and other reservoirs in the Central Valley Project. There are some water quality programs maintained through DWR and USGS. However, local agencies, which deliver treated drinking water, treat wastewater, or deliver reclaimed water, are required (by applicable regulatory agencies) to meet much more frequent and stringent water quality reporting standards. This information is thus more accurate and specific, as agencies must ensure that water quality standards are met continuously. These data will be used to the extent possible.

9.2.2. Groundwater Supply and Quality Monitoring

In compliance with the Groundwater Management Plans in the region (Western Placer County, Sacramento Groundwater Authority, Central Sacramento County, and South Sacramento County), the ARB IRMP participants have an extensive groundwater monitoring network for elevation, quality, and to a lesser extent, subsidence. These monitoring activities will help the ARB region to maintain the quantity and quality of the groundwater through the meeting of their Basin Management Objectives (BMOs).

DWR maintains a groundwater elevation monitoring network throughout the State. At a minimum, DWR collects biannual (spring and fall) measurements from approximately 200 wells throughout the ARB region. However, because wells have been added and dropped from the program over time, it is difficult to compare historic elevation contour maps with more recent elevations. For this reason, it is the intent of the ARB to establish a standardized network of wells that combines those monitored by DWR and other ARB IRWMP participants. It is the intent of these parties that the wells comprising this program be maintained as a consistent long-term network that represents the overall groundwater elevation of the basin. This standardized monitoring network and associated data will be stored, managed, analyzed, and disseminated using a standard tool, called SHEDTOOL, described in **Section 9.3**.

Groundwater quality monitoring programs are conducted by various agencies including DWR, Sacramento County Environmental Management Department, and Placer County Water Agency. These programs are well established in the region. Extensive records of water quality data are available for most wells in the region in accordance with existing regulatory guidelines which have been established to

ensure that the public is provided with a safe and reliable drinking water supply. Additional groundwater quality information is available from various groundwater contamination cleanup efforts in the region (See **Figure 2.9**). The most prominent contaminate plumes are McClellan AFB, Mather Field, Aerojet, and the Inactive Rancho Cordova Test Site. All of these sites have extensive monitoring and reporting requirements from the CVRWQCB.

9.2.3. Stormwater Monitoring

Sacramento, Placer, and El Dorado counties all have stormwater quality monitoring programs. In Sacramento County, the Sacramento Stormwater Quality Partnership, between Sacramento County and the Cities of Sacramento, Citrus Heights, Folsom, Galt, and Elk Grove, works to clean urban stormwater runoff and to protect local creeks and rivers. The program includes monitoring of the rivers, creeks, urban discharge, bio assessments, pesticides, rainwater, and overall toxicity.

In El Dorado County, the County and Cities have their own stormwater management plans, which work cooperatively with the RWBCB to collect data on discharge, identify sources of pollution, inventory storm drainage systems, and improved monitoring and control methods. In Placer County, the County and Cities stormwater management programs have a series of activities, designed in cooperation with governmental agencies and laws, intended to reduce the amount of stormwater pollutants which enter natural waterways and ultimately flow into creeks and rivers. The programs include extensive monitoring and control methods.

9.2.4. Additional Ongoing Data Collection Programs

Additional monitoring programs in the region are designed to provide additional information and data to further key understandings in the region. Programs such as the TNC effort along the Cosumnes River, which seeks to monitor river flows at various periods, while comparing those flows to groundwater elevations are designed to determine what, if any actions can be taken to reconnect the river to the groundwater basin. In another example, studies along the Lower American River, seek to monitor stream flows and correlate flows with fisheries survival and reproduction.

9.3. Process for Gathering and Managing Data

As discussed in **Section 9.1**, the ARB is in the ongoing process of evaluating future data needs. Research strategies are being developed and/or implemented to gather all data known to be necessary for the ARB IRWMP. The ARB will then store, evaluate, analyze, and summarize the data as a part of the ongoing IRWMP development process. The aggregation and analysis of the required data for each individual project or program will be the responsibility of the agency or agencies that have primary development responsibility for the specific project. ARB will serve as a clearing-house for all relevant data and will utilize ongoing data collection systems in assessing the performance of various projects.

One tool that will be useful for the data management is the SHEDTOOL Data Management System (DMS) application currently being used by the SGA, SCWA, and soon in Western Placer County. SHEDTOOL is a stand-alone application that allows entry, storage, retrieval, and presentation of groundwater data. SHEDTOOL also interfaces with groundwater models to provide for calibration and future forecasting of groundwater and surface water behavior. SHEDTOOL was developed under contract with the US Army Corp of Engineers with additional assistance from the California Department of Water Resources. SGA is currently investigating the development of web-based utilities that will allow remote input of data into the DMS for the benefit of SGA members and eventually ARB participants needing to submit data periodically. SHEDTOOL is a flexible database utility that can be expanded to include different types of hydrologic, hydrogeologic, and geologic data. Data from SHEDTOOL can also be used to periodically update and recalibrate hydrologic models of the region, such as the IGSM. By having all the data stored in one place, it reduces effort when the time comes to update model data.

In addition to SHEDTOOL, a Geographic Information System (GIS) database will be used to store and manage spatial data. Data stored and managed within GIS will include political and agency boundaries, watershed boundaries, land use designations, census tract, contamination plume locations and extents, locations of sensitive habitats and species and locations of water resource infrastructure, interceptors, water storage facilities, water and wastewater treatment facilities. GIS data are developed and maintained in consistent formats (metadata) for consistency with other regional and statewide GIS data (e.g. SACOG).

Data generated through the implementation of specific projects will be the responsibility of the sponsoring agency for the project. For instance, the local agency in which a proposed recycled water treatment plant are located will be tasked with monitoring the quality of the recycled water and measuring the quantity conveyed to the various land uses. Similar monitoring plans and protocols are in place where

appropriate for each priority project presented in this report. The ARB IRWMP will integrate data collection efforts wherever possible, taking advantage of opportunities to combine efforts and share information, thereby reducing overall costs to the region.

9.3.1. Data Dissemination to Stakeholders and the Public

The ARB IRWMP was developed by, and has been distributed to, regional stakeholders of the ARB including RWA, FRWA, the Corps, DWR, the SWRCB, and other participants and interested parties. Electronic versions of the documents will be available on the RWA web site (www.rwah2o.org) and the SCWA web site (www.msa.saccounty.net). Hard copies and CDs will be provided at cost to interested parties without access to the Internet. Any periodic updates to the ARB IRWMP will be distributed in a similar manner.

At the statewide level, data will be disseminated to the SWRCB's statewide Groundwater Ambient Monitoring Assessment (GAMA) Program (the comprehensive groundwater quality monitoring program for California) and the Surface Water Ambient Monitoring Program (SWAMP). Data also will be disseminated to DWR for inclusion in its databases, such as the Water Data Library, which contains groundwater level and water quality data. In addition, stakeholders, agencies, and the public may request all publicly available data (i.e., non-proprietary and non-confidential) from the RWA/FRWA.

9.3.2. Support of Statewide Data Needs

Dissemination of data to statewide programs administered by both the SWRCB and DWR will support statewide data needs. ARB participants have supported statewide data needs in the past by voluntary participation in 2001/2002 with the GAMA program. That effort resulted in a 2004 Contamination Vulnerability Assessment for the Sacramento Area Groundwater Basin prepared by Lawrence Livermore National Laboratory. Additionally, ARB members are currently participating in GAMA's statewide assessment of groundwater quality resulting from the recommendations of the AB599 technical advisory panel. The USGS sampled member agency wells in April and May 2005 as part of this effort.

In addition to active involvement with the GAMA program, the collected data will be made available to meet other statewide needs to the greatest extent possible. Data collection will be coordinated and shared with the California Environmental Resource Evaluation System (CERES), Surface Water Ambient Monitoring Program (SWAMP) and Groundwater Ambient Monitoring and Assessment Program (GAMA) when appropriate and feasible.