

8.1 Integrated Goals and Objectives

CHAPTER

8

This chapter describes CABY Integrated Regional Watershed Management Plan goals and objectives developed by CABY participants, and integrates these with the goals and objectives of existing mandatory plans. Implementation of these goals and objectives is the core of this Plan and is achieved through a series of specific actions described in Chapter 10, Project Descriptions.

The mandatory plans, described in Chapter 6, set many of the goals and objectives for the IRWMP. Linking the mandatory plans with the IRWMP and extrapolating shared goals and objectives throughout the region and between watersheds is accomplished by integrating all of the goals, objectives, and actions with the issues that drive management decisions. This is an important part of the process and is explained in detail in Chapter 1.

The goals and objectives for this Plan were formulated in the planning work groups for the water supply, water quality, environment and habitat, land use, and recreation management areas. The work groups focused on 14 regional watershed issues described in Chapter 7. This resulted in the identification of 9 goals and 26 objectives described in this chapter.

8.1.1 Watershed-based Planning

Watershed-based planning is becoming the planning method of choice for natural resource management throughout the state of California, and indeed internationally. According to the USEPA, watershed-based planning "...is the most effective framework to address today's water resource challenges."¹ This is the case for a number of reasons. Watershed planning involves the diverse cross-section of stakeholders in the planning process, resulting in an outcome that is exhaustive in depth, breadth, and universally agreeable in nature.

¹ Retrieved 7/2/07 at <http://www.epa.gov/owow/watershed/approach.html>.

Because the stakeholders are involved, a more organic, hands-on, and practical approach is taken, with project needs identified by those who have a personal investment in the resources of that particular region. Through this involvement, too, management activities can be defined through a strategic approach, integrating multiple state, federal, and local programs, public and private resources, varying degrees of expertise and experience, and adaptive management techniques for all water resource management goals.



Jenkinson Lake/Sly Park Reservoir

Watershed management requires more than just getting interested stakeholders into a room together, however. It requires building a social infrastructure that can withstand the planning process as well as support important social and resource-based relationships into the implementation future.² Participants in the CABY IRWM planning effort have emphasized their desire for a functional, forward-thinking, and durable social framework to implement the planning effort of

² McGinnis, M.V., J. Wooley, and J. Gamman. (1999) *Bioregional Conflict Resolution: Rebuilding Community in Watershed Planning and Organizing*. In *Environmental Management*, Jul:24(1):1-12.

2005-2007 and to continue to adaptively manage the water resources of the CABY region. The will of these individuals and organizations to implement the collaboratively built and unanimously adopted CABY IRWMP indicates that the CABY Regional Entity has achieved a structure that effectively includes all interested and vested stakeholders while maintaining an efficient process for accomplishment. Watershed-based planning is an effective tool in the CABY region and will help in sustainable management of the area's natural resources for the next 30 years.

8.2 IRWMP Goals³

IRWMP goals and objectives integrate the mandatory plans' goals and objectives with those developed by CABY stakeholders through this planning process. The IRWMP goals and objectives build upon the public involvement and agency coordination used to produce the mandatory plans to develop a more comprehensive and integrated plan with a certainty of consensus. This Plan also identifies goals and objectives that are not part of any mandatory plans. The overlaps and gaps between the CABY IRWMP and the mandatory plans are discussed at the end of this chapter.

Goal 1: Achieve sustainable surface and groundwater supply.

To reliably meet the long-term water requirements of the watershed's residents, industry, agriculture and natural resources, the issues of water storage, water diversion, water demand, water infrastructure, and groundwater availability need to be addressed. Additional storage capacity in all watersheds will be needed to meet future water needs. Existing diversions and infrastructure will need to be more efficient and balanced with conservation and recycling. Groundwater, while not a source of water supply for urban areas, is increasingly pumped to meet rural, individual

household needs; thus, groundwater resources must be managed to ensure sustainability (i.e., extraction and recharge remain in balance).

Goal 2: Provide multiple benefits from management of water resources, diversions and infrastructure.

This goal relates to the issues of temperature, water diversion, infrastructure, instream flow, habitat alteration, and fisheries and aquatic biota. Managing water resources throughout the four watersheds to attain benefits from improved flows below diversions; developing more efficient water delivery systems; and implementing environmental and instream flows to sustain fisheries and improve habitat for aquatic biota and riparian ecosystems are critical to the overall health and sustainability of the watersheds.

Goal 3: Reduce impacts from catastrophic fire.

Reduce impacts from fire by managing forests and other terrestrial habitats to reduce the risk of catastrophic fire. This includes reducing fuel loads and working to keep human and property assets out of high-risk fire areas. The impacts of catastrophic fire can include loss of human life and property, damage to water and other infrastructure, and ecosystem damage, especially soil erosion and sediment deposition in aquatic habitats. Increased development throughout all the watersheds increases the costs (property losses) associated with fires. Water delivery systems can be damaged by fire and result in interruptions in the water supply. Forest management actions that reduce fuel loading along with land uses that incorporate fire management and suppression are critical in preventing catastrophic fires.

Goal 4: Protect infrastructure, equipment, and property from flooding.

While flooding is not a concern in all areas of the CABY region, and some flooding is desirable to maintain stream and riparian function, flooding is frequently a localized problem. Issues related to flooding are damage to infrastructure from flash floods, or sustained high water and habitat alteration (development



Drum Forebay,
Bear River Watershed



Forest Fire, Sierra Nevada

³ CABY Goals are listed by number for reference. This is not a prioritization.

or other poor land use practices increase the risk of local flooding). It is of high consideration to CABY that projects be managed to provide flood control to downstream users – even outside of CABY boundaries.

Goal 5: Protect and improve watershed resources through land use practices.

This goal addresses several issues across the CABY region including sedimentation, contamination, fire and fuels, temperature, flooding, groundwater, habitat alteration, and fisheries and aquatic biota. This goal seeks to protect and improve watershed resources such as water supplies, streamflow, water quality, habitat, and fish and wildlife through the development and application of land use practices. Improved land use practices, as reflected in the SNFPA 2004 (see Chapter 6, mandatory plan #6), can help maintain healthy forests; healthy riparian systems (that provide stream shading to help control stream temperatures and provide adequate herbaceous undergrowth to buffer streams from contamination runoff); and well vegetated slopes that reduce sediment and erosion runoff and increase infiltration rates into aquifers. Sound land use and design development that minimizes habitat degradation can also protect fisheries and other aquatic biota and protect habitat for sensitive or threatened and endangered species.

Goal 6: Manage sediment for water resources, infrastructure and habitat value.

Excessive sedimentation is a consequence of stream bank or upland erosion overloading a stream's capacity to transport and distribute the material. Excessive sedimentation causes channels to aggrade, becoming more shallow and unable to accommodate high flows, which results in flooding and damage to infrastructure. It can also contribute so much fine material to a stream that fish spawning areas and aquatic biota are buried. On the other hand, streams in balance with natural sediment loads are important and necessary for aquatic biota. Trout and salmon must have clean, renewable gravel as well as some fine material for successful spawning; invertebrate

populations require cobble-sized material; and stream banks are continuously rebuilt from material deposited during high flow events.

Goal 7: Reduce mercury contamination in waterways.

Mercury contamination resulting from historic mining activity is a serious problem in many areas of the CABY region. Mercury, when methylated, becomes toxic to living forms. Mercury deposited and isolated in specific stream locales and in reservoirs can be removed. However, the best management practice is to reduce the input of mercury by addressing the sources such as leaching or runoff from old mines.

Goal 8: Reduce contamination of surface and groundwater resources.

Evidence indicates that certain surface and groundwater sources in the region have become contaminated. Reducing water pollution in the CABY region will depend upon better wastewater and stormwater management associated with growth and development. There is some evidence of increasing contamination of groundwater resources from septic leakage. Reducing contaminants throughout the CABY region will depend upon improved surface water delivery systems to reduce the dependency on groundwater wells, better waste management and stormwater management, and land use and development practices that incorporate best management practices to prevent runoff, septic seepage and other pollutants from reaching streams and aquifers.

Goal 9: Protect and improve fisheries and aquatic biota through water resources management.

A healthy aquatic ecosystem requires balanced sediment inputs and transport dynamics, healthy riparian systems and habitat, adequate instream flows, and land uses that minimize aquatic impacts. As discussed previously, a healthy, self-sustaining fishery and other biota in all CABY streams requires balanced sediment inputs, riparian systems that control temperature and provide habitat, minimum



Slab Creek Dam at flood stage, South Fork American River.

flow releases below dams, adequate instream and environmental flows, and land uses that incorporate best management practices. Meeting this goal in all four watersheds will also improve water quality and base-flow (dry season) water delivery, and improve groundwater recharge.

8.3 IRWMP Objectives⁴



South Fork Yuba River headwaters.

Objectives describe how goals are attained. This Plan identifies 26 objectives that, when integrated with the nine goals, form the foundation for water resources management in the CABY watersheds. Many objectives address more than one goal. Each objective is described below as a stand-alone concept before goals and objectives are integrated in the next section. Some objectives may seem to contradict each other and it is important that they be viewed in a balanced manner.

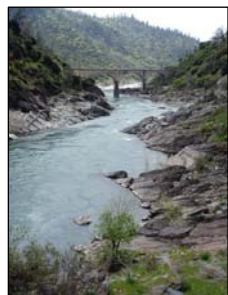
Objective 1: Improve storage capacity.

Improving storage capacity in the CABY region is a significant issue for all water agencies responsible for providing a reliable and clean water supply for urban, agricultural and environmental purposes. Improved capacity will consist of a range of strategies that could include capturing additional water supplies, reducing water use through conservation efforts, water recycling, and restoring the natural storage capacity of watershed lands. Additional water supplies could be captured by new storage facilities, raising dam heights, removing accumulated sediments, or utilizing conjunctive use options or inter-basin cooperation. Infrastructure improvements in facilities and storage tanks can provide more efficient delivery while optimizing water supply capacity.

Objective 2: Implement measures to manage and reduce erosion and sedimentation.



South Fork Cosumnes River



North Fork American River

Best management practices that protect stream banks and riparian systems can be incorporated into land use and development plans. Reducing erosion and sedimentation can be accomplished by improving or closing forest and county roads that contribute sediments to streams. Properly managing off-road recreational vehicles and revegetating exposed soils can reduce sediment inputs.

Objective 3: Meet and/or attain Regional Water Quality Control Board (RWQCB) standards.

Sediment, temperature, and contaminants are the principal water quality concerns in the CABY region. Each of these water quality parameters must meet state and Federal standards for the designated beneficial uses set out in the regional water quality basin plans. Improving and maintaining water quality requires intercepting and buffering inputs through best management practices that sustain healthy riparian and upland systems, as well as managing wastewater sources and other sources of contaminants.

Objective 4: Work collaboratively to restore state designated impaired water bodies (303(d)).

Mercury, sediment, and temperature are key problems throughout the watersheds. Because of the ubiquitous nature of mercury contamination, regional cooperation between county agencies and water districts is necessary to address water quality issues and restore streams, lakes and reservoirs. Because of trans-basin water diversions in the CABY region, water quality is not just an upstream-downstream issue but crosses watershed boundaries laterally, thus making collaboration between local governments imperative. Examples of those waterbodies within the CABY region designated by the State as polluted and impaired can be found listed in Table 3.1.

Objective 5: Support forest management practices that benefit water resources.

Because the CABY region includes such a high proportion of forested land (including the

⁴ CABY Objectives are listed by number for reference. This is not a prioritization.

Tahoe and El Dorado National Forests and large amounts of forest lands in private ownership), management of forest lands is an important component of water resource planning in all CABY watersheds. If the climate in California continues to shift as predicted towards warmer temperatures and longer, drier summer seasons, it will become even more critical to manage forest densities and fuel loadings to mitigate the effects of increased drought, pests, diseases, and fires to conifer forests in our region, all of which have an effect on water quality and supply throughout the region. CABY intends to encourage and support a full range of forest management projects that employ best management practices to manage forest densities, reduce fuel loadings, and control wildfires; to improve watershed conditions through grazing, mining, and recreation management; and to reduce sediment inputs through road and trail improvements.

Objective 6: Protect, restore, and enhance beneficial sediment transport processes.

As described in the goal for managing sediments, it is the balance between beneficial sediment inputs and detrimental sediment loading that is important. Dams typically block the downstream recruitment of new gravels necessary for trout spawning; while poor land use practices increase stream bank erosion and the loading of fine sediments. Water resource management must therefore consider both beneficial and detrimental sedimentation. A mix of sediments, from fine silts to boulders, in proportions appropriate to the natural stream transport capacity is necessary for aquatic health and channel stability in the CABY region. Land uses can increase fine sediment loads, and dams and diversions can diminish beneficial recruitment of gravels and cobbles. CABY will work to promote beneficial sediment transport dynamics through measures instream and upslope.

Objective 7: Manage recreation to minimize impacts to watershed resources.

Off Highway Vehicle (OHV) use and roads in disrepair have the greatest recreational impacts

on water resources at the present time. The principle impact is contribution of sediments from degraded areas near streams. Designated OHV areas and closure or repair of roads, in addition to recreant education, can potentially reduce the existing sediment sources and prevent new sources from developing. Additionally, water-related recreation is on the rise as nearby population centers grow. Rafting, kayaking, swimming, boating, and camping are all activities that affect water quality in the CABY region. CABY foresees the growth of recreation in this area, and address it with targeted programs and activities.

Objective 8: Reduce levels of methylated mercury.

While mercury is a principal water quality issue affecting all of the watersheds to varying degrees, how to deal with mercury deposits is still being determined. Removal of mercury-contaminated sediments is an obvious approach, but is expensive. Reducing the levels of methylated mercury will require ongoing research. CABY will take action to better characterize the nature of the mercury contamination problem in the region and develop and implement strategies to remediate priority areas throughout the region.

Objective 9: Implement measures to manage and reduce contamination of waterways.

Best management practices will reduce contaminants contributed from septic tanks, urban storm water runoff, and other land uses. Riparian vegetation can create important buffer zones that remove sediments and contaminants carried by runoff. Agricultural runoff can be controlled in a variety of ways with sediment basins as well as riparian buffer strips. CABY will take action to remediate abandoned mines to reduce contaminant loading to rivers.

Objective 10: Protect and restore riparian, wetland and seasonally flooded habitats.

Wetlands and riparian habitats are effective filters and buffers for water quality improvement. Runoff is effectively filtered by



riparian systems, and wetlands filter stream flow removing many pollutants. Wetlands and riparian habitats can improve water quality and provide important habitat for aquatic and terrestrial species. CABY will implement actions to restore and protect these habitats in the regions watersheds.

Objective 11: Manage water infrastructure to optimize in-stream temperatures.

Aquatic biota are dependent upon relatively narrow ranges of water temperature. The regional water quality basin plan designates CABY streams as coldwater biota. Water infrastructure in the CABY region can dramatically influence instream temperatures by changing the timing and magnitude of flows, and by directly changing the temperature of water stored in reservoirs. CABY will explore opportunities to manage water and power infrastructure to improve water temperatures while protecting the core function of the facilities.

Objective 12: Investigate effects of drought and climate change and need for water management strategies.

Climate change is a natural phenomenon that may be accelerated by increasing levels of carbon dioxide and other greenhouse gasses in the atmosphere that lead to warmer global temperatures. Climate studies indicate that droughts are becoming more frequent and severe (longer duration) and precipitation may also become more intense and localized leading to higher risk and incidents of flooding occurring earlier in the wet season (e.g. March/April vs. May/June; increasing the likelihood of rain-on-snow events); all of which have obvious effects on managing water resources to meet future demand. A drought policy or flood response program based on modeled predictions of climate change effects as well as changing land and water use patterns will provide options for managers to define the best strategies such as: increasing storage capacity at existing facilities, improving infrastructure, increasing water conservation and recycling, and developing additional storage systems. CABY will investigate the implications of these changes for water

management and develop strategies to adapt to climatic fluctuations.

Objective 13: Reduce degradation and optimize benefits resulting from inter-basin transfers of water.

Inter-basin water transfers throughout the CABY region are extensive and complex. Moving water from one river basin to another was initially done to meet agricultural and mining demands. In some cases inter-basin transfers have resulted in degraded water quality and loss of habitat in both the exporting and receiving basins. CABY will identify and implement any effective measures to reduce the adverse impacts of inter-basin transfers. This objective will improve both habitat and water quality by reducing degradation caused by certain inter-basin transfers, while at the same time identifying situations where transfers will actually improve water quality, and/or instream flows, riparian habitat, and dry season base flows.

Objective 14: Optimize efficient use, conservation and recycling of water resources.

As described in other objectives, conservation, recycling, and improved infrastructure efficiencies are important tools to meet increasing water demands throughout the region. Some water supply agencies have placed more emphasis on conservation and recycling than others in the region, but the lessons learned and techniques developed can be adopted and implemented by all CABY water supply agencies.

Objective 15: Identify and promote strategies for hydroelectric facilities to provide multiple benefits.

Hydro projects, especially those up for relicensing, are unique opportunities to create multiple instream benefits such as: controlling flow releases for recreation purposes; flood control; managing for optimum temperatures and oxygen levels in streams to enhance conditions for fisheries; providing out-of-channel water for germination of riparian vegetation; and increasing reservoir turnover to

protect and enhance fish and water quality. Water agencies also have the opportunity to negotiate joint use of existing storage facilities within the hydroelectric projects, in lieu of building new storage reservoirs. Efficiency improvements for existing hydropower facilities would allow them to be more profitable and receptive to participating in multi-benefit projects. Water agencies can further optimize hydroelectric generation in the region by taking advantage of the large elevation differences in their piped water systems. Small hydroelectric systems could be developed along these pipelines to assist the State in meeting its future energy requirements by providing energy from non-polluting, renewable resources. CABY will explore opportunities to enhance the recreational value of water infrastructure while protecting its fundamental purpose.

Objective 16: Maintain and promote recreational and environmental values associated with water infrastructure.

The CABY region contains many canals and ditches that have been constructed over time. Many of these canals and areas along the canals are used for hiking, biking, and fishing, and are valued for their aesthetic features such as shaded paths meandering through old-growth forest patches. The public is in favor of retaining many of these infrastructures for the recreational and environmental values they provide. CABY will explore and design ways to promote recreational and environmental values associated with these important water infrastructure features.

Objective 17: Evaluate and modify water infrastructure to improve efficiency.

While many canals and ditches provide aesthetic landscape features, many are inefficient due to leakage and/or high maintenance costs and are responsible for the loss of thousands of acre-feet of water each year. In addition, some of the water infrastructure was originally located and configured to meet agricultural demand, but now the demand has shifted to urban area needs and it may be difficult and inefficient to

supply water to some growth areas through the existing systems. Piping and/or lining sections of these canals and reducing the losses inherent in an open conveyance system will increase current water supplies and could reduce the amount of additional water that will be needed from surface water sources in the future. CABY has identified high priority actions to improve the efficiency of several ditches and canals.

Objective 18: Minimize impervious surface cover and improve infiltration.

Land use is changing rapidly throughout the CABY region with an increase in residential development. Housing developments and expanded urban boundaries generally increases the acreage of impervious surfaces with paved roads, parking lots, commercial development, and houses. This conversion of land from pervious to impervious conditions reduces the amount of precipitation that can infiltrate or percolate into the soil and into groundwater aquifers, and increases the rate and volume of runoff. This adversely affects channel stability and aquatic habitat.

Objective 19: Promote community and regional storm water management plans.

Regional water quality basin plans generally require storm water management plans that direct and treat runoff events to some degree. Strategies to reduce and/or treat stormwater have proven to be effective in reducing pollution inputs to water bodies. In the case of small communities that generate low volumes of storm water, riparian systems adjacent to streams can buffer the volume and pollutants entering adjacent streams. Planning is necessary to address the unique situations of every community and to identify the most reliable, cost effective, and dependable actions.

Objective 20: Increase knowledge of groundwater systems and establish groundwater management practices.

Groundwater is a poorly understood resource in the CABY region. Because of the faulted and fractured geological conditions it is difficult to describe the sustainable yield or

water quality of aquifers. Consequently, there is insufficient information to determine if aquifers are being sustainably managed. Most of the groundwater use throughout CABY is for household purposes. There is growing evidence that in some areas groundwater is being contaminated by leakage from septic tanks or other such sources. Identification of suitable groundwater management practices to prevent contamination and assure that groundwater recharge and extraction are balanced will require more study and analysis.

Objective 21: Protect and restore connectivity of floodplains, stream channels and groundwater.

Rivers and streams in the CABY region are characterized by a mix of steep, confined channel types (with few floodplains and other depositional features) and lower gradient, less confined reaches (with significant floodplain areas and other depositional features). It is important to river health to maintain connectivity with floodplain areas to sustain riparian habitat and recharge groundwater resources. Streams are a function of the connectivity between geomorphic surfaces (such as floodplains) and stream banks that form the channels that convey the water. Groundwater and water tables adjacent to the stream channels play a critical role in water storage during wet months and water release back into the channels during dry months. (As the water level goes down in streams from spring to late summer, stored water moves back into the channels from the adjacent aquifers to maintain dry season base flows.) The connectivity of these aquatic ecosystem components must be protected or restored in order to maintain a functioning stream system. CABY will explore areas in need of action to reconnect channels and floodplains and methods to achieve this objective.

Objective 22: Evaluate and minimize negative flood impacts on water infrastructure and water quality.

While flooding is a natural phenomenon that drives healthy stream systems, excessive and frequent flooding impacts water quality and results in damage to water supply, delivery

systems, and property. Most flooding in the CABY region is localized, but can be severe. In many cases the negative effects of floods can be reduced or controlled with management that addresses the causes of floods and actions that protect infrastructure.

Objective 23: Manage rivers, tributaries and infrastructure to provide flow regimes that benefit ecosystem function.

A properly functioning aquatic ecosystem is dependent upon a range of flows. First, streams require an adequate minimum base flow to meet the needs of and protect aquatic life. Second, streams in the CABY region require higher, freshet (spring) flows to scour and move debris, deepen pools, recruit gravel, irrigate riparian systems, and perform a host of other functions. Third, in order for streams to remain healthy and responsive, they require periodic “disturbance flows”; flows that occur every 10 to 25 years, for example, that re-set geomorphic conditions and processes that nature requires to maintain maximum biodiversity in plant and animal populations.

Objective 24: Conserve and restore native species and diverse habitats.

Habitat alteration and loss of habitat has occurred in the CABY region as a result of water diversions, dams, mining, agriculture, and urban development. This is a consequence of humans using increasing amounts of watershed resources. Disturbances that create bare soil allow opportunities for non-native species, especially exotic weed plants, to invade and take over altered areas that native animal species may not be able to use, which, in turn creates opportunities for non-native animals to invade. Wherever possible, native habitat should be retained or restored for those native species that co-evolved in the region.

Objective 25: Promote comprehensive land use planning.

As new housing areas are developed throughout the CABY region, additional pressure is placed on water supplies and delivery systems; habitats can be irreversibly altered; groundwater is at greater risk of being

depleted and contaminated; riparian systems removed; and the natural buffering of water quality is diminished. Comprehensive land use planning for new developments in rural areas will not only ensure that those natural features important to water quality and quantity are protected and maintained, but will be integral to planning future water supply and delivery systems.

Objective 26: Sustain agricultural viability through effective water management.

Meeting future water demands will require many changes in the existing water supply system from increasing storage and capacity to realignment of infrastructure and delivery systems. Changes should not impact agricultural needs or current delivery systems, but improve delivery where possible by improving the efficiency (reduced water losses) of irrigation systems.

New and existing agriculture is highly valued throughout the CABY region. In order to sustain agricultural viability in the region, storage, delivery and distribution systems will be improved to ensure a reliable water supply. Increased efficiency in irrigation systems, the use of reclaimed and untreated water and additional efforts to conserve more water will also be promoted.



North Yuba River

8.4 Integration of CABY Goals and Objectives

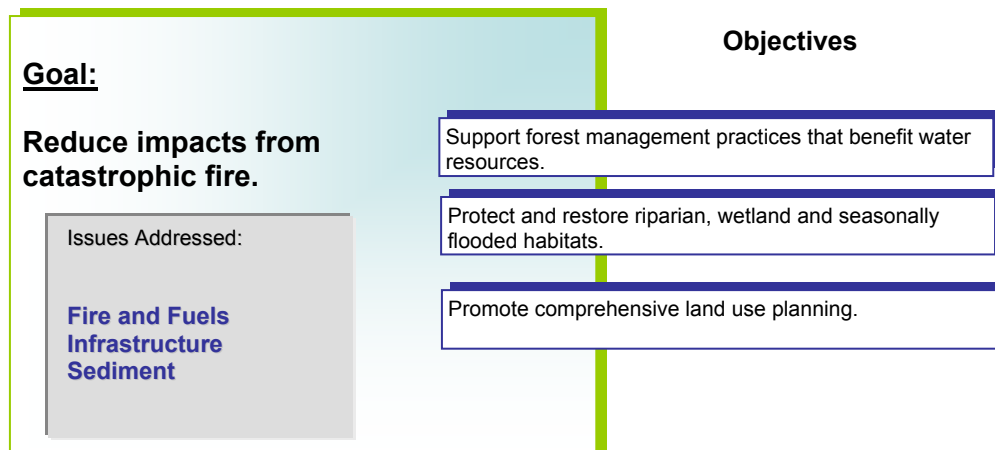
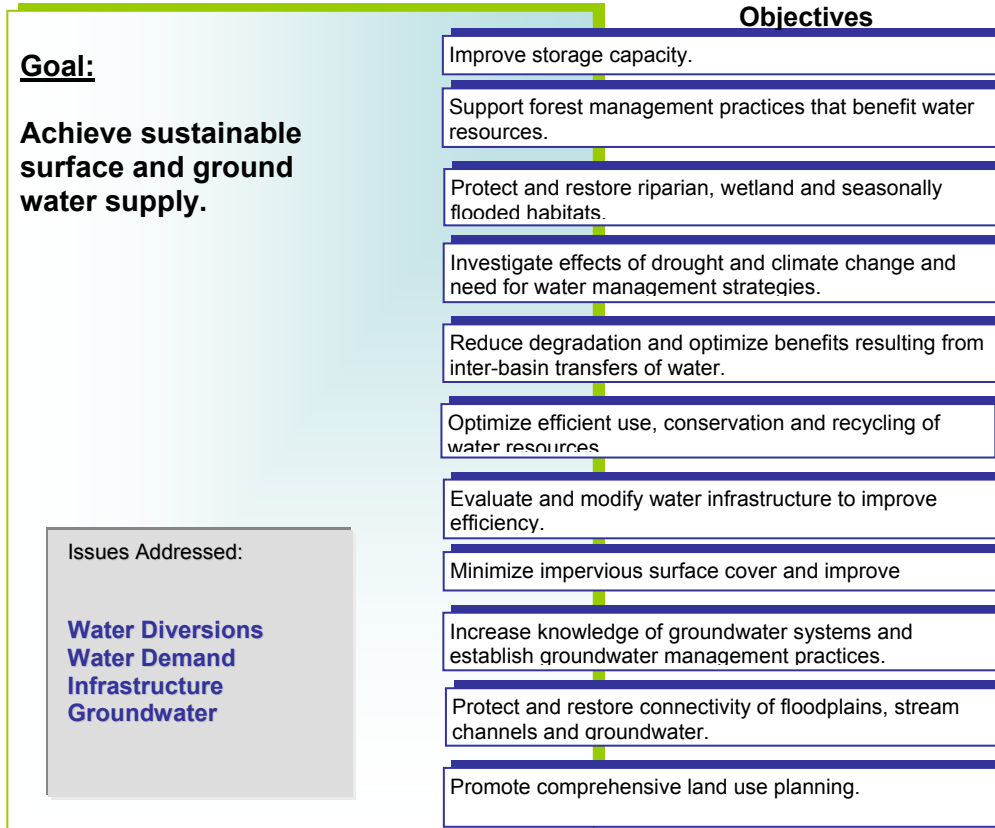
The graphic explanation displayed on the next several pages lists the goals, the water resource issues they address and then delineates the objectives for each goal.

8.4.1 State Strategies and CABY Goals and Objectives: the Nexus

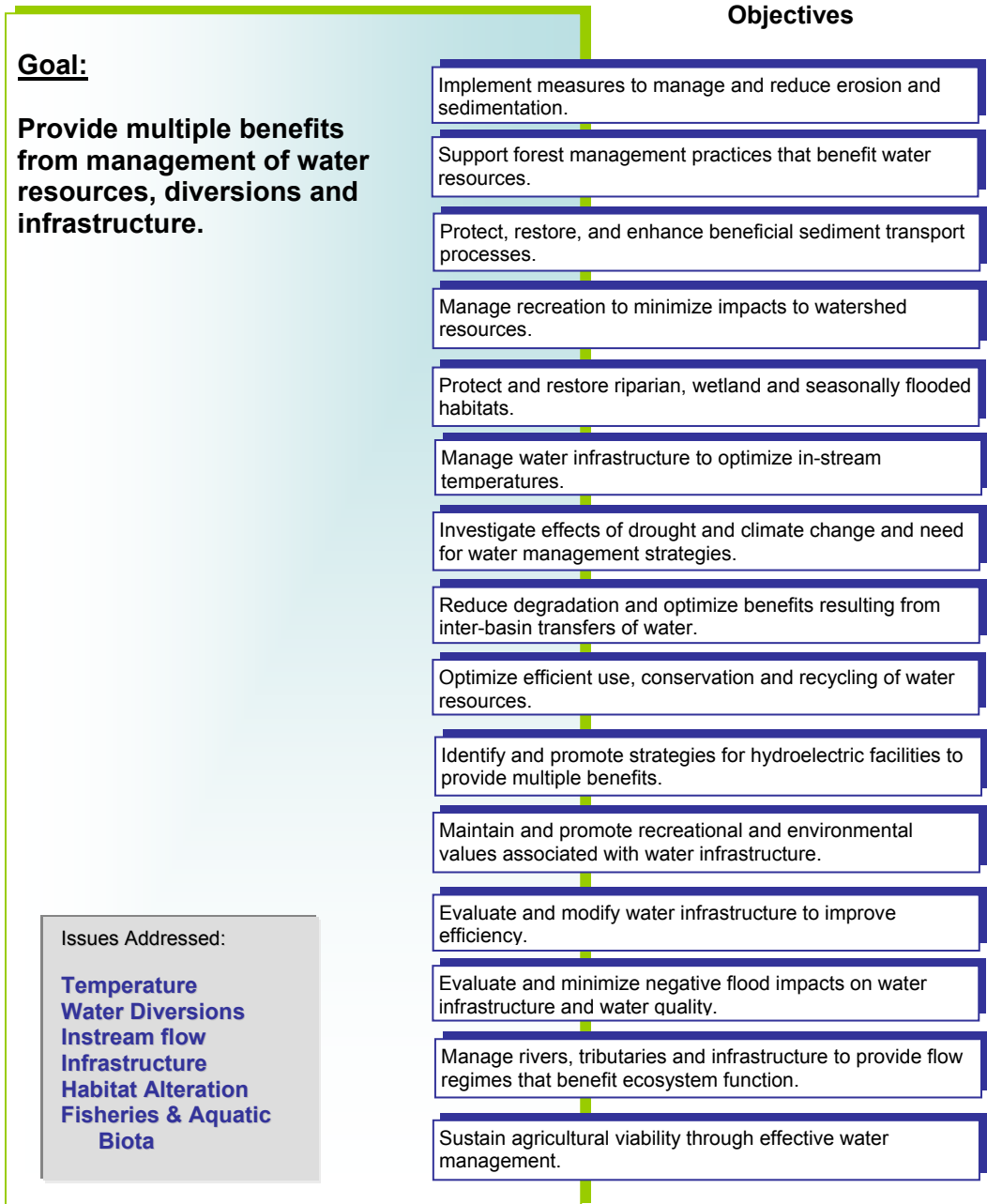
CABY has consciously considered and evaluated all of Proposition 50 Plan Standards water management strategies for the CABY IRWMP. CABY's goals and objectives include considerations of all strategies necessary to meet DWR's minimum Plan standards. State strategies included in this Plan are: land use planning, NPS pollution control (through sediment considerations – the EPA-identified number one pollutant for US water bodies), surface storage, watershed planning, water and wastewater treatment, and water transfers. Those strategies not included in the CABY IRWMP are conjunctive use, desalination, and imported water. These items were considered by stakeholders, but not included due to their ineffectiveness, inefficiency, or awkward application for and in the CABY region. Conjunctive use is beginning to be considered by several CABY-region agencies through possible collaboration with valley-floor organizations; this concept is in its infancy, however, and details are not refined adequately for presentation. At the present time and for the foreseeable future, desalination is not a cost-effective or needed tool for any agency within the CABY region. Imported water is not necessary, either, though imports between water agencies, or "water transfers" are often done. Table 8.1 demonstrates the exhaustive nature with which CABY has approached state strategies. In addition to considering all strategies, DWR minimum plan standards have aided CABY in designing and refining its plan. The DWR list allowed for pre-planning organization and post-goal/objective refining to occur. Through these considerations, CABY has exhausted the present water management strategy potential, and will continue to examine the region

periodically in order to identify changing conditions that may adjust the way the region looks at managing water resources.

CABY IRWMP Integration of Goals and Objectives



CABY IRWMP Integration of Goals and Objectives



CABY IRWMP Integration of Goals and Objectives

Goal:
Protect infrastructure, equipment, and property from flooding.

Issues Addressed:
**Infrastructure
 Flooding
 Habitat Alteration**

Objectives

- Protect and restore riparian, wetland and seasonally flooded habitats.
- Investigate effects of drought and climate change and need for water management strategies.
- Manage rivers, tributaries and infrastructure to provide flow regimes that benefit ecosystem function.
- Promote community and regional storm water management plans.
- Evaluate and minimize negative flood impacts on water infrastructure and water quality.
- Minimize impervious surface cover and improve
- Protect and restore connectivity of floodplains, stream channels and groundwater.
- Promote comprehensive land use planning.

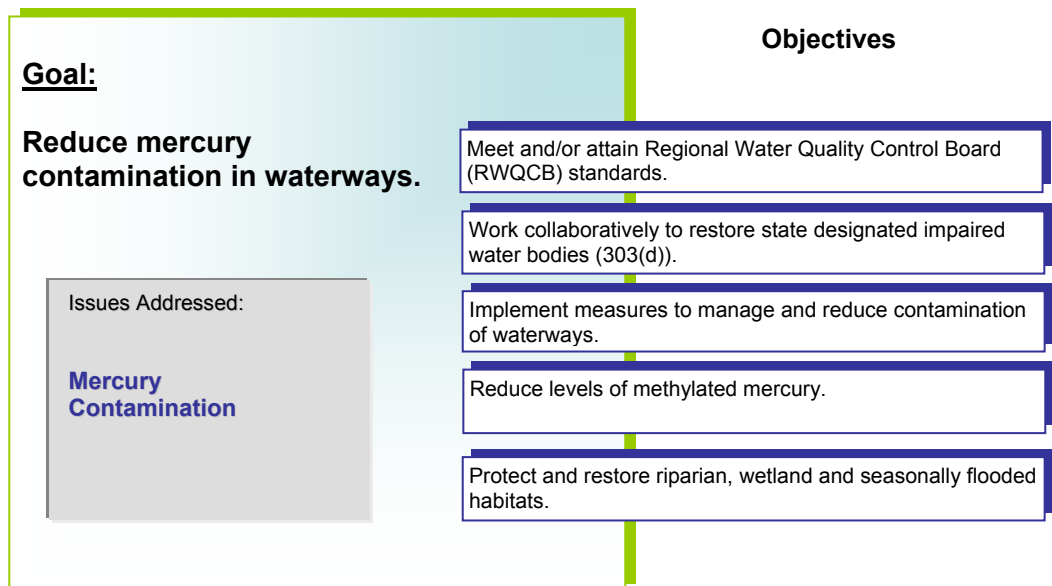
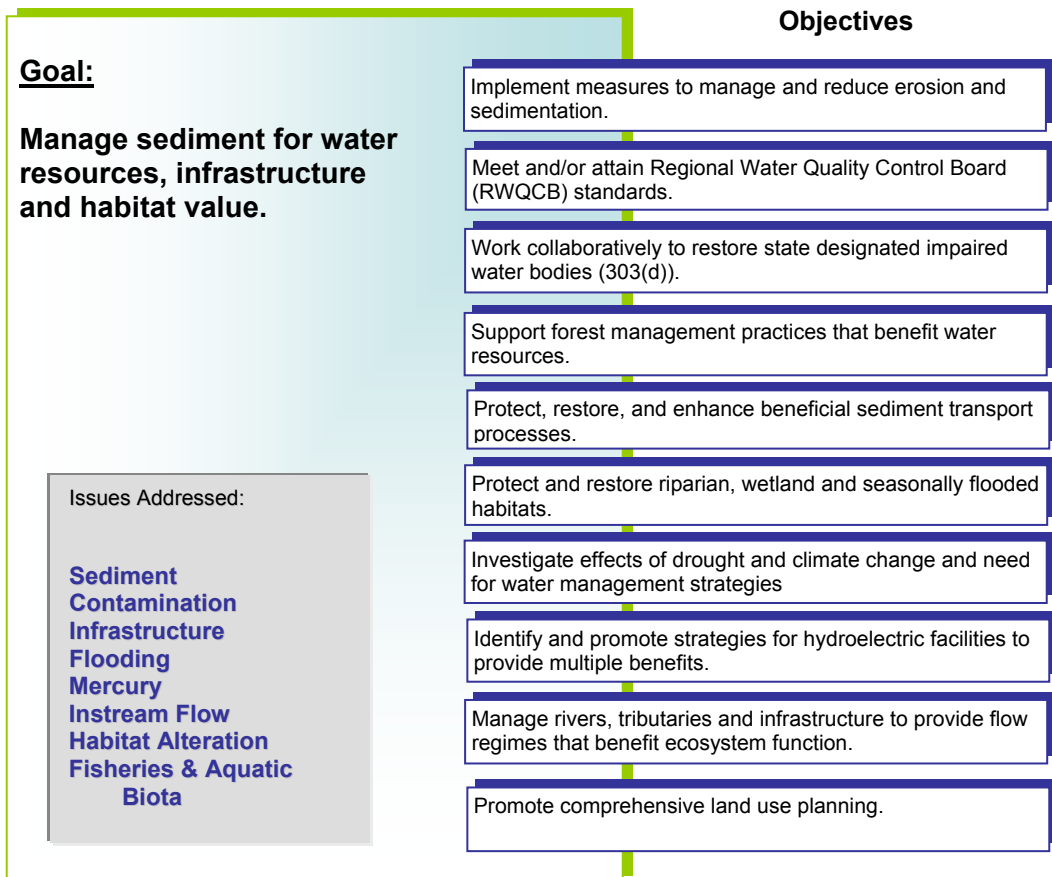
Goal:
Protect and improve watershed resources through land use practices.

Issues Addressed:
**Sediment
 Fire and Fuels
 Temperature
 Flooding
 Habitat Alteration
 Fisheries & Aquatic
 Biota**

Objectives

- Implement measures to manage and reduce erosion and sedimentation.
- Meet and/or attain Regional Water Quality Control Board (RWQCB) standards.
- Work collaboratively to restore state designated impaired water bodies (303(d)).
- Support forest management practices that benefit water resources.
- Implement measures to manage and reduce contamination of waterways.
- Protect and restore riparian, wetland and seasonally flooded habitats.
- Minimize impervious surface cover and improve
- Promote community and regional storm water management plans.
- Evaluate and minimize negative flood impacts on water infrastructure and water quality.
- Conserve and restore native species and diverse
- Promote comprehensive land use planning.
- Sustain agricultural viability through effective water management.

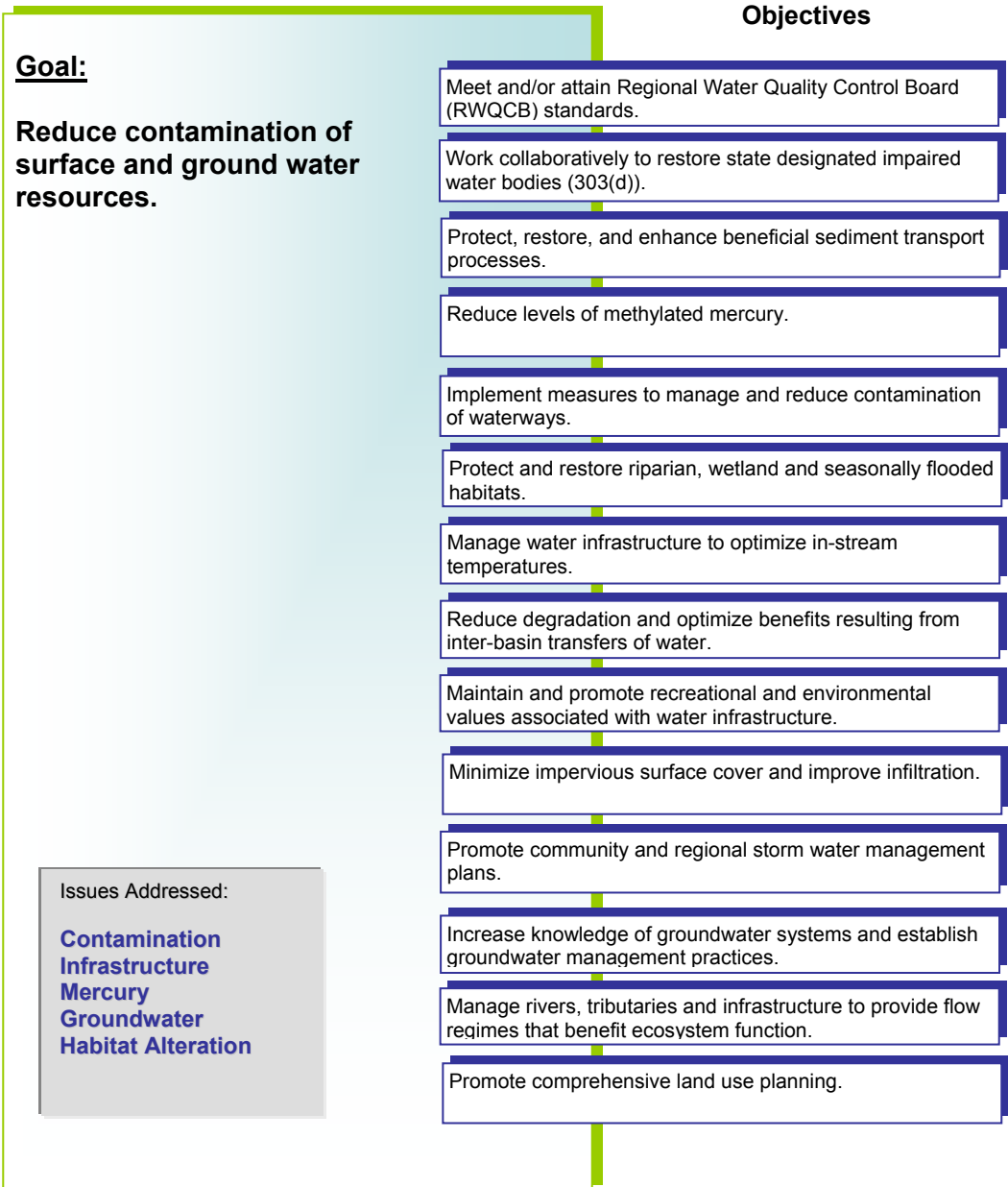
CABY IRWMP Intearation of Goals and Obiectives



CABY IRWMP Integration of Goals and Objectives



CABY IRWMP Integration of Goals and Objectives



INTEGRATED GOALS & OBJECTIVES

| Mandatory Plans | CABY Goals and Objectives | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | Goal 1: Achieve sustainable surface and ground water supply. | Goal 2: Provide multiple benefits from management of water resources, diversions and infrastructure. | Goal 3: Reduce impacts from catastrophic fire. | Goal 4: Protect infrastructure, equipment, and property from flooding. | Goal 5: Protect and improve watershed resources through land use practices. | Goal 6: Manage sediment for water resources, infrastructure and habitat value. | Goal 7: Reduce mercury contamination in waterways. | Goal 8: Reduce contamination of surface and ground water resources. | Goal 9: Protect and improve fisheries and aquatic biota through water resources management. | Objective 1: Improve storage capacity. | Objective 2: Implement measures to manage and reduce erosion and sedimentation. | Objective 3: Meet and/or attain Regional Water Quality Control Board (RWQCB) standards. | Objective 4: Work collaboratively to restore state designated impaired water bodies (303(d)). | Objective 5: Support forest management practices that benefit water resources. | Objective 6: Protect, restore, and enhance beneficial sediment transport processes. | Objective 7: Manage recreation to minimize impacts to watershed resources. | Objective 8: Reduce levels of methylated mercury. | Objective 9: Implement measures to manage and reduce contamination of waterways. | Objective 10: Protect and restore riparian, wetland and seasonally flooded habitats. | Objective 11: Manage water infrastructure to optimize in-stream temperatures. | Objective 12: Investigate effects of drought and climate change and need for water management strategies. | Objective 13: Reduce degradation and optimize benefits resulting from inter-basin transfers of water. | Objective 14: Optimize efficient use, conservation and recycling of water resources. | Objective 15: Identify and promote strategies for hydroelectric facilities to provide multiple benefits. | Objective 16: Maintain and promote recreational and environmental values associated with water infrastructure. | Objective 17: Evaluate and modify water infrastructure to improve efficiency. | Objective 18: Minimize impervious surface cover and improve infiltration. | Objective 19: Promote community and regional storm water management plans. | Objective 20: Increase knowledge of groundwater system and establish groundwater management practices. | Objective 21: Protect and restore connectivity of floodplains, stream channels and groundwater. | Objective 22: Evaluate and minimize negative flood impacts on water infrastructure and water quality. | Objective 23: Manage rivers, tributaries and infrastructure to provide flow regimes that benefit ecosystem function. | Objective 24: Conserve and restore native species and diverse habitats. | Objective 25: Promote comprehensive land use planning. | Objective #26: Sustain agricultural viability through effective water management. | | | |
| El Dorado County General Plan | ● | ▲ | ▲ | ● | ● | ▲ | ■ | ● | ● | ■ | ● | ▲ | ▲ | ● | ■ | ▲ | ■ | ● | ● | ■ | ▲ | ■ | ● | ■ | ■ | ▲ | ● | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ● | ● | | | |
| Placer County General Plan | ● | ▲ | ● | ● | ● | ▲ | ■ | ● | ● | ■ | ● | ▲ | ▲ | ▲ | ■ | ■ | ■ | ● | ● | ■ | ■ | ■ | ■ | ■ | ■ | ▲ | ● | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ● | ■ | | | |
| Nevada County General Plan | ● | ▲ | ● | ● | ● | ▲ | ■ | ● | ▲ | ▲ | ● | ▲ | ▲ | ● | ■ | ▲ | ■ | ● | ● | ■ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ● | ▲ | | |
| Amador County General Plan | ■ | ■ | ▲ | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ■ | ▲ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Tahoe National Forest Land and Resource Management Plan | ▲ | ▲ | ● | ■ | ▲ | ▲ | ■ | ■ | ● | ■ | ▲ | ● | ● | ▲ | ■ | ▲ | ■ | ■ | ● | ■ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| CALFED Ecosystem Restoration Program Plan and Programmatic Record of Decision | ● | ● | ▲ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ▲ | ● | ▲ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ▲ | ▲ | ● | ● | ● | ● | ● | ● | ● | ▲ | ▲ | | |
| 2005 Nevada Irrigation District: Urban Water Management Plan | ● | ▲ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Regional Water Quality Control Plan (Basin Plan) | ▲ | ■ | ■ | ■ | ■ | ▲ | ● | ● | ▲ | ■ | ● | ● | ● | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Sierra Nevada Regional Forest Plan | ▲ | ■ | ● | ■ | ▲ | ▲ | ▲ | ▲ | ▲ | ■ | ▲ | ● | ● | ● | ▲ | ■ | ■ | ▲ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ▲ | ● | ■ | ▲ | ● | ● | ■ | ■ | | |
| CDF Fire Plan | ■ | ■ | ● | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Placerville Stormwater Management Plan | ■ | ▲ | ■ | ▲ | ▲ | ▲ | ■ | ● | ▲ | ■ | ● | ● | ● | ■ | ▲ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| El Dorado County Fire Safe Plan | ■ | ■ | ● | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| EID Final Urban Water Management Plan | ● | ▲ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| El Dorado National Forest Land Management Plan | ▲ | ▲ | ● | ■ | ▲ | ▲ | ■ | ■ | ● | ■ | ▲ | ▲ | ▲ | ▲ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Georgetown PUD Urban Water Management Plan | ● | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| South Yuba River Management Plan | ■ | ▲ | ▲ | ■ | ▲ | ▲ | ■ | ▲ | ▲ | ■ | ▲ | ▲ | ▲ | ▲ | ■ | ● | ▲ | ▲ | ● | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| El Dorado County River Management Plan | ■ | ● | ▲ | ■ | ▲ | ■ | ■ | ▲ | ▲ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ▲ | ● | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| PCWA Urban Water Management Plan | ● | ▲ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sierra Nevada Conservancy Strategic Plan | ▲ | ▲ | ● | ■ | ● | ■ | ■ | ▲ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| FERC #184: El Dorado Hydroelectric Project. | ● | ● | ▲ | ▲ | ● | ▲ | ■ | ▲ | ● | ● | ● | ▲ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| FERC #2079: MidFork American License. | ● | ● | ▲ | ▲ | ● | ▲ | ■ | ▲ | ● | ● | ● | ▲ | ■ | ▲ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| FERC #2101: Upper American River Project | ● | ● | ▲ | ▲ | ● | ● | ■ | ▲ | ● | ● | ● | ▲ | ■ | ▲ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| FERC #2155: Chili Bar Project | ● | ● | ▲ | ▲ | ● | ▲ | ■ | ▲ | ● | ● | ● | ▲ | ■ | ▲ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| FERC #7931; FERC #8722; FERC #3189; FERC #2266; FERC #2310; FERC #2246 | ● | ▲ | ▲ | ▲ | ▲ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ▲ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

Table 8.1 CABY IRWMP Goals and Objectives Matrix.

Key: ■ = Does not address the subject. ● = Fully addresses the subject. ▲ = Partially addresses the subject.

The goals and objectives for each of the regions mandatory plans are compared with the goals and objectives developed by the CABY stakeholders for this IRWMP.

8.5 Goals and Objectives Matrix

As mentioned above, the CABY goals and objectives are an integration of the relevant goals and objectives in the mandatory plans and those identified by the CABY work groups. Linking the mandatory plans with the IRWMP and extrapolating shared goals and objectives throughout all four watersheds is accomplished by:

- 1.) Summarizing each mandatory plan in the region (Chapter 6);
- 2.) Identifying the goals and objectives from each of the mandatory plans that apply to water resource management or the CABY IRWMP (Chapter 6);
- 3.) Identifying the shared goals and objectives and gaps between the mandatory documents and the CABY IRWMP.

Table 7.1 is a matrix of the CABY IRWMP goals and objectives juxtaposed with each mandatory document identified in Chapter 6. This relational matrix illustrates to what degree (partially, fully, or not at all) each plan addresses CABY IRWMP goals and objectives. Most of the mandatory documents do not have the same comprehensive vision or geographic scope as that of the CABY IRWMP; therefore, they do not fully address each CABY goal and objective.

The matrix table not only displays the extent to which the mandatory plans address the CABY goals and objectives but more importantly, illustrates where the CABY IRWMP can fill the gaps in order to meet these natural resource and management needs on a more regional basis. Unlike the mandatory plans, the CABY IRWMP is not limited to the geographic area, specific land use, or infrastructure for which these implementing agencies have authority. To this extent, the CABY IRWMP can be more effective in achieving success in improving water resources management in the region.

This plan addresses the geographic, thematic and institutional barriers and gaps inherent in the patchwork of existing plans. This IRWMP also provides a vehicle that didn't exist before for the various agencies and stakeholders to act in concert or coordination to achieve common goals.

Additionally, for those geographic areas currently covered by mandatory plans that do not establish goals for managing water and power infrastructure to improve water resources, the IRWMP fills this strategic gap, prioritizing and implementing water resource projects for the entire CABY region.

The 29 mandatory plans that currently direct water management throughout the CABY region are limited jurisdictionally, geographically, and in purpose. FERC license obligations are quite restrictive in their geographic area above and below dams; irrigation district water plans are generally highly focused on operation and maintenance issues and meeting water demands; federal land management agencies, while geographically broad, emphasize plans for resource utilization. Interestingly, none of the mandatory plans conflict or contradict one another, and despite the limitations of scope and authority, the mandatory plans have many things in common. However, no individual or combination of existing mandatory plans provide a framework or integrate water resource management across the four CABY watersheds. This IRWMP, through the deliberations of the working groups, expands the shared goals and objectives from the mandatory plans by integrating the mandatory plans into the CABY IRWMP.

It is important to fully understand the extent to which mandatory plans and the IRWMP goals and objectives integrate in order to recognize the gaps in water resource management across the CABY region. The degree to which this integration succeeds is important in order to focus the identification, prioritization, and implementation of future projects. As stated previously, while many goals and objectives are shared not all of the identified IRWMP goals and objectives are reflected in the

mandatory plans. A descriptive analysis of the matrix in Table 7.1 is given in the following section.

As mentioned previously, the CABY goals and objectives are an integration of the relevant goals and objectives in the mandatory plans and those identified by CABY stakeholders as being important for water resource management. A narrative is provided below along with tables that assess how or if each goal and objective is supported or identified in the mandatory plans. There are 29 mandatory plans that are cross-referenced with 9 CABY goals and 26 CABY objectives (as displayed in Table 8.1 above).

8.5.1 Analysis Discussion

CABY IRWMP Goals

Goal 1: Achieve sustainable surface and groundwater supply. This goal is fully addressed by 62 percent of the mandatory plans and partially addressed as an important goal in another 17 percent of the plans. The language and scope varies, but water supply reliability now and in the future, is an important component in most plans. The only mandatory plans that do not identify this CABY goal are related to fire management and specific river reach plans. This CABY IRWMP goal will be able to build on preexisting efforts identified in almost all of the mandatory plans.

Goal 2: Provide multiple benefits from management of water resources, diversions and infrastructure. This goal is fully addressed by 20 percent of the mandatory plans and partially addressed in another 62 percent of the plans. The language of this CABY goal is specific and targets a relatively new concept in water resource management, as compared with many of these older plans. This CABY IRWMP goal will be able to build on some preexisting efforts specifically identified in a few of the mandatory plans. A larger effort in specific IRWMP actions and projects will be needed to realize this goal.

Goal 3: Reduce impacts from catastrophic fire. This goal is fully addressed by 28 percent of the mandatory plans and partially addressed as an important goal in another 52 percent of the plans. The language of this CABY goal specifically targets fire related issues. Not all of the mandatory plans deal with fire and fuels related management. This CABY goal does have broad support from managers and stakeholders in the CABY region. This CABY IRWMP goal will be able to build on preexisting efforts identified in many of the mandatory plans.

Goal 4: Protect infrastructure, equipment, and property from flooding. This goal is fully addressed by 14 percent of the mandatory plans and partially addressed in another 45 percent of the plans. Flooding issues were identified by CABY stakeholders as being an important consideration for water resource management. This CABY IRWMP goal will be able to build on some preexisting efforts specifically identified in a few of the mandatory plans. A larger effort in specific IRWMP actions and projects will be needed to realize this goal.

Goal 5: Protect and improve watershed resources through land use practices. This goal is fully addressed by 31 percent of the mandatory plans and partially addressed as an important goal in another 52 percent of the plans. The language and scope varies, but protection and improvement of watershed resources through land use practice is an important component of most plans. The only mandatory plans that do not identify this CABY goal are related to Urban Water Management planning and have a narrow purview and set template of items to be addressed as mandated by the State. This CABY IRWMP goal will be able to build on preexisting efforts identified in almost all of the mandatory plans.

Goal 6: Manage sediment for water resources, infrastructure and habitat value. This goal is fully addressed by seven percent of the mandatory plans and partially addressed in another 41 percent of the plans. The language of this CABY goal is specific and

targets sediment management as being a critical part of many overlapping management areas. This CABY IRWMP goal will be able to build on a few preexisting efforts, but specific IRWMP actions and projects will be needed to realize this goal.

Goal 7: Reduce mercury contamination in waterways. While this goal was one of the most identified issues in the region by CABY stakeholders, it has relatively little to no support from any mandatory plans. The exceptions to this are the CALFED Bay-Delta Program and the Water Quality Basin Plan. This goal is fully addressed by seven percent of the mandatory plans and partially addressed in another three percent of the plans. The language of this CABY goal is specific and targets mercury reduction as being a critical part of water resource management. In order for this CABY goal to be realized, specific IRWMP actions and projects will need to be implemented.

Goal 8: Reduce contamination of surface and groundwater resources. This goal is fully addressed by 21 percent of the mandatory plans and partially addressed in another 55 percent of the plans. This CABY IRWMP goal will be able to build on some preexisting efforts specifically identified in some of the mandatory plans. A larger effort in specific IRWMP actions and projects will be needed to realize this goal.

Goal 9: Protect and improve fisheries and aquatic biota through water resources management. This goal is fully addressed by 31 percent of the mandatory plans and partially addressed as an important goal in another 25 percent of the plans. The language of this CABY goal specifically targets instream protection and improvement of aquatic biota. Not many of the mandatory plans deal with this goal specifically, and sometimes only as a peripheral objective. This CABY goal does have broad support from stakeholders in the CABY region. This IRWMP goal will be able to build on some preexisting efforts identified in some of the mandatory plans, but will benefit greatly from specific IRWMP actions and projects.

CABY IRWMP Objectives

Objective 1: Improve storage capacity. This objective is fully addressed by 38 percent of the mandatory plans and partially addressed in another 17 percent of the plans. This CABY objective will be able to build on preexisting efforts identified in some of the mandatory plans, and will work well in conjunction with CABY Goal #1, to achieve a sustainable water supply, which has extensive support among the mandatory plans.

Objective 2: Implement measures to manage and reduce erosion and sedimentation. This objective is fully addressed by 35 percent of the mandatory plans and partially addressed in another 24 percent of the plans. This CABY objective will be able to build on preexisting efforts identified in some of the mandatory plans, and will work well in conjunction with CABY Goal #6, to manage sediment. The combination of this objective and Goal #6 is not widely supported by the plans and will benefit from a larger effort in specific IRWMP actions and projects.

Objective 3: Meet and/or attain Regional Water Quality Control Board (RWQCB) standards. This objective is fully addressed by 17 percent of the mandatory plans and partially addressed in another 35 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because very few of the mandatory plans have any preexisting efforts in place. This objective will work in conjunction with CABY Goal #7. The combination of this objective and goal is not widely supported by the plans.

Objective 4: Work collaboratively to restore state designated impaired water bodies (303(d)). This objective is fully addressed by 17 percent of the mandatory plans and partially addressed in another 20 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because very few of the mandatory plans have any preexisting efforts in place. This objective will work in conjunction with multiple CABY

goals. The combination of this objective and goal is moderately supported by the plans.

Objective 5: Support forest management practices that benefit water resources. This objective is fully addressed by 14 percent of the mandatory plans and partially addressed in another 66 percent of the plans. This CABY objective should develop additional IRWMP actions and projects to work in conjunction with the preexisting efforts of the mandatory plans. This objective will work in conjunction with CABY Goals #3 and #5.

Objective 6: Protect, restore, and enhance beneficial sediment transport processes. This objective is fully addressed by three percent of the mandatory plans and partially addressed in another 17 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because none of the mandatory plans have any preexisting efforts in place. This objective will work in conjunction with CABY Goal #2. The combination of this objective and goal is not widely supported by the plans.

Objective 7: Manage recreation to minimize impacts to watershed resources. This objective is fully addressed by 20 percent of the mandatory plans and partially addressed in another 38 percent of the plans. This CABY objective should develop additional specific IRWMP actions and projects that build on preexisting efforts because few of the mandatory plans have actions in place. This objective will work in conjunction with multiple CABY goals. The combination of this objective and goal is somewhat supported by the plans.

Objective 8: Reduce levels of methylated mercury. This objective is fully addressed by seven percent of the mandatory plans and partially addressed in another three percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because none of the mandatory plans have any preexisting efforts in place. This objective will work in conjunction with CABY Goal #7. The combination of this objective and goal is not widely supported by the plans.

Objective 9: Implement measures to manage and reduce contamination of waterways. This objective is fully addressed by 35 percent of the mandatory plans and partially addressed in another 13 percent of the plans. This CABY objective will be able to build on preexisting efforts identified in some of the mandatory plans, and will work well in conjunction with CABY Goal #8, to reduce water resource contamination, which is moderately supported by the mandatory plans.

Objective 10: Protect and restore riparian, wetland and seasonally flooded habitats. This objective is fully addressed by 28 percent of the mandatory plans and partially addressed in another 10 percent of the plans. This CABY objective should develop additional IRWMP actions and projects to work in conjunction with the preexisting efforts of the mandatory plans. This objective will work in conjunction with CABY Goals #5 and #9, which have moderate support amongst the mandatory plans.

Objective 11: Manage water infrastructure to optimize in-stream temperatures. This objective is fully addressed by 10 percent of the mandatory plans and partially addressed in another 10 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because almost none of the mandatory plans have any preexisting efforts in place. This objective will work in conjunction with CABY Goal #9. The combination of this objective and goals has low to moderate support in the plans.

Objective 12: Investigate effects of drought and climate change and need for water management strategies. This objective is fully addressed by 17 percent of the mandatory plans and partially addressed in another three percent of the plans. This CABY objective should develop additional IRWMP actions and projects to work in conjunction with the preexisting efforts of the mandatory plans. The objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 13: Reduce degradation and optimize benefits resulting from inter-basin transfers of water. This objective is fully addressed by three percent of the mandatory plans and partially addressed in another 10 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because none of the mandatory plans have any preexisting efforts in place. The objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 14: Optimize efficient use, conservation and recycling of water resources. This objective is fully addressed by 20 percent of the mandatory plans and partially addressed in another seven percent of the plans. This CABY objective should develop specific IRWMP actions and projects to compliment the preexisting efforts in place from the mandatory plans. This objective will work in conjunction with CABY Goal #1, which is widely supported by the mandatory plans.

Objective 15: Identify and promote strategies for hydroelectric facilities to provide multiple benefits. This objective is fully addressed by 17 percent of the mandatory plans and partially addressed in another 38 percent of the plans. This CABY objective should develop additional IRWMP actions and projects to work in conjunction with the preexisting efforts of the mandatory plans. The objective is supported by some the mandatory and plans and would benefit from direct efforts by the CABY IRWMP.

Objective 16: Maintain and promote recreational and environmental values associated with water infrastructure. This objective is fully addressed by 28 percent of the mandatory plans and partially addressed in another 35 percent of the plans. This CABY objective will be able to build on preexisting efforts identified in the mandatory plans, and will work well in conjunction with CABY Goal #2. The combination of this objective and goal is supported by the plans and could benefit from a larger effort in specific IRWMP actions and projects.

Objective 17: Evaluate and modify water infrastructure to improve efficiency. This objective is fully addressed by 21 percent of the mandatory plans and partially addressed in another 10 percent of the plans. This CABY objective should develop additional IRWMP actions and projects to work in conjunction with the preexisting efforts of the mandatory plans. This objective is supported by some of the mandatory and plans and would benefit from direct efforts by the CABY IRWMP.

Objective 18: Minimize impervious surface cover and improve infiltration. This objective is fully addressed by three percent of the mandatory plans and partially addressed in another 10 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because almost all of the mandatory plans do not have any preexisting efforts in place. This objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 19: Promote community and regional storm water management plans. This objective is fully addressed by seven percent of the mandatory plans and partially addressed in another 10 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because almost all of the mandatory plans do not have any preexisting efforts in place. This objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 20: Increase knowledge of groundwater systems and establish groundwater management practices. This objective is fully addressed by three percent of the mandatory plans and partially addressed in another 17 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because almost all of the mandatory plans do not have any preexisting efforts in place. This objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 21: Protect and restore connectivity of floodplains, stream channels and groundwater. This objective is fully addressed by seven percent of the mandatory plans and partially addressed in another 28 percent of the plans. This CABY objective will need to develop specific IRWMP actions and projects because very few of the mandatory plans have any preexisting efforts in place. This objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 22: Evaluate and minimize negative flood impacts on water infrastructure and water quality. This objective is fully addressed by three percent of the mandatory plans and partially addressed in another 31 percent of the plans. This CABY objective will need to develop additional specific IRWMP actions and projects to work in conjunction with preexisting efforts in place from mandatory plans. The objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 23: Manage rivers, tributaries and infrastructure to provide flow regimes that benefit ecosystem function. This objective is fully addressed by three percent of the mandatory plans and partially addressed in another 31 percent of the plans. This CABY objective will need to develop additional specific IRWMP actions and projects to work in conjunction with preexisting efforts in place from mandatory plans. This objective is not widely supported by the mandatory plans and would benefit from direct efforts by the CABY IRWMP.

Objective 24: Conserve and restore native species and diverse habitats. This objective is fully addressed by 24 percent of the mandatory plans and partially addressed in another 35 percent of the plans. This CABY objective should develop additional specific IRWMP actions and projects to build on preexisting efforts of the mandatory plans. This objective will work in conjunction with multiple CABY goals.

Objective 25: Promote comprehensive land use planning. This objective is fully addressed by 24 percent of the mandatory plans and partially addressed in another 21 percent of the plans. This CABY objective should develop additional specific IRWMP actions and projects to build on preexisting efforts of the mandatory plans. This objective will work in conjunction with multiple CABY goals.

Objective 26: Sustain agricultural viability through effective water management. This objective is fully addressed by 14 percent of the mandatory plans and partially addressed in another 28 percent of the plans. This CABY objective should develop additional specific IRWMP actions and projects to build on preexisting efforts of the mandatory plans.

8.5.2 Conclusion

The two tables shown below (Table 8.2 and 8.3) describe the level of support or the amount of overlap between the CABY IRWMP goals and objectives and those identified in the mandatory plans.

The CABY IRWMP goals overall have moderate support from the existing mandatory plans. The goals that could benefit most from specific CABY actions and projects are Goal #6: *Manage sediment for water resources, infrastructure and habitat value*; and Goal #7: *Reduce mercury contamination in waterways*. These two goals have relatively little on-the-ground actions in place or any plans to deal with these specific concerns. Goals #2, 3, 4, 5, 8 and 9 all have moderate support and some existing efforts are in place to address these concerns. These goals could benefit from additional CABY actions that build on these efforts. Goal #1, *Achieve a sustainable surface and groundwater water supply*, is widely supported throughout the region and is a core concern in most mandatory plans.

The CABY IRWMP objectives overall have little support amongst the mandatory plans (73 percent of the objectives have very low or low support amongst the mandatory plans).

| CABY Goals | Mandatory Plans | | |
|---------------------|-----------------|---------------------|--|
| | Fully Addressed | Partially Addressed | Support for CABY Goal by Mandatory Plans |
| Goal 1 | 62% | 17% | Very High |
| Goal 2 | 20% | 62% | Moderate |
| Goal 3 | 28% | 52% | Moderate |
| Goal 4 | 14% | 45% | Moderate |
| Goal 5 | 31% | 52% | Moderate |
| Goal 6 | 7% | 41% | Low |
| Goal 7 | 7% | 3% | Very Low |
| Goal 8 | 21% | 55% | Moderate |
| Goal 9 | 31% | 25% | Moderate |
| Total (Avg.) | 25% | 39% | Moderate |

Table 8.2. CABY IRWMP Goals identified and/or supported in the Mandatory Plans

| CABY Objectives | Mandatory Plans | | |
|---------------------|-----------------|---------------------|---|
| | Fully Addressed | Partially Addressed | Support for CABY Objective by Mandatory Plans |
| Objective 1 | 38% | 17% | Moderate |
| Objective 2 | 35% | 24% | Moderate |
| Objective 3 | 17% | 35% | Low |
| Objective 4 | 17% | 20% | Low |
| Objective 5 | 14% | 66% | Low |
| Objective 6 | 3% | 17% | Very Low |
| Objective 7 | 20% | 38% | Low |
| Objective 8 | 7% | 3% | Very Low |
| Objective 9 | 35% | 13% | Moderate |
| Objective 10 | 28% | 10% | Low |
| Objective 11 | 10% | 10% | Low |
| Objective 12 | 17% | 3% | Low |
| Objective 13 | 3% | 10% | Very Low |
| Objective 14 | 20% | 7% | Low |
| Objective 15 | 17% | 38% | Moderate |
| Objective 16 | 28% | 35% | Moderate |
| Objective 17 | 21% | 10% | Low |
| Objective 18 | 3% | 10% | Very Low |
| Objective 19 | 7% | 10% | Very Low |
| Objective 20 | 3% | 17% | Very Low |
| Objective 21 | 7% | 28% | Low |
| Objective 22 | 3% | 31% | Very Low |
| Objective 23 | 3% | 31% | Very Low |
| Objective 24 | 24% | 35% | Moderate |
| Objective 25 | 24% | 21% | Moderate |
| Objective 26 | 14% | 28% | Low |
| Total (Avg.) | 14% | 20% | Low |

Table 8.3. CABY IRWMP Objectives identified and/or supported in the Mandatory Plans

This is influenced by several factors; the most important may be a lack of specificity in many of the mandatory plans as compared to the CABY IRWMP objectives language. While inferences can be made between and amongst plans it is clear that the CABY IRWMP must develop clear linkages to the existing efforts and, more importantly, develop new projects and actions to meet the objectives that are not being represented by the plans.

The objectives that could benefit most from specific CABY actions and projects are Objectives #6, 8, 13, 18, 19, 20, 22, and 23.

These objectives have almost no on-the-ground actions in place or any plans to deal with these specific concerns. Objectives #3, 4, 5, 7, 10, 11, 12, 14, 17, 21, and 26 have relatively little on-the-ground actions in places or any plans to address these specific concerns; and Objectives #1, 2, 9, 15, 16, 24, and 25 have moderate support and some existing efforts are in place to address these concerns. These objectives could benefit from additional CABY actions that build on these efforts. None of the objectives enjoy wide support amongst the mandatory plans.

This analysis discussion highlights the value of integrating the goals and objectives of the mandatory plans with those of the IRWMP. By providing a more inclusive framework, the IRWMP organizes the separate mandatory plans into a more coordinated region-wide effort.

