



**Lower American River
River Corridor
Management Plan
Executive Summary
January 2002**

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River Corridor Management Plan Participating Entities

State Agencies

California Department of Fish and Game
 California Department of Water Resources
 California Exposition and State Fair
 California State Parks and Recreation
 California State Reclamation Board
 California State University, Sacramento
 State Lands Commission

Federal Agencies

National Marine Fisheries Service
 U.S. Army Corps of Engineers
 U.S. Bureau of Reclamation
 U.S. Fish and Wildlife Service

Fishing/Boating/ Environmental/Recreation

American Red Cross, Sacramento Sierra
 Chapter – Boat Safety
 American River Guides Association
 American River Natural History Association
 American River Parkway Advisory Committee
 American River Parkway Foundation
 California Canoe and Kayak, Inc.
 California Native Plant Society
 Environmental Council of Sacramento
 Friends of the River
 Golden State Trollers
 Protect American River Canyons
 Sacramento Area Bicycle Advocates
 Save the American River Association

Flood Control Agencies

American River Flood Control District
 Sacramento Area Flood Control Agency

Other Local Agencies

City of Sacramento, Department of Parks
 and Recreation
 City of Sacramento, Department of Planning
 and Building
 City of Sacramento, Department of Utilities
 County of Sacramento, Department of Planning
 and Community Development
 County of Sacramento, Department of Regional
 Parks, Recreation and Open Space
 Regional Water Authority
 Sacramento County Recreation and Parks Commission
 Sacramento County Water Agency

Partnerships

CALFED Bay-Delta Program
 Lower American River Task Force
 Water Forum

Community Groups

Butterfield-Riviera East Community Association
 Capitol Station District
 River Park Neighborhood Association
 Sierra Oaks Neighborhood Association



INTRODUCTION

The Lower American River is a regional jewel providing important habitat, a high-quality water source, a critical floodway, and a spectacular regional recreation parkway. This plan demonstrates a thoughtful, active and comprehensive method to manage our river system now and into the future.

Purpose

The purpose of the River Corridor Management Plan is to promote a cooperative approach to managing and enhancing the Lower American River within the framework of the 1985 American River Parkway Plan. Accordingly, the River Corridor Management Plan (RCMP) outlines goals, objectives and a 3-year action plan for:

- protecting and enhancing fisheries and in-stream habitat,
- protecting and enhancing vegetation and wildlife habitat,
- improving the reliability of the existing flood control system, and
- enhancing the Lower American River's wild and scenic recreation values.

In addition, the RCMP is intended to serve as a catalyst for updating the American River Parkway Plan (Parkway Plan), so that decision-makers can strengthen its resource management provisions, address important land use and recreation-related issues, and refine existing Parkway management mechanisms as necessary to give appropriate status to the cooperative relationships that have developed over the past seven years through the Water Forum and the Lower American River Task Force.

Process

The RCMP was developed through a voluntary, consensus-based process involving 21 governmental agencies responsible for managing natural resources, land use, recreation, water supply, and flood control along the Lower American River (LAR), 17 non-governmental stakeholders and three partnerships (Figure 1). Although the RCMP is not a legally binding document, its endorsement signifies a shared commitment to creating a single blueprint for managing the LAR. This commitment builds on prior river management efforts including:

- the Water Forum Agreement’s habitat management element,
- the Sacramento Area Flood Control Agency’s (SAFCA’s) Floodway Management Plan for the Lower American River,
- the CALFED Bay-Delta Program’s Ecosystem Restoration Program Plan,
- the Central Valley Project Improvement Act and the U.S. Fish and Wildlife Service’s Anadromous Fish Restoration Program,
- the California Department of Fish and Game’s Steelhead Restoration and Management Plan for the Lower American River, and
- the American River Parkway Financial Needs Study prepared for the County of Sacramento, Department of Regional Parks, Recreation, and Open Space.

Development of the RCMP included public outreach to communities along the river and other interested parties. Presentations were made to numerous organizations and four public meetings were held, two in downtown Sacramento and two in North Sacramento. Public input has been integrated into the RCMP, resulting in recommendations that reflect the broader community and a solid foundation for cooperative implementation.

NEED FOR A COORDINATED MANAGEMENT APPROACH

The LAR corridor provides important habitat for resident and migratory fish and wildlife species, a high-quality water source for the local community and the region as a whole, a critical floodway for the Sacramento area, and a spectacular regional recreational parkway (Figure 2).

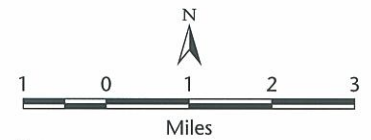
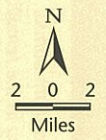
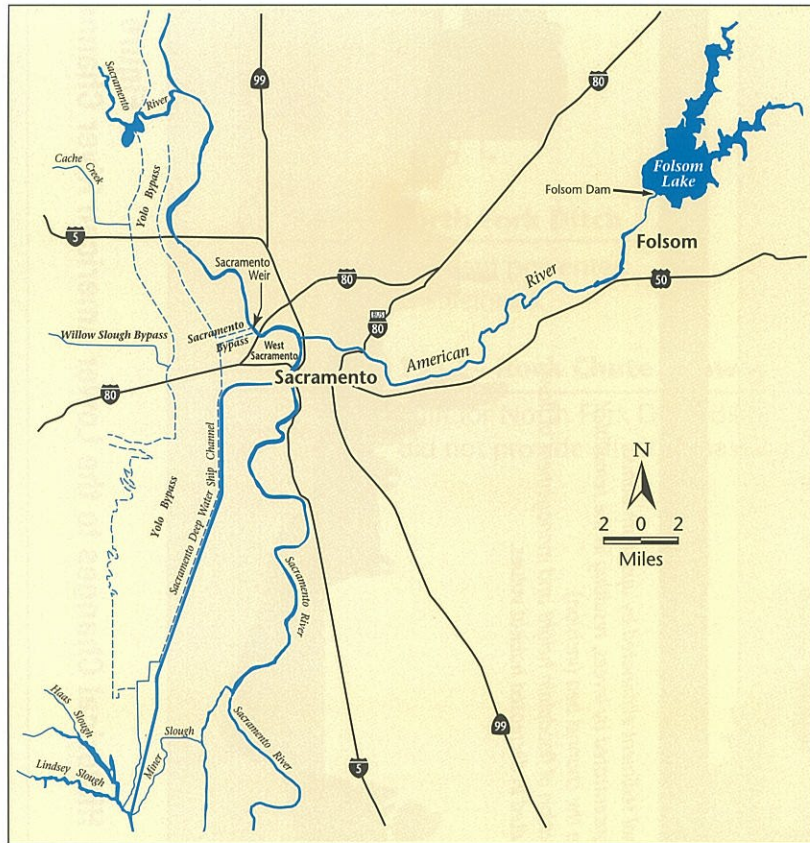
Because of the parkway’s natural beauty, proximity to an urban population, and recreational values, the river has been designated a “recreational river” in both the federal and state wild and scenic river systems, and the Parkway’s trail system has been designated a “National Recreational Trail.”

Nevertheless, historical modifications to the American River watershed and the physical and operational constraints currently imposed on the river make it increasingly difficult to sustain the river’s beneficial uses without a coordinated resource management program.

For the past two centuries, major developments have affected the LAR. These developments include:

- hydraulic gold mining along the North and Middle Forks of the American River, which caused an estimated 257 million cubic yards of sand, silt and fine gravels to be deposited in the river, raising the bed of the LAR by 5-30 feet and significantly altering the natural relationship between the river and the surrounding floodplain (Figure 3);
- large scale dredge mining, including excavation of shoreline gravel material, which drastically altered the topography of the floodplain, leaving such massive deposits of dredge material throughout the upper and middle reaches of the LAR as to alter the course of the river, form new channels, and cause high flows in the river to sweep away large tracts of land; and
- levee and dam construction throughout the watershed, which has cut off sediment supply to the LAR, impeded fish passage to the upper reaches of the watershed where approximately 70 percent of the spawning habitat historically used by chinook salmon and all the historic spawning habitat of steelhead was located (Figure 4), and altered the timing, rate and temperature of flows in the LAR.

These developments have created significant challenges for the public agencies responsible for maintaining and enhancing fish, vegetation and wildlife resources, flood control facilities, and recreation areas within the LAR corridor. Creation of the coordinated, proactive management approach reflected in the RCMP is an important step in addressing these challenges.



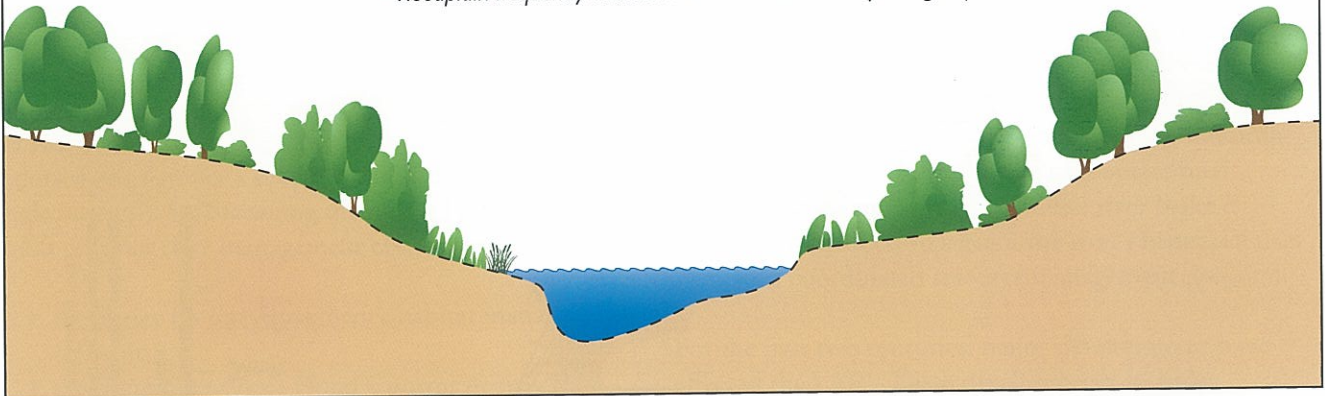
**Figure 2
RCMP Plan Area**

- Legend**
- Highways
 - Roads
 - Levees
 - Dams
 - County Parks
 - State Parks

Note:
Small amounts of private, state, and federal lands are located within the Parkway that are not managed by State or County Parks.

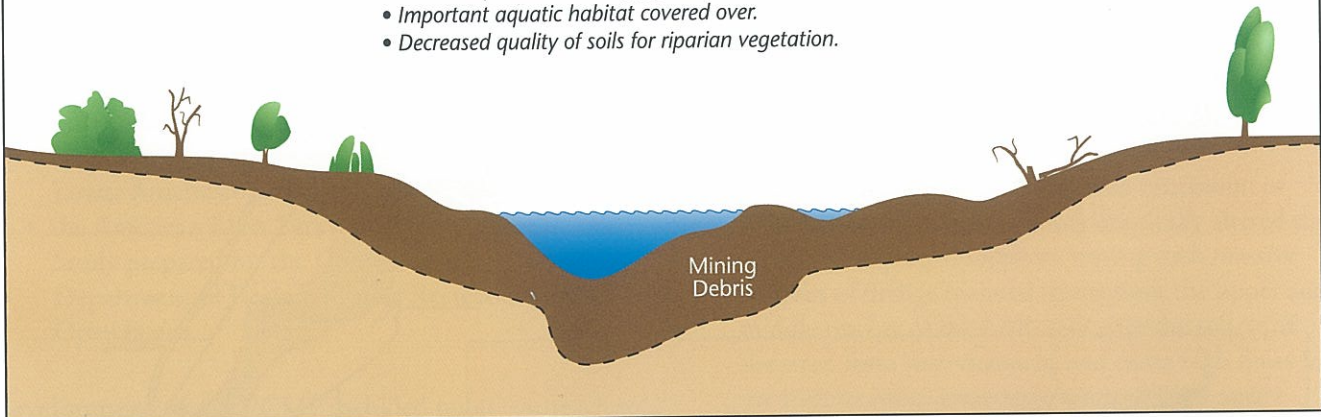
Before Hydraulic Mining (Pre-1850)

- Relatively undisturbed floodplain and channel.
- Diverse range of aquatic, near-shore, and riparian floodplain habitats.
- Floodplain frequently inundated under the natural hydrologic cycle.



Mining Period (1850 to early 1900s)

- Mining sediments deposited, raising the channel and floodplain elevation (aggradation).
- Important aquatic habitat covered over.
- Decreased quality of soils for riparian vegetation.



Present Conditions

- Additional sediment eliminated by upstream dams.
- Flows concentrated by levees, resulting in the removal of soil from the channel bed (incision).
- Combination of floodplain height and management of flows has resulted in decreased habitat values.

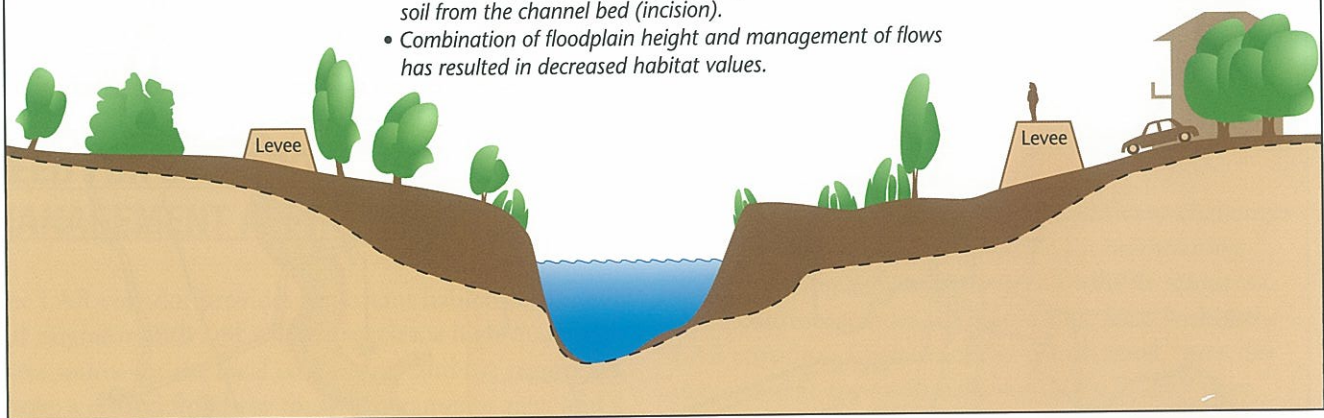


Figure 3
Historical Changes to the Lower American River Channel

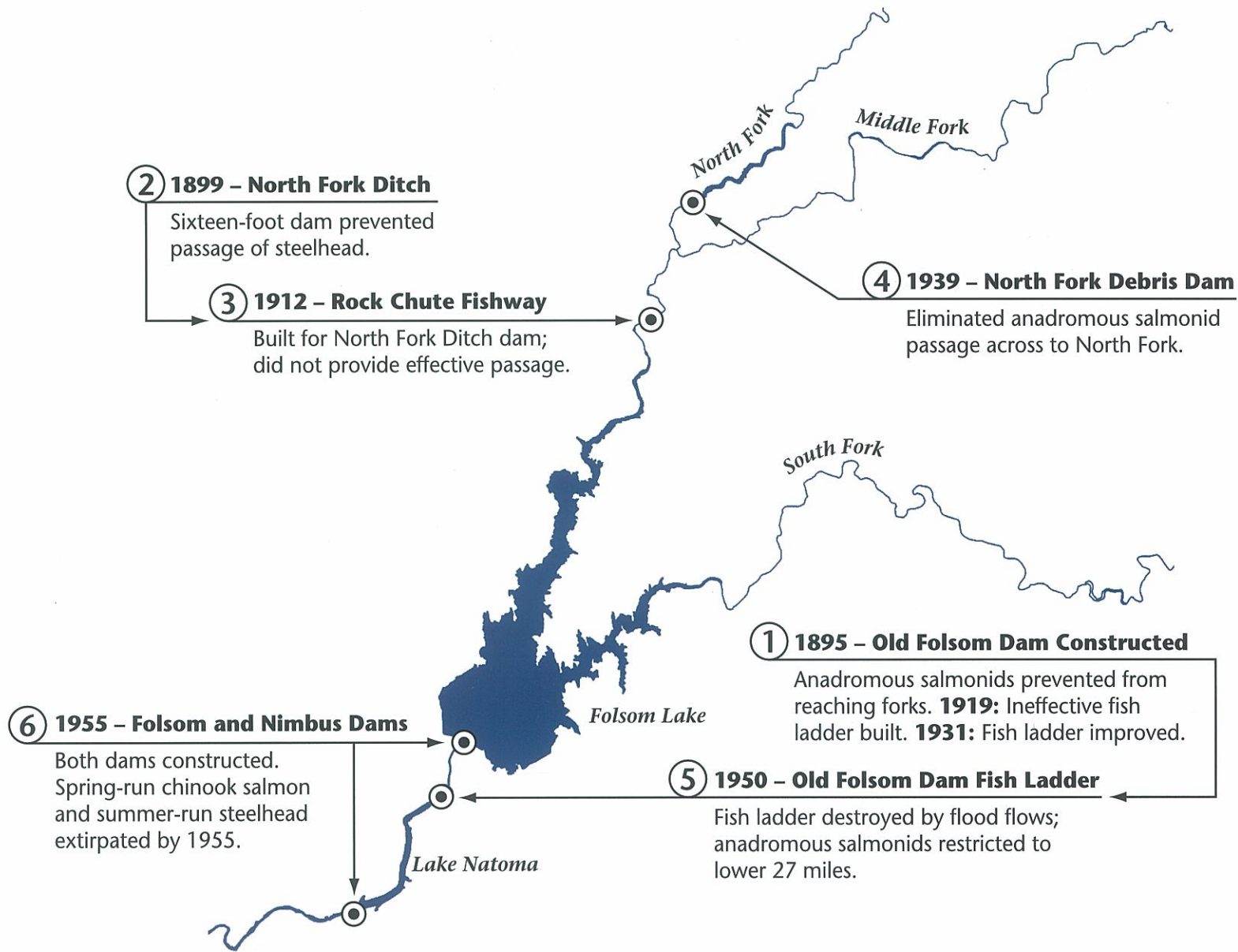


Figure 4
Historical Barriers

CHALLENGES, GOALS & OBJECTIVES

Fisheries and In-Stream Habitat Management

Challenge

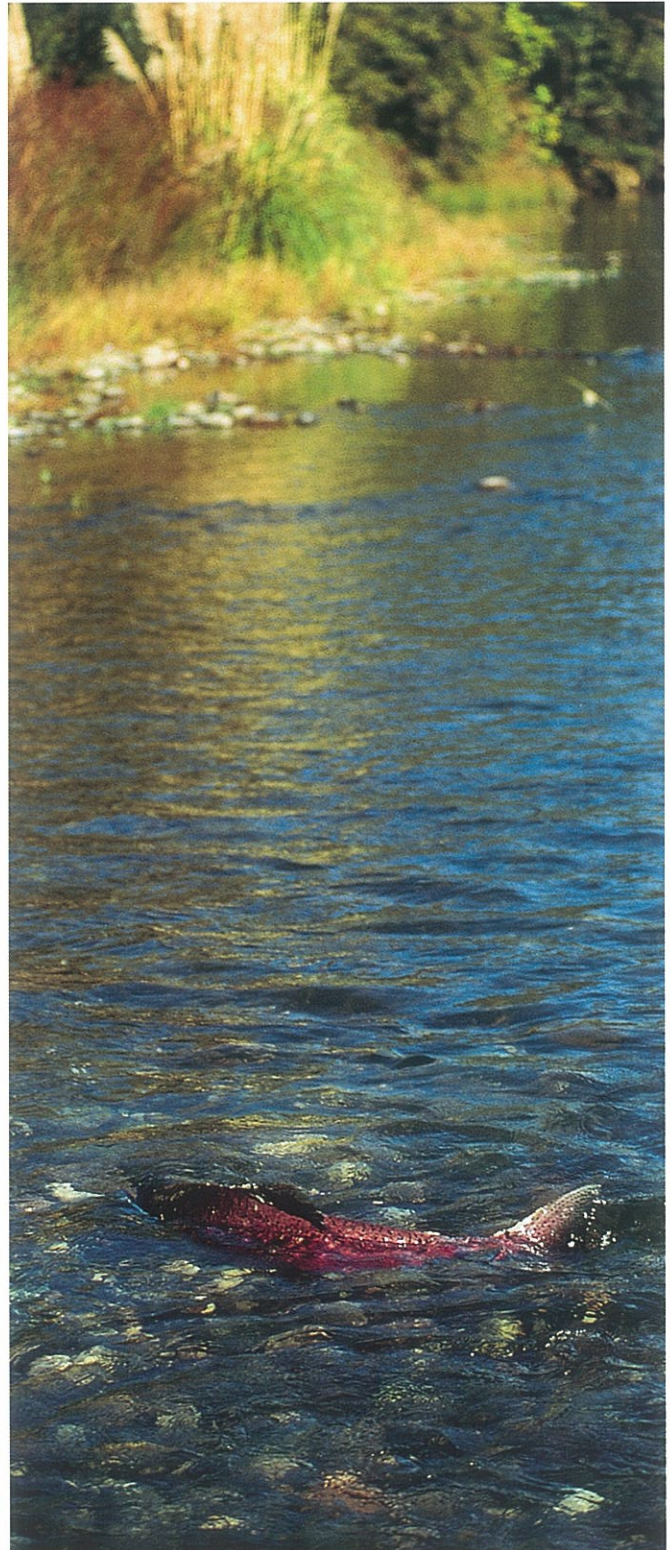
Dam construction has impeded fish passage to historical habitat. Dam operations have dramatically altered aquatic and riparian habitat in the LAR by altering the timing, rate, and temperature of the flows. Modifying these operations is difficult due to the many physical limitations and institutional requirements (e.g., water supply and flood control). Flow regulations have affected the structure of physical habitats and, in some cases, have likely reduced the quality of aquatic habitats. While the LAR's water quality generally meets regulatory standards, there are times when it does not, and this bears monitoring.

RCMP Goals

- Achieve and maintain viable populations of naturally spawning fall-run chinook salmon, steelhead and splittail.
- Restore or maintain an appropriate distribution and abundance of other native fish species, such as hardhead, tule perch, Sacramento sucker, and Pacific lamprey.
- Maintain American shad and striped bass populations of sufficient abundance to sustain these fisheries in a manner consistent with restoring native species.

RCMP Objectives

- Provide appropriate spawning and rearing habitat quality and quantity for these fish species, including diverse and healthy in-channel habitat and riparian habitat and adequate water quality.
- Improve conditions for upstream migration, spawning, egg incubation, emergence and rearing, and yearling emigration of fall-run salmon and steelhead by providing maximum beneficial seasonal flows and temperatures for all life stages.
- Promote in-stream harvest and hatchery management practices that are consistent with maintaining viable in-stream spawning salmonid populations.
- Influence geomorphic processes within the floodplain to improve habitat and reduce the potential for stranding.



Vegetation and Wildlife Management

Challenge

Sediment deposits from the hydraulic mining era raised the LAR floodplain by as much as 30 feet. Folsom Dam cut off this sediment supply and allowed the river to cut its way back down to its pre-mining bed. As a result, the floodplain is now considerably higher than the channel bottom. Only a limited amount of natural regeneration of the riparian forest is occurring on the floodplain. At the same time, the amount of non-native invasive vegetation has steadily increased; in some cases out-competing important native vegetation. The result is a reduction in the overall quality of vegetation and wildlife habitats.

RCMP Goal

Achieve and maintain healthy riparian and terrestrial habitats that support targeted plant, wildlife, and aquatic species.

RCMP Objectives

- Protect, enhance, and expand willow, cottonwood, and valley oak-dominated riparian woodlands that provide important shaded riverine aquatic, seasonal floodplain, wildlife, and riparian habitats.
- Protect and enhance native live oak and blue oak woodlands that provide important terrestrial and upland habitats.
- Control invasive nonnative plant species.
- Where feasible, reduce or mitigate damage to riparian and terrestrial habitats caused by the design, construction, and maintenance of flood-control, recreation, and other infrastructure in the LAR.
- Identify areas for creating and enhancing habitat and restoring habitat connectivity and wildlife travel corridors.



Flood Management

Challenge

Over time, hydrologists have steadily downgraded the level of flood protection that Sacramento's flood defense system is deemed to provide. The flood-control system needs to be modified in order to increase the level of protection. In addition, future erosion control projects need to be implemented in a manner that conserves and enhances riparian and aquatic habitat values.

RCMP Goal

Improve the reliability of the existing flood-control system along the LAR.

RCMP Objectives

- Maintain the structural integrity and design conveyance capacity of the American River levees.
- Reduce the potential for bank scour that could undermine the stability of existing levees.

- Proactively control erosion where needed to protect the flood-control system while conserving the complexity and structural diversity of riverine habitats.
- Redesign or relocate facilities that impede flow or inappropriately constrain the operation and maintenance of the flood-control system.
- Maintain the flood control facilities in a "flood ready" condition consistent with an urban levee system and enhance the operator's ability to respond in a flood emergency.
- Appropriately manage the floodway vegetation to maintain the system's flood conveyance capacity and actively seek the removal of invasive species that threaten the floodway's capability to safely pass these flows.



Recreation Management

Challenge

While the recreational use of the American River Parkway is increasing, funding to maintain and improve recreation facilities is limited. Misuse of the Parkway in the form of illegal camping, dumping, and other activities damages recreational facilities and natural resources, creates large amounts of trash and public health problems, and discourages legitimate use of the Parkway. Due to substantial reductions in the maintenance and operations budget, the law enforcement presence in the Parkway has been significantly reduced and repairs to facilities and major preventive maintenance have been deferred.

RCMP Goal

Provide appropriate access and facilities for recreational pursuits within the American River Parkway, compatible with the unique natural environment, that other recreational facilities in Sacramento County do not normally provide.

RCMP Objectives

- Develop and maintain a trail system that is connected to the emerging trail network, accommodates the needs of pedestrians, bicyclists (especially commuters), and equestrians, and provides appropriate access for the disabled.

- Provide safe and appropriate access and facilities for rafting, canoeing, boating, fishing, viewing wildlife and other permitted activities.
- Provide a variety of interpretive facilities and services throughout the Parkway that help visitors attain an appreciation of the Parkway's natural, historical, and cultural resources.
- Provide a safe and secure environment for Parkway visitors, including improved emergency access supported by rangers and law enforcement personnel.
- Ensure appropriate land uses adjacent to the Parkway, including residential and commercial uses, planned redevelopment, and transportation corridor improvements, that are consistent with the Parkway Plan and coordinated with adjacent land management agencies and land use jurisdictions.
- Operate and maintain recreation facilities and resources in accordance with accepted "best practice" standards as a top priority.
- Ensure that flood and natural resource management efforts are closely coordinated with recreation management efforts.
- Ensure the protection and enhancement of natural vegetation and wildlife habitat.



RECOMMENDED 3-YEAR ACTION PLAN

The RCMP contains a 3-year action plan that identifies the recommended actions most likely to be initiated during the next 3 years (2001-2004), recognizing that additional actions could be added to the plan as circumstances warrant. It is anticipated that the Parkway Plan will be updated during this period. As part of the update process, decision-makers will have an opportunity to incorporate the RCMP's goals, objectives, and recommended actions into the Parkway Plan and to develop the next recommended 3-year action plan.

The current recommended action plan includes a broad array of research, planning, habitat restoration, construction, and operation and maintenance activities that represent the initial steps toward fulfilling the goals and objectives of the RCMP. A representative selection of these actions is displayed in the following tables. Many of the actions included in the plan are fully funded. Some are unfunded or only partially funded and will require additional financial commitments. The purpose of the recommended action plan is to focus attention and foster coordinated efforts on these actions as necessary to:

- ensure that resources are used in a coordinated manner for the greatest benefit to the LAR;
- expedite planning, environmental review, and permitting processes;
- secure necessary funding; and
- ensure that on-the-ground implementation takes place with minimal impact on ongoing uses of the LAR corridor.

The action plan assumes that the LAR Task Force and its topical working groups will continue to function as the organizational framework for coordinating management

activities in the LAR corridor (Figure 5). The Sacramento Area Flood Control Agency and the Water Forum will provide funding for administrative services, including facilitation, technical support, and grant writing. The action plan anticipates that the funding needed to initiate the planned activities that are not yet fully funded will be secured through cooperative agreements among the participants in the RCMP. These agreements will be designed to leverage funds from recently approved state bonds for recreation and habitat enhancement, from available federal and state grant programs, and from private sector grant programs.

RCMP participants will also explore opportunities for establishing a habitat enhancement trust fund that would receive funds from agencies in lieu of more traditional mitigation for projects that result in unavoidable impacts on habitat values in the LAR. This concept is incorporated in the Water Forum Agreement which anticipates that some of the participating water agencies will contribute funds for habitat enhancement in the LAR corridor based on the magnitude of their future water diversions. A broader application of this concept will require the cooperation of the National Marine Fisheries Service, the U. S. Fish and Wildlife Service, and the California Department of Fish and Game. If successful, this approach could be used to carry out significant, coordinated habitat enhancement actions within the scope of the RCMP, as opposed to the smaller, piecemeal actions that would result from project by project mitigation.

Highlights of the Recommended 3-year Action Plan begin on page 12. For a complete listing, please refer to the RCMP, January 2002.



MONITORING

An ecosystem like the LAR is dynamic in nature, and behavior of the system is inherently unpredictable. To ensure the greatest degree of success given these circumstances, an overarching science-based management framework is proposed for the LAR, including a comprehensive monitoring plan.

The science-based management framework and monitoring plan will enable managers to make informed choices and decisions while supporting continued learning and encouraging adaptation of management to meet ever-changing circumstances and improved standards.

The objectives of the science-based management framework are to: detect changes, understand system interactions, predict trends, prioritize management actions, develop related monitoring and management

tools and methods, inform interested parties/stakeholders, and improve resource management. To be successful, it must include identifying indicators and stressors, monitoring and evaluating information, conducting directed research efforts, and providing a link to the decision-making process and management actions.

The monitoring plan will benefit from pooling the collective knowledge and experiences of resource managers and balancing the interest of diverse resource stewardship interests in the LAR. Several related ecological resource management efforts in the LAR have and will continue to inform and give direction to development of both riverwide and project-specific monitoring plans. These monitoring efforts will gauge and evaluate the response of the LAR resources to management actions in a manner that will measure progress toward RCMP and individual project goals and objectives.

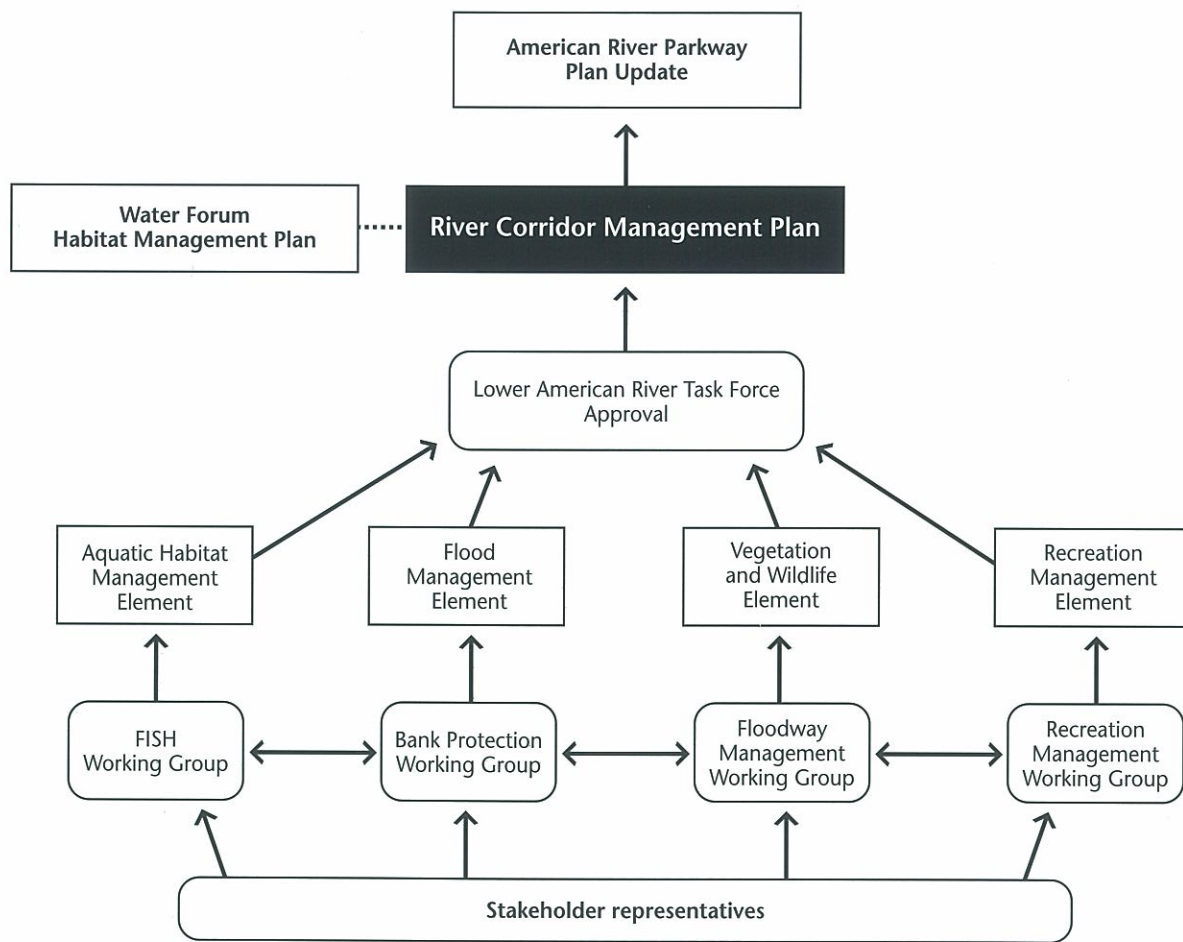


Figure 5
RCMP Development Process

Highlights of 3-Year Recommended Action Plan – Fisheries and In-Stream Habitat

Category	Key Agencies	Measure	Estimated Cost (\$ million)	Funding Status
River Flows	City, Water Forum/ BAARFS, American River Operations Group, SWRCB, BOR	Update LAR flow management plan	1.0 (through proposal development)	Partially Funded
River Temperature	BOR, FWS, NMFS, DFG, City, Water Forum, El Dorado Irrigation District	Develop and implement a temperature monitoring plan for LAR	1.0+ (for plan development)	Partially Funded
River Temperature	USCOE, SAFCA, BOR	Mechanize Folsom Dam temperature shutters	20.0	Needed
River Temperature	SAFCA, Water Forum, BOR	Implement a temperature curtain pilot project at Folsom Reservoir	2.0	Needed
Aquatic, Riparian, & Wetland Habitat	SAFCA, FWS	Enhance floodplain habitat in Woodlake area for splittail & other fish	1.0	Funded
Artificial Propagation of Fish	DFG, BOR	Modify diversion structure at Nimbus Salmon & Steelhead Hatchery to protect salmon & steelhead	5.0 (through prototype)	Partially Funded

Highlights of 3-Year Recommended Action Plan – Vegetation and Wildlife Management

Category	Key Agencies	Measure	Estimated Cost (\$ million)	Funding Status
Riparian Habitat	Corps Rec. Board SAFCA	Enhance shoreline habitat in the lower reach of the LAR	0.8	Funded
Upland Habitat	County Cal Expo SAFCA	Develop and implement a water quality/wetland and oak woodland habitat enhancement project on the Cal Expo floodplain in the vicinity of Bushy Lake	6.0	Needed
Invasive Plants	County SAFCA	Implement a targeted invasive plant removal program	0.63	Funded
Research/Planning	County SAFCA USFWS	Develop a Valley Elderberry Longhorn Beetle management plan for the Parkway	.12	Needed

Highlights of 3-Year Recommended Action Plan – Flood Management

Category	Key Agencies	Measure	Estimated Cost (\$ million)	Funding Status
Folsom Dam	Corps Rec. Board USBR	Develop and implement a flood management plan for Folsom Dam that incorporates advanced weather forecasting	2.0	Funded
American River Levees	Corps Rec. Board SAFCA	Raise the north and south levees of the American River and construct a closure structure across the Mayhew Drain to contain high flows in the river	15.0	Funded
Erosion Control	Corps Rec. Board SAFCA ARFCD	Implement erosion control improvements along the north bank of the LAR between Howe Ave. and Watt Ave.	2.0	TBD

Highlights of 3-Year Recommended Action Plan – Recreation

Category	Key Agencies	Measure	Estimated Cost (\$ million)	Funding Status
Public Outreach/ Education	County Parks, County Department of Public Works, Trails Advisory Committee, SAFCA, State Parks	Implement an improved signage program for the Parkway including crossing signage at key over-crossings	0.15	Needed
Public Access	City Parks County Parks	Construct the Two Rivers bicycle/pedestrian/commuter trail along the south bank of the LAR from the Sacramento River to future Sutter's Landing Park	TBD	Needed
Public Access	County Parks SAFCA	Resurface existing bicycle trails, raise identified low spots to avoid frequent flooding, and widen trail footprints to accommodate adjacent pedestrian pathways	1.6	Completed
Land Acquisition	County Parks SAFCA	Acquire Parkway land	up to 10	Needed
Public Safety	County Parks	Hire additional rangers and related public safety personnel	.372 (for rangers)	Needed
Property Management	County Parks	Implement deferred maintenance projects, including road and parking lot resurfacing, Jibboom Street Bridge repairs, equestrian trail rehabilitation, etc.	4.15	Partially Funded

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Photo on Page 10 by Trevor Burwell
All other photos by Randall A. Smith*