PLAN OF ACTION

A Living Document for the Phase II Development of the Russian River Watershed Management Plan

NOVEMBER 2002

prepared by:
Russian River Watershed Council

with the support of:
Sonoma and Mendocino Counties

in partnership with:
California State Resources Agency and U.S. Army Corps of Engineers

assisted by:
Moore Iacofano Goltsman, Inc.

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The Russian River Watershed Council (RRWC) prepared this Plan of Action (POA) with the support of Sonoma and Mendocino Counties and in partnership with the California State Resources Agency and U.S. Army Corps of Engineers. The POA is a "living document" that will continue to evolve as the RRWC strives to accomplish its mission and goals.

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1. Introduction

1. INTRODUCTION

PURPOSE, BACKGROUND & HISTORICAL CONTEXT

Purpose

The *Plan of Action for the Phase II Development of the Russian River Watershed Management Plan (POA)* identifies critical issues, potential actions and tools for developing a comprehensive watershed management plan based on community input. The potential actions in this document will be further evaluated and expanded with specific design recommendations during the future development of the watershed management plan.

The *POA* is a "living document," which means it is based on adaptive management approaches for watershed restoration and open to continuous review and revision. The purpose of the *POA* is to achieve the goals of the Russian River Watershed Council (RRWC) identified in the organization's mission statement. The *POA* highlights the role of the community in related planning processes and partnership opportunities between resource agencies and the community. This document serves as one component, along with the RRWC and U.S. Army Corps of Engineers' (USACE) websites, of the "organizational memory" regarding lessons learned and watershed needs identified by the RRWC for the development of the *POA*.

Background

The Russian River, augmented by flows from the Eel River, is the primary source of water for more than 500,000 area residents in Mendocino, Sonoma and Marin counties and for extensive agricultural production in Mendocino and Sonoma counties. These diverse demands on a limited water supply are impacting the ecological balance of the river, threatening fish and wildlife and the natural system. Steelhead trout, coho salmon and chinook salmon are anadromous fish species that have been listed as threatened species under the Federal Endangered Species Act (ESA). In addition, coho salmon have been listed as endangered under the California ESA.*

In 1998, the Russian River watershed was ranked in the highest category of impaired according to the California Unified Watershed Assessment issued by the California State Water Resources Control Board (SWRCB) and the US Natural Resources Conservation

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* On August 30, 2002, the California Fish and Game Commission (FGC) accepted California Department of Fish and Game's (DFG) recommendation to list coho under the California Endangered Species Act (ESA). The FGC's approval includes a 90 day suspension of the listing while DFG reports back to FGC on how a recovery plan would be prepared. The implementation of regulations for the listing will be delayed one year while DFG obtains public input and develops recommendations for interim protection measures during the coho recovery planning period.

Service (NRCS). Watersheds in this category are "candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals."
Prior to the Federal designation of the Russian River watershed as Priority I (Impaired), Congress authorized the Russian River Ecosystem Restoration Reconnaissance Report by the San Francisco District of the USACE to review the effects of Coyote and Warm Springs Dams on the Russian River and its tributaries. The Reconnaissance Report, completed in September 1997, proposed the development of the Russian River Watershed Management & Protection Study to address the structural and nonstructural watershed restoration measures needed for erosion control and streambank protection, sufficient ground and water supplies, and a balance between environmental and economic sustainability in the watershed.

USACE and the State of California Resources Agency (Resources Agency), recognizing the need for a new approach for improving the ecological health of the Russian River ecosystem, partnered in the development of a comprehensive, community-based watershed management plan. Accordingly, the partners, with the support and approval of the local community, completed the Russian River Watershed Management & Protection Study Project Study Plan (PSP) and outlined the Study process and deliverables. Approved in August 1999, the implementation of the PSP relies heavily on diverse stakeholder involvement to complete a two-phase process.

Phase I established a forum for stakeholders, representing diverse economic, environmental, public, and agency interests, to review critical issues information, evaluate existing research data and recommend additional studies regarding restoration efforts within the watershed. The culmination of Phase I will be this stakeholder approved *POA*.

Phase II will incorporate the *POA* recommendations into a watershed management plan. The watershed management plan will identify appropriate studies, tasks and projects along with specific locations and design criteria to fulfill the mission of the RRWC. The USACE and State of California, with the ongoing involvement of the RRWC, will develop a watershed management plan that integrates National Environmental Protection Act (NEPA)/California Environmental Quality Act (CEQA) requirements.

Historical Context

The RRWC was formed through a cooperative effort between the USACE, Resources Agency, Sonoma and Mendocino Counties, and residents in the Russian River watershed. The RRWC is provided with technical and logistical support to develop recommendations and designs necessary for the comprehensive evaluation of natural and structural solutions to problems endangering the Russian River watershed.

The RRWC was initially formed to address the following during the development of the watershed management plan:

- Ecosystem restoration (habitat type by acre);
- Categorizing the federally listed species improvement; and,

- Incidental benefits to watershed education, recreation, water supply, water quality, and other related water resources.

On June 23, 1998, over three-hundred people attended the first meeting of the RRWC. The RRWC was formally seated with eighteen Economic Caucus members, eighteen Environmental Caucus members, eighteen Public Caucus members and twenty Agency Caucus members on November 20, 1999. The RRWC currently includes fifty-seven voting members who continue to represent environmental organizations, economic groups, the public and three Resource Conservation Districts (RCD) in the watershed. In addition, twenty non-voting agency representatives continue to provide technical input for discussions and status reports regarding agency studies, projects and activities at RRWC meetings.

Over twenty RRWC meetings have been convened since the first meeting providing a spectrum of stakeholders the opportunity to review and discuss critical issue information, existing research data, preliminary studies and findings from a variety of agency, resource management, university and community projects. As a result, the RRWC has recommended and sponsored several collaborative projects as well as informational exchanges and outreach activities to promote community-based restoration within the watershed.

Since its inception, the RRWC has completed the following key accomplishments:

Russian River Interactive Information System – The RRWC began work on the Russian River Interactive Information System (RRIIS) in 1999. By 2001, the Watershed Information Assessment and Monitoring work group developed a scope of work for the contract. The site architecture was developed with the first contract in June 2001. The current contract will produce a system that can be used by the public. The planned release date is Summer 2003 (see Chapters 2 and 5 for more information about RRIIS).

Water Right Seminar – The Public Outreach and Education work group developed a panel of speakers with expertise in water rights, representing State Water Resources, private legal practice and fishery interests. The seminar was presented free to the public in March 2001 and approximately 300 people attended. A videotape of the day is available.

California Department of Fish and Game Stream Surveys – Early during the formation of the RRWC, an agreement was formalized between the RRWC and California Department of Fish and Game (DFG) allowing $90,000 worth of funding to be used by DFG to finalize their mapping of streams in the middle reach of the watershed in 2000.

Willow Creek Environmental Assessment and Education – The RRWC approved a $10,000 grant to Stewards of Slavianka to be used as a match for other funding. As a result, an environmental assessment of the Willow Creek watershed in the lower reach of the watershed was undertaken. An environmental education curriculum was developed for the local Monte Rio K-12 schools.

Mendocino County Roads Assessment – The RRWC contributed $25,000 to assess 277 miles of County roads in the Mendocino County portion of the Russian River Watershed. This process, which used road analysis methods developed by Pacific Watershed Associates and tailored for use on county-owned roads, will be administered by Mendocino County

Department of Transportation. The assessment will develop specific recommendations to benefit salmonids presently inhabiting the mainstem and streams in the Upper Russian River watershed.

THE PLAN OF ACTION DEVELOPMENT PROCESS

The RRWC designed a planning process that would emphasize collaboration between its members, agency sponsors and partners, and the consultant team during the development of the *POA*. A segment of each bi-monthly RRWC meeting was devoted to developing the *POA*. A key component of these meetings were breakout group discussions of existing problems and potential solutions regarding the following strategy areas:

- Fluvial Geomorphology and Habitat Restoration–Protection
- Water Conditions and Characteristics
- Connections Between Human Activity and Habitat

In addition, three expert panels consisting of county planners, data collectors and analysts, and fiscal agents and fundraisers were convened to answer the following questions:

- What is the most effective approach for stream protection and how can effective approaches be developed and implemented countywide?
- What is the most effective approach for data collection, research or evaluation and how can effective approaches be developed and implemented throughout the watershed?
- How can additional funding be obtained to ensure the long-term sustainability of the watershed and its resources?

The results of the discussions and panel sessions at RRWC meetings were used to develop potential actions to address the critical issues. Throughout the action development process, agency representatives provided technical reviews of the actions contained in preliminary drafts of the *POA*. The consultant team also met with County and agency representatives at Agency Partners and Agency Caucus meetings to obtain information about current projects, programs and activities, discuss different stakeholder roles and continuously review the potential actions as they were further developed by the RRWC throughout the process.

The three voting caucuses of the RRWC (i.e., the Public, Environmental, and Economic) each met three times to develop specific tasks related to the development of the *POA*. During these meetings, RRWC members convened in their caucus groups to discuss critical issues in the watershed and current restoration efforts, the pros and cons regarding a variety of preliminary organizational structure alternatives, and specific edits for the Draft *POA*.

The Steering Committee played a lead role in the development of the *POA* by helping to structure the *POA* segment of each RRWC meeting, identifying technical resources and

experts to participate in the development process, and providing valuable reviews of all project-related deliverables.

The process graphic on the following page illustrates the meetings that have taken place and key deliverables since the initiation of the *POA* development process in August 2001.

STRATEGIC FRAMEWORK

The RRWC's framework for developing a comprehensive community-based watershed management plan is presented on page 10. This strategic framework includes a statement of the organization's mission and primary goals, POA objectives, specific strategy areas and strategies.

Mission & Goals

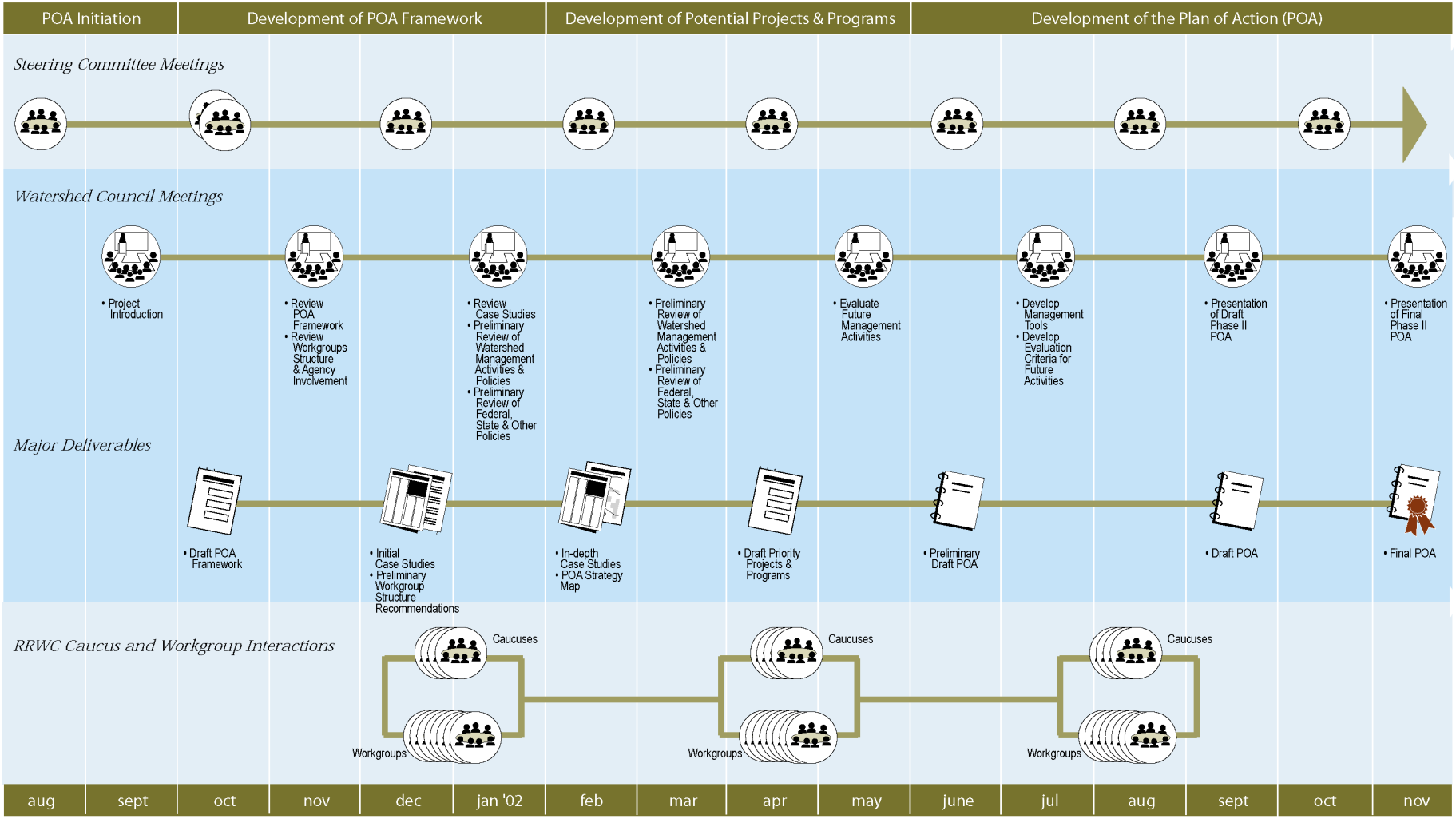
The mission of the RRWC is to protect, restore, and enhance the biological health of the Russian River and its watershed through a community-based process, which facilitates communication and collaboration among all interested parties.

The RRWC's primary goals are:

- To ensure the recovery of the Russian River and its watershed to a condition such that the native wild anadromous fishery recovers to a healthy and sustainable level;
- To ensure a strong, healthy, and diverse economy in the Russian River region; and
- To promote stewardship of the Russian River and its watershed by developing an informed and engaged citizenry.

Russian River Watershed Council

CREATING THE PHASE II PLAN OF ACTION!



POA Objectives

The RRWC's mission statement was crafted by its members and provides the foundation for both the broad primary goals of the RRWC and specific short-term objectives developed as new watershed needs arise. The initiation of the *POA* development process involved discussions with the Steering Committee and entire RRWC about the current short-term objectives of the organization that could be achieved through the *POA* planning process and, consequently, assist the RRWC obtain its long-term goals. These objectives provided direction for the general approach, design and implementation of the *POA* planning process. Detailed descriptions for each of the *POA* objectives have been included on the following pages. A word(s) in parentheses links the objective to the related primary goal of the RRWC.* Many of the objectives address more than one of the primary goals.

- **Link planning efforts among all stakeholders and achieve a coordinated effort for the restoration and protection of the watershed.** A coordinated effort would provide increased opportunities for sharing information and leveraging resources to restore the health of the watershed in the most efficient manner possible. Through effective communication and collaboration, an understanding of how projects may impact or benefit other projects can also be achieved. (*Recovery, Economy, Stewardship*)

- **Identify opportunities to leverage resources and restoration potential through critical analyses of on-going practices.** The development of restoration measures using established protocols may result in significant improvements to the health of the watershed. Implementation of this objective would evaluate active restoration projects, current stakeholder involvement, and existing data gaps. Studies regarding total impacts are necessary to determine how to achieve desired beneficial impacts. (*Recovery, Economy*)

- **Identify solutions implemented in other watersheds to be used as models.** This objective involves research of better practices implemented elsewhere that may enhance the health of the watershed or provide valuable lessons. Due to their experience and contacts in other watersheds, agency collaboration is important. (*Recovery, Economy, Stewardship*)

- **Identify a selected number of projects.** Due to the variety of restoration needs in the watershed, the economic demands throughout the region, and the diversity of stakeholders involved, selecting and prioritizing projects will be based on the feasibility

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* The following coding system was used to link each of the *POA* objectives to the appropriate primary goals (see the diagram on page 10 that helps to clarify the strategic framework):

Recovery = Recovery of the Russian River and its watershed
Economy = A strong, healthy, and diverse economy
Stewardship = Stewardship of the Russian River

of implementation (i.e., resources required, timeframe, lead responsibilities, and partners). (*Recovery, Economy, Stewardship*)

- **Identify critical environmental constraints.** The development of appropriate restoration measures must begin with knowledge of existing limitations presented by environmental conditions. Specific watershed elements such as the stream channel, riparian vegetation, and topography would be studied to determine the specific constraints that need to be considered during the development of restoration measures. (*Recovery*)

- **Document agency activities.** Documenting current activities identifies the areas where restoration efforts are being applied and issues being addressed. Information regarding the amount of resources required and best practices used would be shared and incorporated into future planning efforts. (*Recovery*)

- **Identify priority issues and responsibilities.** Recognizing the extensive restoration needs within the watershed, it is essential that responsibilities be shared between the appropriate entities. These entities must have the resources and jurisdiction to ensure that maximum restoration is achieved. Through enhanced communication and information sharing, a better understanding of various agency missions, roles and projects and priority issues within the watershed can be effectively addressed. This goal seeks to enhance coordination, minimize duplication and promote action. (*Recovery*)

- **Develop an organizational structure for continuous agency and community engagement.** The creation and structure of the RRWC was designed to provide a forum for meaningful communication and collaboration to address the diverse needs of Russian River watershed residents. The RRWC works to ensure representation among all stakeholders and interests in the watershed. To this end, the RRWC provides outreach and educational events for community members and opportunities for communication and reporting between the community and agency partners. (*Recovery, Economy, Stewardship*)

Strategy Areas and Strategies

Based on discussions regarding the RRWC's mission, primary goals, and the *POA* objectives, key strategy areas were identified. These key strategy areas served as focuses or directions for crafting strategies and actions to achieve the *POA* objectives and, consequently, the RRWC's mission and primary goals.

The strategy areas are further classified into two major categories: primary and supporting. The primary strategy areas include issues and actions that have a direct relationship to the RRWC goals of recovery, economy, and stewardship:

- Strategy Area I: Fluvial Geomorphology and Habitat Restoration–Protection

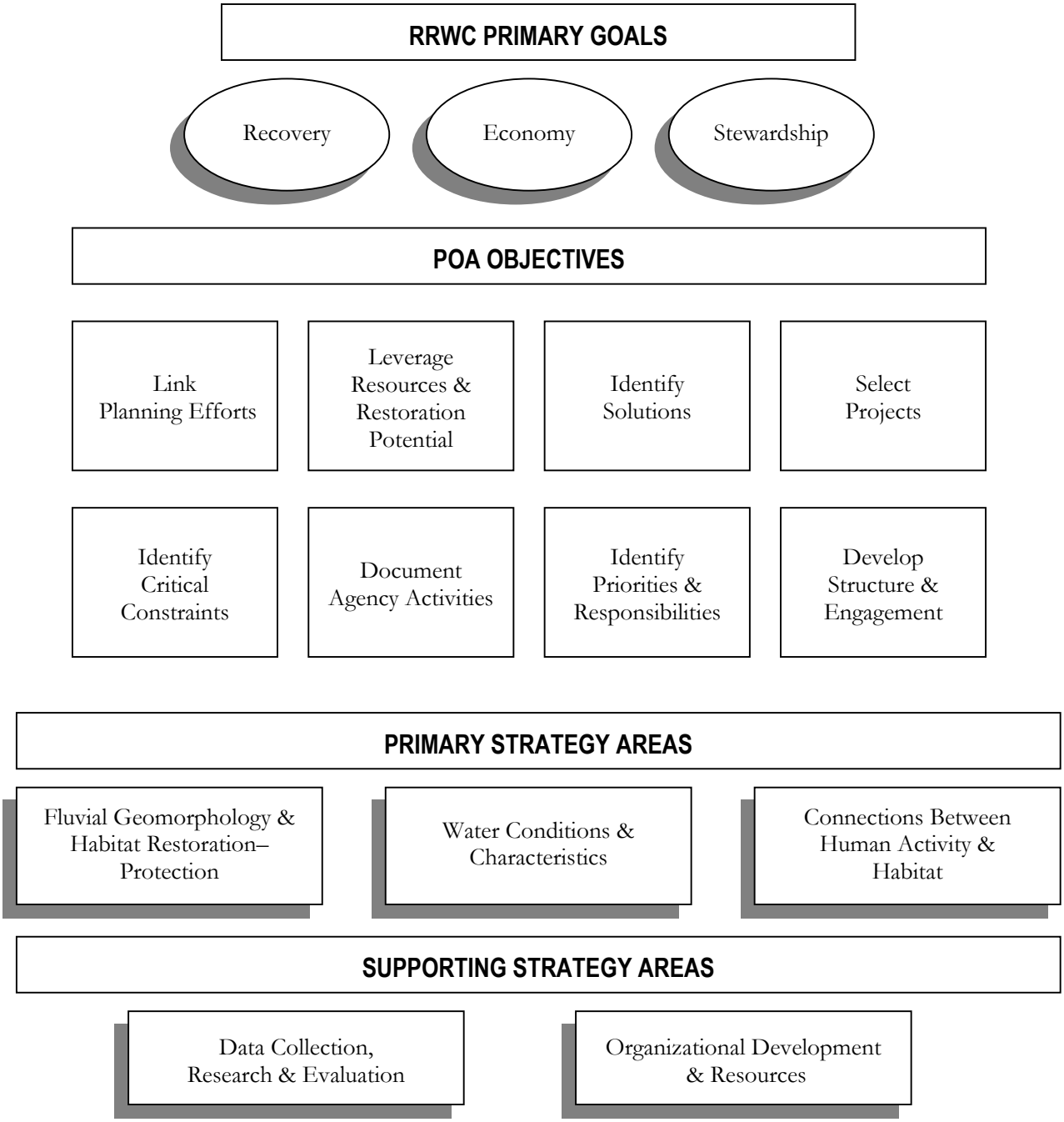
- Strategy Area II: Water Conditions and Characteristics

- Strategy Area III: Connections Between Human Activity and Habitat

The supporting strategy areas, on the other hand, help ensure that community input and data collection, research and evaluation are sustainable and focused on the critical issues and potential actions identified in the *POA*:

- Supporting Strategy Area A: Data Collection, Research and Evaluation
- Supporting Strategy Area B: Organizational Development and Resources

All of the above strategy areas and their related strategies are described in detail in Chapter 3, *Overview of Strategy Areas*. The diagram on the following page illustrates the relationship between the RRWC mission, goals, POA objectives, and primary and supporting strategy areas.


RRWC PRIMARY GOALS
Recovery
Economy
Stewardship
POA OBJECTIVES
Link Planning Efforts
Leverage Resources & Restoration Potential
Identify Solutions
Select Projects
Identify Critical Constraints
Document Agency Activities
Identify Priorities & Responsibilities
Develop Structure & Engagement
PRIMARY STRATEGY AREAS
Fluvial Geomorphology & Habitat Restoration–Protection
Water Conditions & Characteristics
Connections Between Human Activity & Habitat
SUPPORTING STRATEGY AREAS
Data Collection, Research & Evaluation
Organizational Development & Resources

PLAN ORGANIZATION

After this *Introduction,* the *POA* is primarily organized by the five chapters described below. Appendices have been included to provide supporting information and direction for Phase II.

Chapter 2: Relationship to Other Planning Processes

This chapter describes other, large-scale planning efforts existing within the watershed that will impact future restoration and protection decisions and the watershed management planning process.

Chapter 3: Overview of Strategy Areas and Strategies

Chapter 3 describes the strategy areas and related strategies crafted to provide direction and organization for discussions of critical issues and potential actions during the development of the *POA*.

Chapter 4: Critical Issues and Potential Actions

Chapter 4 presents the critical issues existing within the watershed and their potential remedial actions. The critical issues are organized by the five strategy areas and related strategies that guided the *POA* development process. The potential actions were crafted throughout the *POA* development process and are presented following each related critical issue along with appropriate strategies.

Chapter 5: Action Development and Implementation Tools

This chapter summarizes the action development and implementation tools that may be utilized in Phase II of the watershed management plan development process and beyond. This includes, among other tools, the RRIIS.

Chapter 6: Next Steps

The final chapter in the *POA* briefly describes the next steps that would help to move this "living document" toward the development of a watershed management plan.

2. Relationship to Other Planning Processes

2. RELATIONSHIP TO OTHER PLANNING PROCESSES

The watershed encompasses approximately 1,485 square miles of land in Sonoma and Mendocino Counties. Many federal and state agencies as well as county, city and special district entities, environmental organizations and sub-watershed groups have implemented projects, programs, and activities to manage resources within the watershed. Some of the watershed-wide planning processes currently existing are described below to illustrate future restoration measures that will impact the current status of species recovery and watershed-wide restoration.

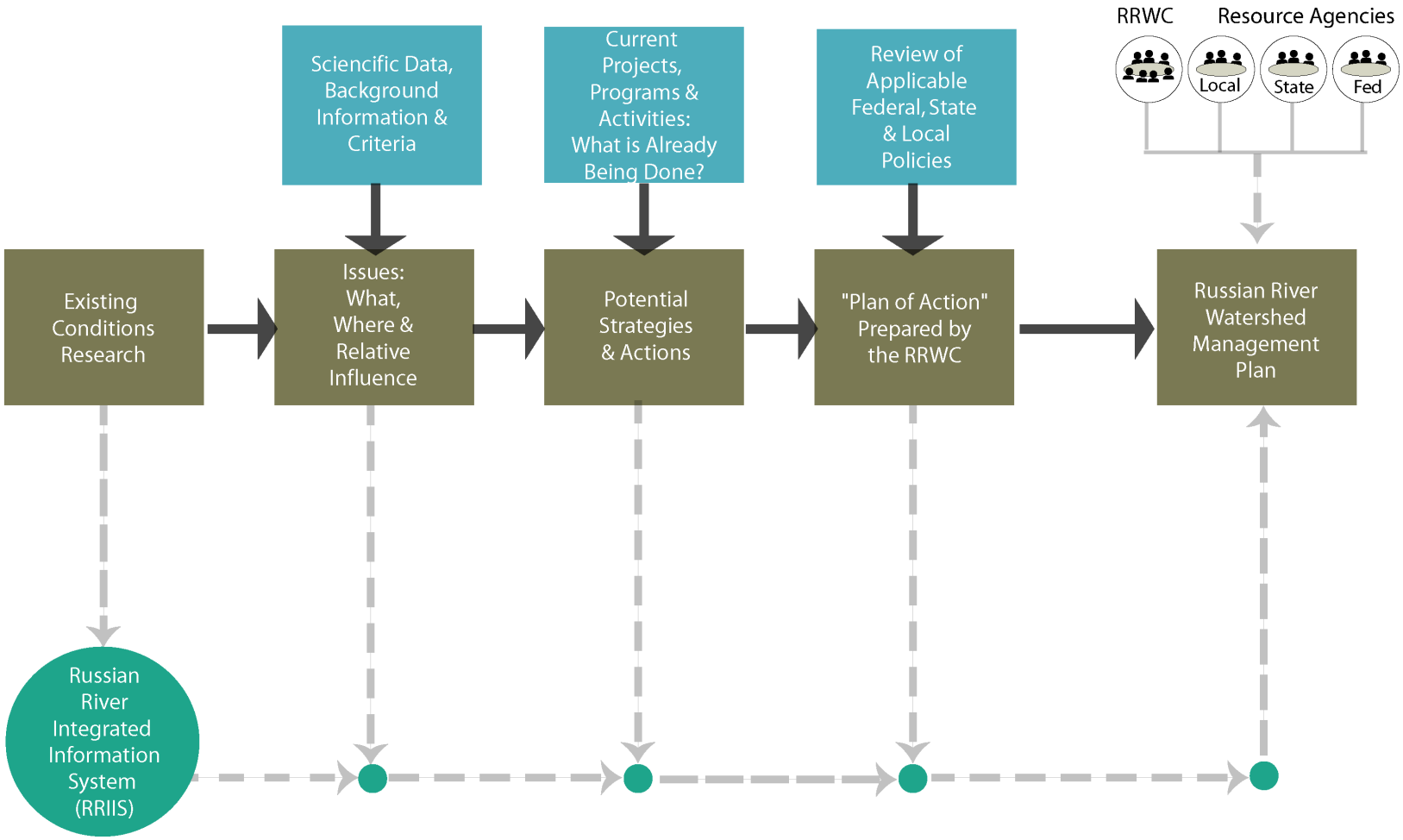
Many of the planning processes are currently under way, or the planning documents are still in draft form, thus the information below is time sensitive and subject to change. The projects below and others have been highlighted on three different maps in Appendix III. However, the information below and the maps do not represent a comprehensive listing of all projects currently existing within the watershed.

FEDERAL, STATE AND REGIONAL PLANNING PROCESSES

Watershed Management Plan – The diagram on the following page illustrates the type of information compiled throughout the *POA* development process for consideration during the development of the watershed management plan in Phase II. Phase II will include the development of detailed task analyses for the preliminary measures identified in the *POA*. The watershed management plan, co-sponsored by the Resources Agency and USACE, will consider restoration measures and alternatives that meet the multi-objective goals of the RRWC. The watershed management plan will use information developed throughout Phase II to develop an environmentally and economically sustainable ecosystem restoration program. The development of the watershed management plan will include fulfilling NEPA/CEQA requirement for all recommended actions. These specific requirements may be used to develop a programmatic Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) for regulatory agencies to streamline the approval process for all watershed management actions identified. The final watershed management plan is projected for completion in 2006. The RRIIS is the data management and education tool being developed to provide watershed-wide information and community input into the watershed management plan development process (see description of the RRIIS in the Data-related Projects section of this chapter).

Russian River Watershed Council

A Snapshot of the Plan of Action Planning Process



Russian River Endangered Species Act Section 7 Consultation – In 1997, USACE, National Marine Fisheries Service (NMFS) and the Sonoma County Water Agency (SCWA) entered into a Memorandum of Understanding (MOU) for consultation under Section 7 of the ESA to evaluate the effect of certain water supply, transmission and storage activities on species listed as threatened in the Russian River watershed. Section 7 Consultation requires the preparation of a Biological Assessment (BA) to evaluate the effects of USACE, SCWA and Mendocino County Russian River Flood Control and Water Conservation Improvement District's (MCRRFC&WCID) facilities and operations on steelhead, coho salmon, and chinook salmon. The BA will be submitted to NMFS, which will prepare a Biological Opinion (BO) based on the findings and conclusions contained in the BA. The process will provide direction regarding the proper maintenance and operations of facilities within the watershed to conserve listed species. This direction can be applied to other projects and activities planned for the watershed especially related to flood control channel maintenance and habitat restoration.

National Marine Fisheries Service Recovery Planning Process (for West Coast Salmon) – In 2001, NMFS began a planning process to reverse the pattern of salmon and steelhead species decline through the development and implementation of a comprehensive, science-based recovery effort. The goal is to restore Evolutionarily Significant Units (ESU's) to levels at which the listed species are no longer threatened and can be removed from the list of threatened and endangered species under the Federal ESA. The Technical Recovery Team (TRT) formed will identify factors for decline, specific limiting factors for each ESU and appropriate recovery goals for the fish based on thorough analysis of data collected by NMFS and other resource management agencies including DFG. The second phase of the planning process involves identification, prioritization, and implementation of the actions needed to achieve the biological de-listing criteria identified by the TRT. The implementation team formed will consist of diverse stakeholders including community members to develop a recovery planning process specific to identified planning areas. The Russian River Geographic Information System (RRGIS) is the data management and information tool being developed to assist decision-making during the salmonid recovery planning process (see description of the RRGIS in the Data-related Projects section of this chapter).

Federal Energy Regulatory Commission Review of the Potter Valley Project Amendment – The Cape Horn Dam and Van Arsdale Reservoir became operational in 1908, to divert a portion of the Eel River's flow through a power plant known as the Potter Valley Project and owned by Snow Mountain Water and Power Company. In 1922, Scott Dam was constructed 12 miles upstream from the Potter Valley Project. The Dam, constructed to increase storage capacity, formed Lake Pillsbury on the main stem of the Eel River. Diverted water travels through the diversion tunnel and turbines of the Potter Valley Project and releases into the powerhouse canal, where the Potter Valley Irrigation District (PVID) diverts some flow for irrigation and frost protection before the bulk of the water enters the East Branch Russian River. Other users divert water from the East Branch Russian River downstream of the Potter Valley Project. This water is collected in Lake Mendocino where, in subsequent releases, it is utilized for crop irrigation and commercial,

residential and recreational purposes along with adjustments for flood control storage capacity.

Pacific Gas and Electric (PG&E) became the project licensee in 1930 when it acquired the Potter Valley Project from Snow Mountain Water and Power Company. In 1983, the Potter Valley Project received a 50-year license and, as a result, PG&E was required to conduct a 10-year fisheries monitoring study due to Article 39 of the Project license. The objective of the study was to verify the effectiveness of flow schedule improvements for salmonid migration and spawning. PG&E, in consultation with DFG and U.S. Fish and Wildlife Service (USFWS), completed the study and filed a report with the Federal Energy Regulatory Commission (FERC). The report included specific recommendations for modifications to the Project flow schedule, operations, and facilities to protect and maintain fishery resource while meeting water supply, recreation, and power generation needs. FERC is the regulatory agency designated by the Federal Powers Act to balance the competing needs involved with flow of water from the project. FERC implemented the NEPA process to obtain public input regarding project impacts associated with PG&E's proposal. In May 2000, FERC issued a Final EIS, which identified a preferred alternative. Subsequently, Federal ESA consultation meetings with NMFS and DFG led PG&E to modify its preferred alternative. The modified proposal minimizes potential impacts on fish species and their habitats and it provides flexibility to achieve future resource management goals. The modified proposal was reviewed but not approved by FERC. NMFS has been asked to submit a BO and recommend additional modifications for the PG&E proposal to provide new and improved flow regimes and other adjustments to the Project's structures and operations.

Department of Fish and Game's Russian River Restoration and Watershed Planning Program – DFG has been conducting stream assessments since 1994 and, to date, has completed habitat inventories for approximately 140 out of the 240 named tributaries in the Russian River watershed. The standardized assessment process provides the baseline information required for action development and implementation and this information has been made available to other resource managers for use during various planning efforts. In addition, the tributary and sub-basin focus of the DFG planning process promotes ongoing local and landowner participation and watershed-wide coordination. With support from University of California, Hopland Research and Extension Center (HREC) and use of GIS technology, the data collected has enabled DFG to identify known limiting factors for salmon and steelhead species specific to each tributary basin, prioritize a list of restorative projects and actions, and prioritize the major sub-basins and streams to protect and restore (see description of GIS Basin Planning and Mapping in the Data-related Projects section of this chapter). Through this program, DFG has compiled data and recommended actions for the Russian River watershed and its sub-basins in its *Draft Russian River Basin Fisheries Restoration Plan (July 2002)*. The final *Restoration Plan* will be completed by DFG in 2003.

FishNet 4C – Fishery Network of the Central California Coastal Counties – In 1998, six Central California Coastal Counties signed a MOU that established a county-based, regional salmonid protection and restoration program. The primary objective of the program is to evaluate land use impacts on salmonid species in Southern Mendocino (including the Russian River watershed), Sonoma, Marin, San Mateo, Santa Cruz, and Monterey Counties

and to make recommendations for improving practices and policies. The FishNet 4C study, *Effects of County Land Use Policies and Management Practices on Anadromous Salmonids and Their Habitats*, highlights the direct linkages between species and habitat decline and county activities such as poorly designed stream crossings and ineffective bank stabilization projects. The study emphasizes the role of county planning departments in the implementation of restoration efforts at the sub-basin level and coordination of activities watershed-wide.

Total Maximum Daily Load – The Clean Water Act defines Total Maximum Daily Load (TMDL) as "the sum of the of the individual waste load allocations for point sources, load allocations for non-point sources, and natural background such that the capacity of the water body to assimilate pollutant loading (the loading capacity) is not exceeded (40 CFR §130.2)." Through the Clean Water Act of 1972, the Environmental Protection Agency (EPA) has the authority to develop TMDLs. The TMDL process involves calculating the maximum amount of a pollutant that a waterbody can receive while still meeting water quality standards and insuring the protection of beneficial uses as identified by the California Environmental Protection Agency's (Cal/EPA) North Coast Regional Water Quality Control Board (NCRWQCB) in the Water Quality Control Plan for the North Coast.

In California, the EPA has delegated authority under the Clean Water Act to the State of California. Over the next nine years, the NCRWQCB will adopt TMDLs, or "pollution budgets", for 35 rivers within California's North Coast area, or Region 1. The goal is to restore the health of a polluted body of water through a quantitative assessment of specific point source and nonpoint source water quality problems. The assessment process identifies contributing nonpoint pollution sources and pollution load reductions or control actions needed to restore and protect the specific waterbody. Sediment has been identified as a primary pollutant for the Russian River. A TMDL for the Russian River is currently scheduled for completion in 2011.

North Coast Watershed Assessment Program – In 2000, the California Resources Agency organized a multi-agency initiative to promote comprehensive and coordinated watershed assessments and protect stream habitats throughout California's North Coast. The goals of the North Coast Watershed Assessment Program (NCWAP) are to develop baseline information and a database for identifying limiting factors for salmonid reproduction, guiding watershed restoration efforts, and promoting cooperative approaches. NCWAP is also being developed to assist the implementation of specific laws that require watershed assessments, such as the Forest Practice Rules, Clean Water Act, and Porter-Cologne Act.

The assessment process involves gathering information from landowners and agencies including the departments of Water Resources, Fish and Game, Forestry and Fire Protection, Conservation, and NCRWQCB. This information is synthesized with additional field data to create interdisciplinary assessments, GIS layers, decision support system runs and recommendations from findings. The North Bay Klamath Resource Information System (KRIS) serves as the data management tool for data collected and synthesized through the NCWAP process (see description of the KRIS in the Data-related Projects section of this chapter). NCWAP will prepare watershed assessments for a total of 21 watersheds within the North Coast Watershed Assessment Area, including the Russian River watershed, over the next seven years.

LOCAL PLANNING PROCESSES

Russian River Coho Salmon Recovery Program – Prompted by the listing of coho salmon as threatened under the Endangered Species Act in 1996, the Coho Salmon Recovery Program was launched to facilitate the repopulation of the Russian River and its tributaries. The process was the result of the Russian River Coho Salmon Recovery Workgroup formed in April 2001 consisting of federal, state and local government entities, fish conservationists and academic researchers committed to the program's goals. In August 2001, approximately 300 juvenile coho salmon were collected from strategically identified tributaries within the watershed. The objective was to propagate a sufficiently diverse gene pool by establishing a brood stock and eventually restoring the coho population through the watershed. The hatchery program is intended to be a temporary measure and will be phased out when the species is significantly reestablished. The current facility is operated by DFG under contract with the USACE. The Workgroup has developed a management plan to raise the captive fish to reproductive age and return their offspring to selected Russian River tributaries demonstrating adequate spawning and rearing habitat. The program recognizes that habitat restoration must occur in conjunction with repopulation in order to achieve lasting results. The first planned outplanting of juveniles is scheduled for 2004.

Sonoma County General Plan Update – The government of Sonoma County regulates development within its unincorporated areas through the Sonoma County General Plan. The General Plan, adopted in March of 1989, prescribes the policies and guidelines for making land use decisions. The General Plan also includes language requiring periodic evaluations and updates. In 2000, the Board of Supervisors directed the Permit and Resource Management Department to evaluate a number of the policies related to seven required elements (e.g., Land Use, Open Space, Resource Conservation, etc.) included in the General Plan and prepare an "issue-focused" update, referred to as GP 2020. As a result of this update process, a Citizen's Advisory Subcommittee has recommended the addition of a Water Resources Element to the GP 2020. The GP 2020 will be finalized for adoption in September 2003.

The Water Resources Element approved for inclusion in the Update will consolidate issues covered by the existing General Plan and set forth a policy framework relating to water management in the County. The objective of the Water Resources Element is to protect, restore and manage Sonoma County's watershed basins and associated tributaries to maximize both water quantity and quality. It covers a series of themes that include surface water policies, including watershed designations, water supply, water quality and flows, flooding related issues, ground water policies, including supply and recharge, waste water disposal, aquatic and riparian habitat, wetlands, and coastal estuaries. The results-oriented approach being implemented is founded on citizen participation, research and problem identification, and establishment of best practices. The Water Resources Element creates an action plan that will help prepare the County in complying with state and federal mandates, such as the Federal National Pollutant Discharge Elimination System (NPDES), and other resource conservation standards.

Mendocino County General Plan Update – Mendocino County's General Plan was adopted in 1981. One of the key premises of the General Plan is that natural resources

should be protected and available for use. It is the task of the Planning Commission and Citizens Advisory Committees (CAC) to review and recommend land use policies to the Board of Supervisors based on criteria of resource and public service impacts. Issues were developed from feedback collected from CAC members, the general public, media, members of state and federal agencies, and Planning Commission staff. In 2001 the County initiated an update process to address current issues and revise and refine the existing policy framework. Community engagement meetings are slated to begin in January 2003 that will involve stakeholder groups in the planning process and solicit public feedback. The expected completion date for the General Plan Update is 2006.

Watershed issues, including water quality and fisheries, will be important issues in the upcoming General Plan Update. A primary issue identified in the current General Plan is the loss of spawning, feeding and nursery habitat and the associated decline of salmon and steelhead populations. The General Plan also acknowledges that current fish protection regulations and enforcement are insufficient. Thus, through a combination of short- and long-term actions, the restoration of species levels and habitat is sought. The policy strategy includes adopting objectives from the Mendocino County Salmon and Steelhead Management Plan and cooperating with DFG to improve its enforcement of code and increase monitoring and research efforts on fishery and wildlife resources. A key tool in the process is the periodic updating of the County Biological Resources Map and other natural resource inventories that enable the identification and evaluation of current locations of anadromous salmonid stream habitat.

Review of County Grading Ordinance – In March 2001, the Mendocino County Board of Supervisors appointed representatives from a broad spectrum of agencies, organizations and occupations concerned with the issue of erosion control and water quality. The charge of the Grading Committee was to review selected grading ordinances of other counties in Northern California, prepare specific standards and procedures for implementing grading regulations in Mendocino County and provide recommendations to the Planning Commission and Board of Supervisors. Staff support was provided by the County's Planning and Building Services and planners, geologists, and civil engineers participated in the Committee as technical advisors. In addition, the following entities were represented: Mendocino Environmental Center, Agricultural Commissioner, Mendocino County Employers Council, County Archaeological Commission, Department of Transportation, Friends of the Garcia River, DFG, Farm Advisor/University of California Cooperative Extension (UCCE), Friends of the Navarro Watershed, Mendocino County Farm Bureau, Mendocino County Water Agency (MCWA), Willits Environmental Center, Mendocino Winegrowers Alliance and the North Coast Builder's Exchange.

The Grading Committee held a total of 25 meetings during a fourteen-month period and addressed a variety of issues related to stream setbacks, riparian vegetation and agricultural production and development. On July 2, 2002, the Grading Committee presented to the Planning Commission a draft grading ordinance and appendices reflecting their efforts and discussions. The Grading Committee informed the Commission that several issues were not able to be resolved during its collective effort. As a result, the draft grading ordinance provides alternative approaches or options for addressing watercourse protection, CEQA

review, and agricultural grading. The draft grading ordinance is currently being reviewed by the Planning Commission. Once the Commission completes its review, the draft ordinance along with the Commission's recommendations will be presented to the Board of Supervisors for approval and implementation.

Similar efforts were recently initiated in Sonoma County. The Sonoma County Board of Supervisors and Permit and Resource Management Department are currently hosting grading ordinance workshops to promote stakeholder participation and obtain public input for the development of a grading ordinance.

Water Supply and Transmission System Project (WSTSP) – In 1998, SCWA completed an EIR for the Water Supply and Transmission System Project (WSTSP). The objective of the project is to provide additional water supply and expand the existing transmission system to meet defined future water supply needs in SCWA's service area. Future growth estimates were based on corresponding levels of growth identified in the general plans of local governments within the service area that were in place at the time the Draft EIR was prepared. The project location is primarily Sonoma County. The project serves the Agency's water customers (the largest of which is Marin Municipal Water District), including its eight prime water contractors (the cities of Cotati, Petaluma, Rohnert Park, and Santa Rosa; and, the Forestville, North Marin, and Valley of the Moon water districts).

The EIR serves as the programmatic plan for future facilities and services and it identifies general locations for the project's components including water production facilities, pipelines, water storage tanks, booster pump stations, water conservation and education programs, and new agreements and water re-diversion rights. To date, the EIR has been certified and approved. Subsequent to project approval, the Friends of the Eel River et al, sued SCWA on the grounds that the EIR was inadequate. SCWA prevailed in the trial court, and Friends of the Eel River et al has appealed the decision. At present, SCWA is in the process of implementing the WSTSP. The first project includes the planning and construction of the South Transmission System Project, a project that includes a pipeline, storage tanks, and booster station from SCWA's Cotati Tanks to SCWA's Kastania Tank located just south of Petaluma. Additional projects identified in the WSTSP will proceed as identified in SCWA's Capital Improvement Program (CIP).

Incremental Recycled Water Program (IRWP) – In 2000, the Santa Rosa Subregional Reclamation System (the cities of Santa Rosa, Rohnert Park, Cotati, Sebastopol, and the South Park Sanitation District) began a program to define and evaluate various methods for reusing or disposing recycled water beyond the amount that the current system is designed to handle. The objective of the program is to provide for the reliable treatment, recycling, and disposal of wastewater volumes for the Subregional Reclamation System while protecting the environment and public health. Current treatment and disposal/reuse capacity will not accommodate the projected population growth identified in the new General Plans for the cities comprising the System. Also, regulatory requirements applicable to reclaimed water discharge into the Russian River and its tributaries are expected to increase in the near future. The first step in developing the IRWP was to identify recycled water projects as models that could help Santa Rosa meet its future disposal and reuse needs. The service area

includes Santa Rosa, Rohnert Park, Cotati, Sebastopol, and specific unincorporated areas in Sonoma County. The System also provides service for most properties on septic systems within Sonoma County. The City of Santa Rosa, as managing partner of the Subregional Reclamation System, is preparing a programmatic EIR to determine project impacts. The final EIR is scheduled for certification in June 2003. At that time, site-specific designs and plans for program implementation would be developed.

DATA-RELATED PROJECTS

Several data collection, analysis and storage projects have been implemented to support specific restoration and recovery efforts described above.

Russian River Watershed Interactive Information System – The Russian River Watershed Interactive Information System (RRIIS) is being developed to support the development of a comprehensive, community-based watershed management plan for the Russian River watershed (see description and diagram on pages 13 and 14). The Watershed Information Assessment and Monitoring (WIAM) workgroup of the RRWC initiated the development of the RRIIS to provide a tool for public education, communication and feedback regarding watershed issues and restoration activities. Circuit Rider Productions, Inc. (CRP), Moore Iacofano Goltsman, Inc. (MIG) and HREC were contracted to develop an online database that supports mapping, restoration planning, and community outreach and education throughout the watershed. Additional information about the RRIIS is available in Chapter 5, *Action Development and Implementation Tools*.

North Bay Klamath Resource Information System – The North Bay Klamath Resource Information System, commonly referred to as KRIS, is a computerized watershed information integration tool covering the California's northern coasts and bays including the ocean side of the Russian River watershed in Sonoma County. KRIS is being developed to support the Resources Agency's NCWAP and provide information about limiting factors, causal mechanisms, restoration programs, cooperative approaches and laws requiring assessments. KRIS also allows users to conduct preliminary data assessments and analyses.

Russian River Geographic Information System – The goal of the Russian River Geographic Information System (RRGIS), being developed by NMFS and CRP, is to compile all relevant spatial data for the Russian River Watershed to support salmonid recovery planning. In addition to compiling existing data, several new GIS data layers are being created for the project based on a needs assessment and input from a technical team of fisheries biologists. Local project partners include the Department of Fish and Game, the Regional Water Quality Control Board, University of California Cooperative Extension, the Sonoma County Water Agency, the Sonoma County Agricultural Preservation and Open Space District, the County of Mendocino, the UC Bodega Marine Lab, California Department of Forestry and Fire Protection, and the Sonoma County Permit and Resource Management Department. NOAA Fisheries and other project partners will use the Russian River Watershed GIS to perform limiting factors analysis and evaluate salmonid recovery options at the watershed scale.

GIS Basin Planning and Mapping – To support DFG's Restoration and Watershed Planning Program, the Russian River Watershed Restoration and Protection Study provided funding to DFG and HREC to develop GIS mapping of stream inventory data. Specifically, this research and mapping provides guidance about fisheries priorities for restoration, data gaps, current conditions and needs, and stewardship opportunities for the tributaries assessed by DFG.

3. Overview of Strategy Areas

3. OVERVIEW OF STRATEGY AREAS

The following pages of this chapter describe the key strategy areas and related strategies that guided the development of the critical issues and potential actions included in the *POA*. The strategy areas are divided into two categories: primary and supporting. The primary strategy areas were identified due to their potential direct impact within the watershed. The supporting strategies are necessary to ensure the success of the primary strategies. Together these strategies areas and related strategies provide a framework for addressing critical issues, developing potential actions and, consequently, achieving the goals of the RRWC.

PRIMARY STRATEGY AREAS

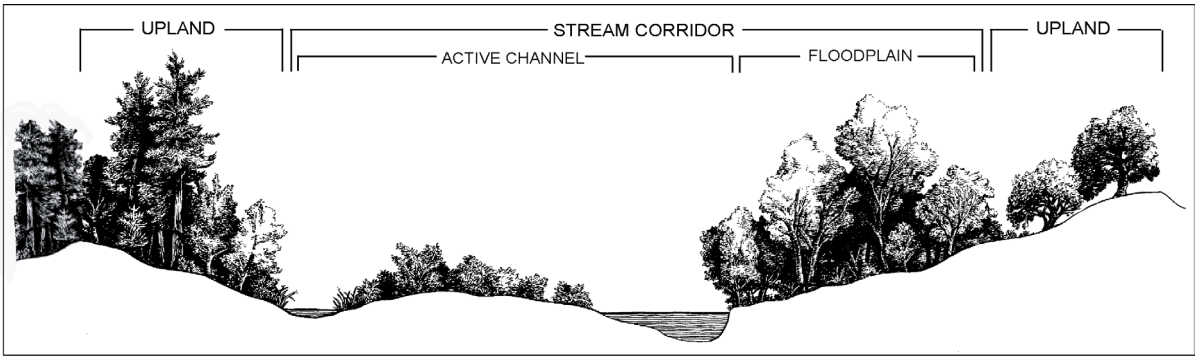
Strategy Area I: Fluvial Geomorphology and Habitat Restoration – Protection

The key issues in the Russian River watershed largely arise from historic and recent modifications to stream channels and their surroundings, which have contributed to a loss of functioning habitat and reduction in wildlife populations. The diagram on the following page illustrates the zones identified for the development of potential actions to benefit fluvial geomorphology and habitat. Fluvial geomorphology examines the connection between the shape, form and function of the stream and the physical processes (natural and human-induced) that contribute to these attributes. The application of fluvial geomorphic principles may lead to long-term sustainability of a stream's species and habitat. The following strategies have been identified as broad directions for developing restoration actions:

- **Stream Corridor Restoration** – Although it is impossible to recreate the natural condition of a stream corridor exactly as a pristine wild environment, the goal is to reestablish the stream corridor's structure and function through an evaluation of the different components of the stream corridor (e.g., riverbed, streambank structure, floodplains and vegetative cover).

- **Species and Habitat Recovery** – Habitat requirements of native fish species within the watershed are the primary focus of this strategy. This includes an understanding of their habitat needs at specific life stages. Subsequently, an analysis of the historical and existing conditions within an ecosystem can be conducted to determine what elements need to be restored to accommodate targeted species.

- **Uplands Restoration** – This strategy focuses on implementation activities and projects for the transitional zone between the floodplain and the ridge top. The purpose for focusing in such a broad geographic area that includes various land uses and differing environmental conditions is to recognize the effects of broad watershed activities (e.g., roads, development, grading, paving, vegetation removal, etc.) and reduce disturbances that adversely impact the river, tributaries, native species and related habitat.



This cross-section diagram, courtesy of Circuit Rider Productions, Inc., illustrates the stream corridor and upland area zones. Intact stream, or riparian, corridors and upland areas play an important role in supporting biological diversity, including healthy salmonid populations.

Strategy Area II: Water Conditions and Characteristics

In the past, recovery and restoration objectives have focused on water quality. Today, successful restoration and recovery is understood to be dependent on various water conditions and characteristics including temperature, flows, supply and storage. Furthermore, the different water conditions and characteristics found within the main stem and its tributaries are interdependent. An intervention or measure applied to improve a specific water condition may have a positive or negative impact on other stream characteristics. For this reason, the following strategies have been identified as broad directions for improving water conditions and characteristics and, consequently, ecosystem processes:

- **Water Supply, Quantity and Storage** – This strategy requires the identification of critical water resources and the comprehensive impacts on native fish species within the watershed. Dam operations, management practices and maintenance activities are major focuses due to their ability to alter water quantities and flows. An understanding of hydrologic and hydraulic processes in the watershed and related ecological impacts will serve as the foundation for all actions, projects and activities developed.

- **Water Quality** – Actions related to water quality include improvements to the essential character of water supplies within the watershed to achieve a desired and sustainable condition. Improvements to water quality will be based upon the appropriate evaluation and enhancements of the physical and chemical characteristics of water throughout the watershed. New approaches for water quality improvements need to consider point and nonpoint source pollution and factors over time. These approaches also include evaluations of short- and long-term impacts of different activities in the watershed as well as instream transport processes.

Strategy Area III: Connections Between Human Activity and Habitat

This strategy area, Connections Between Human Activity and Habitat, originated from a discussion about fish passage and habitat connectivity issues. Factors inhibiting species cycles and impacting watershed resources can be traced back to a lack of an overall understanding about the different but interconnected components of the ecosystem including its inhabitants. For this reason, the following strategies focusing on human behavior and action have been identified as broad directions for restoring the stream corridor and recovering species and habitat:

- **Land Use, Development and Management** – The direct links between land use, development and management practices, and the condition and functioning of the entire watershed provide the foundation for this strategy. A complete watershed analysis would identify the types, intensity and timing of significant activities that cause adverse impacts both inside and outside the stream corridor, and help prioritize and coordinate restoration efforts. Existing ordinances and public agencies will serve as the foundation for developing strategies and actions that address land use, development and management issues within the watershed. Equally as significant, efforts to improve public perception and understanding of existing ordinances and regulations (e.g., purpose, need and processes) would improve compliance and, thereby, contribute to greater stream protection.

- **Regulatory Accountability and Action** – Regulatory accountability ensures agencies assume full responsibility for activities, projects, and programs implemented within their jurisdiction in the watershed. Regulatory accountability can be demonstrated through timely responses to community concerns regarding the needs of native species, a commitment from the responsible agency to implement appropriate or high priority programs, and a willingness to consider a range of options for watershed enhancements.

- **Stewardship Activities** – Increasing outreach and fostering collaborations to implement and enhance restoration and protection actions are the focuses of this strategy. The goal is to improve habitat functioning and species' life cycle processes in the river, its tributaries, and the watershed. Coordinating the activities of stewards, including sub-watershed groups, and providing community members with information-sharing opportunities will be key components of actions developed to enhance stewardship activities.

- **Public Education and Outreach** – This strategy includes actions aimed at increasing awareness among citizens, their elected officials and policy-makers through a variety of educational forums and dissemination of materials related to the watershed. Broad-based participation in restoration and recovery activities will guarantee that these activities are developed and implemented based on community input and participation. Continuous reviews and modifications of educational and outreach efforts would ensure that materials and forums evolve in conjunction with the development of new restoration and protection approaches. A key component of this update process involves community and property owner education about how and why different approaches were developed

SUPPORTING STRATEGY AREAS

Supporting Strategy Area A: Data Collection, Research and Evaluation

This strategy area ensures that decisions related to the watershed are implemented based on the extensive collection and meaningful analyses of data and research. Data and research will identify high priority and appropriate areas where successful restoration projects can be duplicated and implemented. Developing a clearinghouse of watershed information and data resources, such as RRIIS, will assist resource and regulatory entities in identifying data gaps.

Supporting Strategy Area B: Organizational Development and Resources

The RRWC provides critical information and community input during the development and implementation of watershed management and protection projects, programs and activities. A clear organizational structure, well-defined operational processes and established funding mechanisms allow an organization to fulfill its mission over time. Through exploration of lessons learned, existing watershed conditions and current recovery/restoration efforts, an expanded understanding of key stakeholder roles and viable long-term strategies will be obtained. The following strategies provide a focus for the development of potential actions intended to enhance the organizational effectiveness of the RRWC and link resource opportunities and allocations to the organization's goals:

- **Organizational Structure** – The goal of this strategy is to create an effective organization that can sustain efforts over time to recover and restore the watershed. The RRWC provides for a community- based movement that includes watershed stewards and local community members who share common goals. Continuous improvements regarding structure and processes will increase the RRWC's capacity and effectiveness in watershed restoration efforts. The following principles are being used to develop recommendations for enhancing the RRWC's current organizational structure:
  - Good design helps an organization achieve its mission and goals.
  - Strategies identified by an organization should drive its structure.
  - Action requires "champions".
  - Clarity of organizational structure and decision-making processes is imperative.
  - Structure needs to allow for on-going communication, coordination and management.
  - Staff and resource allocations need to achieve long-term sustainability for the organization.
  - Recognition of accomplishments is critical for continuous participation among members.
  - A living structure that is dynamic and flexible is achievable through clear feedback loops and periodic assessments.

- **Long-term Funding** – This strategy is aimed toward the identification of various and diversified funding opportunities that would help the RRWC achieve its primary goals and sustain the organization's activities over time. Long-term funding actions ensure that the management of the Russian River watershed continues as a community driven process.

4. Critical Issues & Potential Actions

4. CRITICAL ISSUES & POTENTIAL ACTIONS

This chapter is organized by the three strategy areas and two supporting strategy areas that guided the *POA* development process (see Chapter 3 for an overview of the strategy areas and strategies). For each broad strategy area and related strategies, critical issues and potential actions were identified for future development and possible implementation in appropriate locations throughout the watershed. All potential actions are coded to help signify the related strategy and to help cross-reference them in other parts of this document (e.g. Stream Corridor Restoration potential actions are coded as "SC#.")

The potential actions included in this chapter were reviewed and discussed during a preliminary prioritization exercise at a RRWC meeting held September 14, 2002. As a result, potential actions were prioritized based on members' areas of initial interest, potential benefit for the entire watershed, and need for more information to determine priority for future development and implementation. The potential actions in this chapter are ordered under each strategy according to the results of the preliminary prioritization exercise. Also, the potential actions identified as higher priorities during the preliminary exercise are noted below with the following symbol:

Following the preliminary prioritization exercise, members of the Agency Caucus were asked to provide detailed information for the potential actions identified as high priorities by the RRWC. Specifically, agency representatives provided information about the tasks that may be included, rationale, related activities, projects and programs, and relevant references for these potential actions. Agency representatives also provided similar information about other potential actions crafted during the *POA* development process. The potential actions further detailed through agency input are noted throughout this chapter in *italics*. The detailed information obtained for *italicized* potential actions is included in Appendix IV, *Detailed Potential Actions (Ideas and Resources)*.

PRIMARY STRATEGY AREAS

Strategy Area I: Fluvial Geomorphology and Habitat Restoration – Protection

Strategy I-A: Stream Corridor Restoration (SC)

Critical Issues

Stream corridor restoration is focused on riparian vegetation and its role in maintaining a more natural process and system in the watershed. The loss of riparian vegetation and its impact in the watershed highlight other watershed problems that either factor into the loss of riparian vegetation or are a direct result of the decrease in vegetation. The following are some of the interconnected critical issues concerning stream corridors:

- **Loss of riparian vegetation, large woody debris, and cover** including disturbances related to age class, canopy, size, width, and density that impact all aspects of a stream's structure and function including water temperature, flows and habitat;

- **Rising or fluctuating water temperature** due to managed instream flows during the summer, seasonal fluctuation of dam releases, the loss of riparian cover along the stream corridor, decreased surface and groundwater interaction, and an increase in impervious surfaces throughout the watershed;
- **Disturbances to the stream channel** resulting from modifications over time (e.g., dams,) and measures intended to manage the stream corridor (e.g., bar removals, water impoundments, vegetation changes, etc.), and the need to restore the form and structure of the river (e.g., riffles, pools, runs, meanders, etc.) based on historic patterns;
- **Non-beneficial bank erosion and deposit of fine sediment** caused by a variety of land uses and practices within the watershed and impacting the form, structure and function of the stream and its tributaries; and
- **Introduction of invasive, exotic species** and the reduction/depletion of native species.

Potential Actions

The goal of stream corridor restoration is to reestablish the natural stream corridor's physical structure, function and dynamic but self-sustaining behavior by addressing all components of the stream corridor (e.g., riverbed, bank structure, floodplains, and vegetative cover). The following potential actions were identified by the RRWC to address the critical issues related to Stream Corridor Restoration:

SC1. *Restore the stream corridor through a variety of stream corridor protection and watershed management methods (e.g., meander corridor setbacks, floodplain and wetland protection, and riparian revegetation).*

SC2. *Seek an appropriate balance for riparian vegetative cover throughout the watershed.*

SC3. *Work with organizations that can hold conservation easements to develop standard easement definitions and evaluation protocols for establishing riparian habitat and corridors in sensitive areas.*

SC4. *Determine the feasibility and need for a basin-wide and reach-specific gravel budget that is based on stream hydrology and identifies the gravel recruitment needs for healthy fisheries.*

SC5. *Create a toolbox of non-toxic removal and replacement methods for exotic species that can be easily disseminated for application by private property owners, stewardship groups, resource agencies, and local municipalities.*

Strategy I-B: Species and Habitat Recovery (SH)

Critical Issues

Steelhead trout, coho and chinook salmon are anadromous fish species that have been listed as threatened species under the Federal ESA, and coho salmon have been listed as endangered under the California ESA.* There have been extensive discussions among RRWC members, technical experts and resource agency representatives about the rationale for the listing and the factors that led to the species' decline. In short, the community desires action. The following critical issues, related to the recovery of native species and habitat, were identified for both the mainstem and its tributaries:

- **Loss of functioning instream habitat** resulting from various land use activities including monoculture agriculture, timber harvesting, surface and groundwater pumping, gravel mining, and dewatering of tributaries;
- **Loss of groundwater** due to a decrease in infiltration areas and groundwater pool capacity that may have a direct impact on instream volume and flows within the watershed; and
- **Barriers to fish migration and spawning** due to the construction of instream storage dams, road, and culverts.

Potential Actions

This strategy aims to improve the status of native species through an enhanced understanding of their specific life stages and habitat needs. The following potential actions were identified by the RRWC to address the above critical issues:

SH1. *Collaborate with property owners, agencies and educational institutions to establish appropriate watershed-wide control of unnatural erosion through run-off protocols, better management practices and activities that promote water resource sustainability (e.g., groundwater recharge).*

SH2. *Identify and recommend practices that manage flow for economic and ecological benefits and establish a flow regime that is appropriate for listed species and the sustainability of natural habitat in both the mainstem and tributaries.*

SH3. Use available data to map weak links in habitat and migration routes in the watershed to enhance fish passage and connections.

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* On August 30, 2002, the FGC accepted DFG's recommendation to list coho under the California ESA. The FGC's approval includes a 90-day suspension of the listing while DFG reports back to FGC on how a recovery plan would be prepared. The implementation of regulations for the listing will be delayed one year while DFG obtains public input and develops recommendations for interim protection measures during the coho recovery planning period.

SH4. *Analyze impact of river and stream modifications and water withdrawals on subterranean water flows to enhance groundwater and underground systems that maintain functional if not ideal flows for listed species.*

SH5. Identify natural resources that provide erosion control and (e.g., large rock, filter strips, oak trees and woodlands to help stabilize soil and slopes, reduce erosion and support many plant and wildlife species) and evaluate related ordinances or guidelines developed by other entities to protect these resources.

Strategy I-C: Uplands Restoration (UR)

Critical Issues

Both Sonoma and Mendocino Counties continue to experience land conversions that transform upland areas. Site-specific land use changes in upland areas impact stream functions related to slope, soil type, geology, climate conditions, etc. as well as species habitat. The challenge is to balance activities in the upland areas in light of the critical issues listed below:

- **Land use conversions** that negatively impact the stream channel, species and habitat;
- **Urbanization and infrastructure development** that increases impermeable surfaces (e.g., roads and parking lots) and surface water run-off contributing to soil erosion and nutrient loss, and creating barriers that hinder wildlife migration (e.g., fencing and roads);
- **Impacts from overgrazing** may decrease vegetation abundance, species diversity and degrade top-soil, resulting in increased soil erosion and effluent run-off;
- **Pesticide run-off** impacts water quality and habitat function in the watershed; and
- **Decreased soil permeability** and increased run-off, erosion and sedimentation impacts habitat for salmonid populations in the main stem and tributaries in the watershed.

Potential Actions

The objective of the Uplands Restoration strategy is to recognize the effects of watershed activities (e.g., development, grading, paving, vegetation removal, etc.) and minimize disturbances in the transitional zone between the floodplain and critical upland habitats in the watershed. The long-term goal is to restore the river and its tributaries and recover native species and necessary habitats. The following potential actions were identified by the RRWC to address the critical issues related to Uplands Restoration:

UR1. *Examine grading and erosion control ordinances to ensure that they reduce sedimentation and other hydrological impacts.*

UR2. *Use vegetation management techniques to preserve natural vegetation, reduce invasive species, and benefit the watershed.*

UR3. *Investigate upland groundwater recharge and infiltration opportunities to reduce excessive run-off, improve soil infiltration, and increase water-holding capacity in the watershed.*

UR4. *Assess the effectiveness of the Sonoma County Vineyard Erosion and Sediment Control Ordinance (also known as the "hillside ordinance") to determine if the ordinance promotes or reduces hillside erosion and run-off and meets the RRWC mission and goals.*

UR5. *Establish continuous habitat corridors, where appropriate, to enhance migration corridors and minimize fragmentation.*

UR6. Promote the implementation of more watershed stewardship programs such as RCD programs.

UR7. Identify highly erosive soils and fault lines in sensitive land areas that need further land use protection.

Strategy Area II: Water Conditions and Characteristics

Strategy II-A: Water Supply, Quantity and Storage (WS)

Critical Issues

The linkage between water supply and instream flows is a critical component toward a better understanding of water quantity, habitat and geomorphic function. Better understanding and analysis of surface and subterranean flows and groundwater will lead to improved decisions. Similarly, water budgets for the watershed and its sub-basins will assist decision-making related to resource management and restoration actions. The critical issues listed below are addressed by the development of a water budget:

- **Need for a better assessment of water quantity and flows** in the watershed. An assessment of both existing information and the means of collecting information is necessary to determine what good data exists and where the information and data collection gaps are regarding water quantity and flow. Similarly, there's a need for improved information sharing between private and regulatory entities of proposed or implemented water diversion, flood control, dam, pipeline, private riparian water rights and other water storage projects;

- **Water-exported from any watershed** directly depletes or increases water supplies necessary to sustain an ecosystem and its inhabitants. The Eel River is one example of an inflow to the Russian River watershed that currently supplies a significant portion of the water used in the Russian River watershed. On the other hand, some Russian River

water is exported outside the watershed to communities in the south. These basin transfers may or may not continue into the future, thus contingency plans are necessary;

- **Difficulty reaching consensus** at the watershed level, due to the wide range of water supply needs and interests at the sub-basin levels, hinders the development and inter-agency coordination of watershed-wide water supply strategies;
- **Need for a better understanding of water rights** and SWRCB's permitting and licensing processes to determine whether water is available in the Russian River and its tributaries;
- **Need to address the impact of dam construction projects and operations, water rights, the overdraft of groundwater systems** as well as to assess future water needs and potential value of conservation measures; and
- **Artificially high summer flow in the mainstem and a dearth of summer flow in the tributaries** that expose cold water coho and steelhead to warm water predators in the mainstem while juveniles in the tributaries are trapped in pools that may dry up during summer months.

Potential Actions

The objective of the Water Supply, Quantity & Storage strategy is to identify water sources and storage locations, areas of inadequate or low water supplies, and the impacts on native species within the watershed. The following potential actions were identified by the RRWC to address the critical issues related to Water Supply, Quantity & Storage:

WS1. *Establish water budgets for the Russian River watershed and its sub-basins.*

WS2. *Evaluate reports and studies regarding dam operations and maintenance projects to determine the watershed-wide impacts of agency activities and potential alternatives (e.g., low and pulse flow mechanisms, new pipelines, inflatable dams and infiltration ponds).*

WS3. *Identify and evaluate potential recharge and retention sites for opportunities to store excess flows.*

WS4. Review wastewater uses, policies and best practices that enable the delivery of more usable wastewater for commercial and agricultural uses and habitat restoration.

WS5. *Support and promote consumer and business incentives that promote water conservation.*

Strategy II-B: Water Quality (WQ)

Critical Issues

Water quality can be considered a lagging indicator of riparian stream corridor and watershed health. Improved water quality is often a direct or indirect result of stewardship and the restoration and protection of our natural resources throughout the watershed. Like

many of the other critical watershed issues, water quality varies greatly from sub-basin to sub-basin and even between very specific locations within a sub-basin. Thus, the questions of where to monitor water quality and how to interpret the data and water quality regulations must be understood to address the critical issues below:

- **Sedimentation** created by human activities such as hill slope modifications related to legacy issues, construction projects, road maintenance, timber harvesting, vineyard development and agriculture, etc.;
- **Major sources of run-off throughout the watershed** resulting from intensive land uses, road construction and maintenance practices, dumping and landslides;
- **Potential contamination of surface flows** resulting from a variety of sources including effluent disposal, industrial contamination, underground storage tanks, excessive nutrient run-off, and faulty septic systems;
- **Absence of current and comprehensive water temperature data** and evaluations of related water quality impacts; and
- **Treated wastewater and other seasonal discharges** that may carry pollutants and result in negative impacts to native species in the watershed.

Potential Actions

The purpose of the Water Quality strategy is to improve the quality of water supplies for native species in the watershed. The following potential actions were identified by the RRWC to address the critical issues related to Water Quality:

WQ1. *Explore a wide range of methods and feasibility for treating and reusing wastewater in the watershed.*

WQ2. *Increase citizen and property owner involvement in the long-term monitoring of water quality.*

WQ3. *Identify, map and support efforts at the sub-basin level to reduce impacts including, but not limited to, sedimentation, run-off, dissolved oxygen, and high water temperature.*

WQ4. Investigate the susceptibility of salmonids to wastewater exposure by examining the effects of pharmaceuticals, compounds not completely removed during water treatment, and nutrients on water quality and fish metabolism.

WQ5. Review and evaluate information regarding surface and subsurface water quality (e.g., oil and grease discharge into stormwater run-off).

WQ6. *Collaborate with agency staff and County representatives (e.g., County personnel, citizen, economic environmental and other groups) to identify model erosion control and bank stabilization ordinances, programs and practices that lead to improved water quality.*

WQ7. Monitor and study nutrient contributions and toxic contamination in areas where septic systems are common (AB 885 requires monitoring of septic systems).

Strategy Area III: Connections Between Human Activity and Habitat

Strategy III-A: Land Use, Development and Management (LU)

Critical Issues

Fish barriers, undesired erosion and sedimentation are major consequences of land use, development and current management practices in the watershed. Immediate concern exists due to the listing of native salmonid species and the rate at which land areas in the watershed are converted to intensive uses and developments. Fish-friendly ordinances and construction specifications to control erosion and sedimentation and minimize fish barriers present an opportunity to balance local economic needs with the sustainability requirements of an ecosystem. Specifically, the critical watershed issues identified as obstacles to fish passage and life cycles are:

- **Logging and forestry practices** in the watershed that cause regional landscape changes and increased soil erosion and run-off;
- **Poorly designed roads and culverts**, particularly related to slope characteristics, size, and construction materials, causing increased soil erosion and sedimentation in the river and its tributaries;
- **Stormwater discharge due to past and current development** may be occurring without a comprehensive assessment of the potential impacts to the watershed;
- **Inadequate local ordinances** and planning processes that fail to address the total impacts of building and construction (e.g., roads, hillside developments, etc.) practices such as increased soil erosion and sedimentation in the watershed; and
- **Undeveloped public access** that has resulted in trampled vegetation and disruptions to wildlife along stream corridors as well as trash and untreated waste in the river by day users and illegal campers (e.g., the area between Hopland and Cloverdale).

Potential Actions

The goal of this strategy is to improve existing policies and policy development and enhance public understanding of ordinances and regulations that would, thereby, contribute to greater stream protection. The following potential actions were identified by the RRWC to link Land Use, Development and Management practices with the condition and functioning of the watershed:

LU1. *Support and encourage fish-friendly programs and maintenance plans to ensure that roads and culverts do not contribute to significant soil erosion and sedimentation in the watershed nor restrict fish and wildlife passage.*

LU2. *Improve forest management practices to protect stream conditions and promote soil retention.*

LU3. *Review and recommend improvements to city and County building requirements including sediment and erosion controls.*

LU4. *Establish watershed priorities and promote policy recommendations to protect sensitive land areas.*

LU5. Promote policies that create incentives for low impact developments and design.

LU6. *Monitor and encourage the implementation of land use and development programs to address stormwater discharges.*

LU7. Develop a campaign and clear guidelines to "balance habitat protection and land development."

Strategy Area III-B: Regulatory Accountability and Action (RA)

Critical Issues

Discussions regarding regulatory accountability and action throughout the POA development process have focused on the enforcement of existing regulations and interagency coordination. One role of the RRWC is to raise awareness and provide public education about the ecological benefits or consequences of regulations, regulatory processes in general, fines, and permits. For example, the RRWC could launch an education campaign to promote state and federal policies that would help coordinate and connect agency efforts to local issues. The issues identified for this strategy, Regulatory Accountability and Action, are:

- **Provide coordinated decision-making** that ensures "all" of the watershed is addressed by federal, state and local agencies. This includes agency coordination when overlapping boundaries or responsibilities exists;
- **Lack of awareness and adherence** to land use policies, ordinances and permitting processes; and
- **Need for agency incentives** that would encourage alternative practices or projects aimed toward achieving optimal benefits for native species.

Potential Actions

The goal of the Regulatory Accountability and Action strategy is to ensure agencies fulfill their responsibilities for activities, projects, and programs implemented within their jurisdiction in the watershed. The following potential actions were identified by the RRWC to address the critical issues related to Regulatory Accountability and Action:

RA1. *Encourage learning opportunities such as informational workshops involving agencies, landowners, community and steward groups and sub-watershed councils.*

RA2. *Coordinate and develop protocols for identifying standard habitat and wetland protections to be used during land use planning and development decisions. The same protocols may apply across counties, municipalities, and special districts.*

RA3. *Adapt and/or develop informational and outreach materials about existing regulations, permitting processes, land use development decisions, and appropriate contacts at all levels of government for distribution to agencies and the public.*

RA4. Advocate for agency sharing of case studies and models based on their extensive resources and contacts.

RA5. Develop a project review protocol to ensure all agencies coordinate their input into project planning processes prior to project approval and/or implementation.

Strategy III-C: Stewardship Activities (SA)

Critical Issues

Approximately 95% of the land in the Russian River watershed is private property. Property owner input and collaboration are recognized as key factors in the successful implementation and maintenance of restoration activities, protection measures and recovery projects across all of the *POA* strategy areas. In particular, increased property owner education and participation may be necessary for the successful implementation of actions related to stewardship activities. This strategy involves grassroots and sub-watershed approaches to address the following critical issues.

- **The need to share ideas** about land use, protection and restoration methods among resource managers, sub-watershed groups and private property owners;
- **Lack of available resources** to provide training opportunities and tools for stewardship activities; and
- **Need for additional on-site pollution and sediment prevention measures** for implementation directly at the source by private property owners.

Potential Actions

The strategy regarding Stewardship Activities seeks to increase outreach and foster collaborations to implement restoration and protection actions and improve habitat functioning and species' life cycle processes in the river, its tributaries, and the watershed. The following potential actions were identified by the RRWC to address the critical issues related to Stewardship Activities.

SA1. *Provide stewardship training opportunities where needed at the sub-watershed level.*

SA2. *Foster partnerships between federal and state agencies, the RRWC and local community organizations to optimize available resources.*

SA3. Consider watershed conservancies and land trusts to increase the amount of protected land in the Russian River watershed.

SA4. Develop equipment and tool sharing/loaning program that enables community groups and individuals to monitor resource quality and quantities.

Strategy III-D: Public Education and Outreach (PE)

Critical Issues

The issues related to public education and outreach are directly related to an overall lack of visibility and understanding about the interconnections existing within an ecosystem, specifically the linkages between watershed resources, its inhabitants and the ways in which land is used and managed. The objective of education and outreach actions is to increase understanding about why conservation and protection approaches are useful tools for watershed management with the overall goal of creating behavioral changes. The specific critical issues to be addressed through enhanced public education and outreach are:

- **The need to educate elected officials and decision-makers** at the federal, state, County and city level about sub-watershed issues, stewardship activities and RRWC efforts; and
- **Piecemeal approaches** that may not highlight the interconnections between humans and habitat nor educate the public about the necessary balance between ecosystem and community needs.

Potential Actions

The objective of the Public Education and Outreach strategy is to increase awareness among citizens, their elected officials and policy-makers through a variety of educational forums and dissemination of materials related to the watershed. The following potential actions were identified by the RRWC to address the above critical issues:

PE1. *Present the Phase II Plan of Action (POA) as a tool to educate elected officials and decision-makers throughout all levels of government about the potential actions required to address the critical issues existing in the Russian River watershed.*

PE2. *Develop a citizen recognition program that awards the "Top 10" private citizens, property owners and local businesses for exemplary behavior and practices that positively impact the health of the watershed.*

PE3. *Promote awareness of watersheds, basins, and aquifers and their relationship to water flow, supply and quality.*

PE4. Increase watershed related press coverage in local, regional and national newspapers and explore opportunities to use the web or create a watershed program on a television network.

PE5. Identify partnerships and community relationships that leverage resources, funding, and media opportunities about restoration activities such as the Adopt-a-Watershed program.

PE6. *Provide a watershed information center that serves as a central dispatch location providing press kits and public information materials for resource and community organizations to increase overall understanding and share information.*

PE7. Market a "save the river" message that encourages community members to "think outside the box" for the protection of watershed resources and support elected officials and entities that provide incentives for the implementation of "outside the box" strategies and better management practices.

PE8. Implement a model K-12 watershed curriculum in local schools that has been tailored to the conditions and issues within the Russian River watershed.

PE9. Educate the public about environmental health and safety issues through RRIIS and consider adding to current curriculum development efforts.

SUPPORTING STRATEGY AREAS

Supporting Strategy Area A: Data Collection, Research and Evaluation (DC)

Critical Issues

Recent planning processes and projects are underway that may provide interactive and comprehensive information that assists salmonid recovery and stewardship efforts. Discussions regarding critical issues within the watershed should consider the current activities, programs and projects designed to improve data collection, research and evaluation efforts throughout the watershed. A description of several current data efforts is included in Chapter 2 of this document. Nonetheless, the continued availability of good data is essential to the development of appropriate restoration and recovery efforts. Thus, the following critical issues must be addressed:

- **Inappropriate data** resulting from poorly defined or biased questions, undocumented or unclear data collection methodologies, or inadequately trained data collectors;
- **Good data is not always fully realized** due partly to coordination issues between watershed and resource management entities resulting in limited data synthesis, increased project costs and untimely action;
- **Need for more rigorous or complete data analysis** that leads to better watershed and resource management decision-making;
- **Need to expand data sharing and provide better translations of findings** to avoid unnecessary and costly duplication of efforts and enhance the use and accessibility of watershed information by the public; and

- **Information gaps** due to the difficulty in obtaining or interpreting data about past modifications, external variables and broader environmental factors (e.g., global warming).

Potential Actions

The goal of this strategy is to enhance the use, application and sharing of data, research findings and evaluation results. The following potential actions were identified by the RRWC to address the above critical issues:

DC1. Assess the scope of data currently available. Develop an informational warehouse or database of existing data and identify methods used to collect specific data and the question answered by the collection of specific data (see descriptions of RRIIS in Chapters 2 and 5).

DC2. Change data collection/analysis practices to include assessments of cumulative effects and future obligations (e.g., number of building permits versus population growth figures or extent and rate of top soil loss or enhancement).

DC3. Create a science review and advisory panel that includes local watershed and resource management experts and agency staff to address existing data gaps, assist in developing and evaluating project proposals, interpret current or new policies, and evaluate land application impacts such as pesticide use in sensitive aquatic areas (e.g., the use of Rodeo versus Roundup).

DC4. Evaluate key species indicators developed by NMFS and habitat inventory data compiled by DFG to identify appropriate locations for the implementation of recovery actions.

DC5. Install remote water quality monitoring stations at road crossings to measure water quality as it flows downstream and compile data about changes between specific points of the stream or its tributaries. Implement continuous water quantity monitoring to ensure data collected represents a range of environmental conditions (e.g., wet versus dry years)

DC6. Ensure appropriate training is made available for data users and collectors. Provide training sessions to potential users of RRIIS to ensure RRWC members, resource managers and the public are able to access and add information.

DC7. Work with Section 7 lead entities to integrate projects in upland and stream corridor areas using completed stream assessments that meet NMFS Biological Opinion criterion.

DC8. Implement a system for modeling and monitoring existing refugia to identify appropriate locations for protection.

DC9. Review current stream classifications that consider more than hydrologic attributes, for example, species genetic, behavioral, and population attributes.

DC10. Develop standardized criteria to evaluate the impacts of specific restoration efforts. Review evaluation criteria developed and used by the USACE to determine potential application for activities, projects and programs implemented by a variety of agencies, resource management organizations and steward groups.

Supporting Strategy Area B: Organizational Development and Resources

Supporting Strategy B-1: Organizational Structure (OS)

Critical Issues

Several discussions among RRWC members and other key stakeholders in the watershed have been conducted regarding the desired role of the RRWC. Organizational structure modifications must consider the following roles of the RRWC and the organization's capacity to fulfill these desired roles:

- Serve as a public "forum" to present and discuss ideas, findings, plans and studies;
- Help implement projects through strong coordination with agencies and other partners;
- Leverage political support and funding for restoration activities;
- Educate community members about watershed problems and solutions;
- Help create and advocate for public policy that supports the RRWC mission; and
- Serve as a project, information and funding "clearinghouse" to ensure coordination and accountability among agencies and other partners.

RRWC members have identified structural obstacles that hinder the organization's ability to fulfill its role and, consequently, community-driven watershed restoration and salmonid recovery within the watershed. Specifically, the following issues have been identified:

- **Increasing Steering Committee responsibility** by moving issues and actions forward while maintaining connections with all members of RRWC;
- **Establishing efficient policies and procedures** for decision-making and approval processes and general operating rules;
- **Maintaining participation** among entities and organizations in the project development and approval process to ensure maximum representation among all stakeholders;

- **Obtaining new member participation** and additional stakeholder involvement to increase diversity, coordination and collaboration within the RRWC;
- **Maximizing agency involvement** through enhanced communication and collaborative strategies that consider existing legal parameters regarding representatives' participation;
- **Developing a long-term funding strategy and fiscal mechanism** for tracking funding opportunities and obtaining grants, managing existing funds and monitoring expenditures;
- **Maintaining member participation and caucus representation at the workgroup level** due to limited volunteer resources (e.g., time, energy and financial flexibility) among current RRWC members;
- **Developing diversified job descriptions** and a process to establish additional positions such as an Executive Director to assume greater operations management and outreach;
- **Maintaining common goals and vision** among current RRWC members due to interest-driven organizational structure (i.e., caucuses); and
- **Linking structure to other restoration efforts** such as NMFS Recovery planning, DFG Restoration Plan, Section 7 Consultation, FishNet 4C, etc.

Potential Actions

The objective of this strategy, Organizational Structure, is to create an effective organization that can sustain efforts over time to recover and restore the watershed. The following potential actions were identified by the RRWC to address the critical issues related to Organizational Structure:

OS1. Revise the Rules of Operations to remove requirements for a specific number of workgroups. Establish standing committees to address organizational issues related to the bylaws, funding, and membership as these issues arise. Form workgroups as needed to minimize the number of workgroups and ensure maximum participation in each workgroup. Establish a process for the initiation of workgroups to ensure workgroups are issue driven and formed to develop specific projects, actions or tasks. Develop a funding strategy for providing the necessary resources to ensure workgroups are provided the opportunity to complete work and fulfill charge.

OS2. Use RRIIS to increase communication and coordination among RRWC members about current or new projects, scheduled events, document or proposal reviews, etc. Enhance the quantity and quality of communication between the coordinator and members in addition to the information provided on the RRWC website and RRIIS to ensure members are informed about current efforts and activities without having to seek out this information.

OS3. Assess current staffing levels in relation to current and future operational and staffing needs. Create a scope of work to identify additional staff positions (e.g. ad hoc project managers, contractors, technical, grant writer, etc.) necessary for RRWC operations.

OS4. Identify project liaisons within the RRWC to participate in agency-driven restoration and planning efforts so the RRWC can participate in review and input processes.

OS5. Increase awareness among agency representatives, resource managers, elected officials, and the public about the role of the RRWC to enhance collaborative efforts and project coordination. Develop additional information and outreach materials about the organization and its mission.

OS6. Review and revise the Rules of Operations to increase operational efficiency and fulfill the organizational mission and goals. Streamline approval processes to maximize community participation during discussions of critical issues and project development/implementation opportunities. Publish and distribute revised operating rules and educate all members in RRWC policies and procedures.

OS7. Develop strategies for recruiting and retaining members.

OS8. Provide facilitation training for Steering Committee members.

OS9. Provide new member orientation to ensure that all members understand organizational history and operating procedures.

OS10. Improve RRWC and Steering Committee meeting agendas to include workgroup status reports and clear procedures for action items.

OS11. Formalize current and new job descriptions to include reporting procedures, roles and responsibilities.

Supporting Strategy B-2: Long-term Funding (LF)

Critical Issues

The RRWC has investigated partnerships with local nonprofits to secure private funding and explore the possibility of obtaining 501(c)3 status. The following issues related to long-term funding have been identified but should be considered in conjunction with potential partnership opportunities or future nonprofit status:

- **Inability to seek alternative funding opportunities** including private business funding and/or bond proposals due to the historical organizational structure of the RRWC; and

- **Lack of an organizational vehicle for channeling funds** to implement potential activities and projects such as conservation easements.

Potential Actions

The identification of various and diversified funding opportunities that would help the RRWC achieve its primary goals for the watershed and sustain the organization's activities over time. The following potential actions were identified by the RRWC to address the above critical issues:

LF1. Create a staff position to track grant opportunities and work with qualified agency/county/special district staff to enhance grant-writing skills and increase application opportunities.

LF2. Establish a working relationship with a local nonprofit to serve as a fiscal agent.

LF3. Establish relationships with counties and states to obtain monies and solidify commitments. Continue to investigate a potential watershed association consisting of county and municipal officials to provide leverage regarding watershed issues at the state and federal level. Use the North Bay Watershed Association as a model watershed association.

LF4. Work with the USACE and Resources Agency to ensure continuous support and a positive relationship.

LF5. Develop a protocol to be proactive regarding grant application processes. Understand who the provider is and the application review process. Describe the project concisely but with sufficient detail due to the number of applications reviewed by funding providers. Convey clearly the benefits that can be provided to the funding entity through a specific project or collaborative effort.

LF6. Encourage and support state/local agencies and special districts to apply for Prop 13, Prop 40 and other potential state funds or bonds to provide for integrated regional water management in coastal and/or inland areas.

5. Action Development & Implementation Tools

5. ACTION DEVELOPMENT AND IMPLEMENTATION TOOLS

The following tools are recommended to support the RRWC's involvement in the development of a community-based watershed management plan. Specifically, these tools enable RRWC members to participate in the further review, study and development of the potential actions included in the *POA*.

ALTERNATIVE RRWC ORGANIZATIONAL STRUCTURE

The current RRWC organizational structure could be modified to reflect the *POA* and improve accountability within the organization. The objective is to ensure that the potential actions included in this document are carried forward for further review, study and refinement and considered during the watershed management plan development process. Currently, the Steering Committee and a smaller subcommittee formed to explore a partnership opportunity with a local foundation are discussing ways to restructure the workgroups and align the RRWC with the *POA*. Steering Committee adjustments are also being discussed to enhance leadership and accountability and improve planning, budgeting and decision-making processes for the RRWC. Any structural modifications or new models adopted by the Steering Committee must be endorsed by the full RRWC.

RUSSIAN RIVER INTERACTIVE INFORMATION SYSTEM

The RRWC initiated the development of the Russian River Interactive Information System (RRIIS) to provide a tool for public education, communication and feedback regarding watershed issues and restoration activities. The RRIIS enables all stakeholders to communicate and coordinate restoration efforts and to participate in project planning processes through online discussions and scheduled events highlighted on the RRIIS calendar. CRP, MIG, and HREC were contracted by USACE to develop an online database that supports mapping, data analysis, restoration planning, and community outreach and education throughout the watershed.

The website will be highly interactive to enhance coordination and collaboration between resource managers and stakeholders. The following interactive tools allow users to share and obtain the most current information about the watershed:

- Interactive GIS queries of rich multi-layered data with several skill levels;
- "Expert system" search queries of multimedia database;
- Customizable watershed portal page;
- "Create your own" watershed tributary or restoration site; and
- Downloadable GIS data.

Specifically, the RRIIS will offer users the following communication tools:

- Archived Discussion forum;

- Searchable agendas, minutes, reports, etc.;
- Shared calendar;
- Shared file system;
- Hot topics; and
- Expert, "best practice," bibliographic, funding and other watershed portal links.

ACTIVITY, PROJECT & PROGRAM PROFILE

This form allows for the collection of specific and consistent information about current activities, projects and programs intended to restore and enhance the watershed's resources (see the following page). Data collected can be entered into the RRIIS to provide a clearinghouse of information about current efforts in the watershed and a source for model projects, lessons learned, and potential collaboration opportunities.

POA STRATEGY MAPS

Using the Activity, Project Program Profile tool, specific restoration and management activities, projects and programs can be mapped to provide a visual picture of current efforts throughout the watershed, gaps in resource protection, and duplicative or conflicting practices. The *POA* Strategy Maps in Appendix III were used throughout the development of the *POA* to illustrate current efforts within the watershed during group discussions of the following strategy areas:

- Fluvial Geomorphology and Habitat Restoration–Protection
- Water Conditions and Characteristics
- Connections Between Human Activity and Habitat

RUSSIAN RIVER WATERSHED COUNCIL
ACTIVITY, PROJECT AND PROGRAM PROFILE

Contact Information

Please provide the name and contact information for the person who *completed* this profile:

Name: _____ **Date:** _____

Organization/Agency: _____

Mailing Address: _____

Phone/Fax: _____ **Email:** _____

Activity/Project/Program Information

1. **What is the name of the activity/project/program?**

   1a. Is this a collaborative activity/project/program? Yes _____ No _____

   1b. Please list the collaborating entities:

   ▪
   ▪
   ▪

2. **Please indicate how your activity/project/program is funded.**

3. **Where in the watershed is your activity/project/program located or what is the target area (please be specific)?**

Activity/Project/Program Description

4. **What are the goals or expected outcomes of your activity/project/program?**

   ▪
   ▪
   ▪

RUSSIAN RIVER WATERSHED COUNCIL
ACTIVITY, PROJECT AND PROGRAM PROFILE (CONTINUED)

5. What issues are being addressed by your activity/project/program?

6. Briefly describe the timeline related to the activity/project/program (please include start and end dates).

7. What is the current status of the activity/project/program?

8. Briefly describe any evaluations conducted, lessons learned or potential actions that may be implemented as a result of your work to date.

Please mail, e-mail, or fax the completed profile to the Russian River Watershed Council at:

Coordinator
Russian River Watershed Council
PO Box 3908
Santa Rosa, CA 95402
steward@rrwc.net
707.526.7865 (phone/fax)

ACTION PLANNING MATRIX

The goal of an action plan is to "make action happen" and fully implement all required tasks in a timely manner. For example, strategic planning processes involve a lead responsibility or "champion" to ensure that steps toward implementing a specific action are executed. Not all actions identified to address a critical issue can achieve immediate results. For this reason, certain actions may be implemented to demonstrate commitments to improving the watershed while others may catalyze future action. A sample action planning matrix is included on the following page. Application of this tool involves appropriate and knowledgeable stakeholders in the identification of the following implementation requirements:

Resource Level

The level of resources required is defined as low, medium or high. These terms mean:

- **Low:** Less than 250 hours of existing staff time (approximately 6 weeks for a full time position) and $5,000 in additional resources.
- **Medium:** Between 250 and 2000 hours of existing staff time (approximately 6 to 50 weeks for a full time position) and $5,000-$30,000 in additional resources.
- **High:** Ongoing or over 2000 hours of existing staff time or new staff need to be hired and over $30,000 in additional resources.

Lead Responsibility

The lead responsibility designates the person or group who will be primarily responsible for implementing the action or strategy.

Partners

Partners, or collaborators, identified are critical to the successful implementation of the action due to expertise or existing resources.

Timeframe

The timeframes are defined as short-, medium- or long-term. These terms mean:

- **Short:** Can be accomplished in under 1 year
- **Medium:** Can be accomplished in 1 – 3 years
- **Long:** Ongoing or can be accomplished in 3 or more years.

Sample Action Planning Matrix

The matrix below serves as an example of the type of information that could be compiled through future discussions with stakeholders and appropriate resource agencies or managers. This information may help to further review, study and evaluate actions for potential implementation. The information contained in the matrix on this page is sample information only and has not been discussed by the RRWC, other stakeholders, agency representatives or resource managers.

Strategy I-A: Stream Corridor Restoration *Goal: Reestablish the natural stream corridor's physical structure, function and dynamic but self-sustaining behavior by addressing all components of the stream corridor (e.g., riverbed, bank structure, floodplains, and vegetative cover).*	**Resource Level**	**Lead Responsibility**	**Partners**	**Timeframe**
Potential Action SC1: Restore the stream corridor through a variety of stream corridor protection and watershed management methods (e.g., meander corridor setbacks, floodplain and wetland protection, and riparian revegetation). Task(s) include: A. Develop a bibliography of existing materials, case studies and models of restoration activities, projects and programs. B. Review and support recommendations and actions in existing BMP's and fish enhancement plans such as the *Russian River Basin Fisheries Restoration Plan* (DFG). C. Obtain input from private property owners about their issues and barriers to implementing existing BMP's and continue to work directly with private property owners throughout development processes.	High	NRCS	USACE, NMFS, NRCS, SCC, NCRWQCB SCWA, MCIWPC, MCRRFC&WCID, Mendocino County Farm Bureau, Sonoma County Farm Bureau, UCCE, HREC, RCD's, Russian River Property Owners Association, RRWC	Long

ACTION EVALUATION CRITERIA

The purpose for establishing agreed upon action evaluation criteria is to identify priority actions for further refinement during the community-based watershed management planning process and implementation. A two-phase evaluation is recommended to conserve resources while ensuring the necessary information is provided to allow RRWC members to evaluate potential actions.

The "first pass" prioritization of actions included in the *POA* involves evaluation criteria based on the RRWC mission and goals. The objective of the first pass is to identify potential actions that should be the focus of further study and development. It also provides an opportunity to "check-in" with RRWC members and ensure that the development of the potential actions conforms to the RRWC's original intent during *POA* action development discussions.

The "second pass" will be conducted after high priority actions identified during the first pass are further developed and detailed information to guide action implementation is identified in the action planning matrix (i.e., timeframe, required resources, lead responsibility, partners).

Based on discussions among the RRWC Steering Committee and caucuses, specific language was drafted to conduct a first pass evaluation of potential actions for further study and development. The specific criteria for a first pass evaluation would be used in conjunction with the sample evaluation worksheet on page 55. RRWC members will score or assign points to each of the actions using the sample evaluation worksheet which includes rows containing brief descriptions of each action and columns for scoring each action using weighted evaluation criteria.

The second pass evaluation will involve a more comprehensive process that relies on a completed action planning matrix, reviews of additional data, specific prioritization tools (i.e., prioritization flow charts for specific activities) and open discussions among technical experts and key stakeholders.

First Pass Evaluation Criteria

Please determine to what degree a potential action meets the following goals identified in the RRWC mission statement:

- The action ensures salmonid recovery. (SR) – *Weight factor 2*
- The action maintains a healthy and diverse economy. (E) – *Weight factor 2*
- The action creates stewardship opportunities. (SO) – *Weight factor 2*

For each RRWC goal above, use the following scoring system to rate actions included in the Preliminary POA on the evaluation worksheet:

Yes, completely: *3 points*

Somewhat supportive: *2 points*

Maybe: *1 points*

No, not at all: *0 points*

Please indicate your level of agreement for each of the following opportunity statements on the evaluation worksheet:

- It benefits fish (F). – *Weight factor 1*
- It will enhance or maintain riparian habitat (RH). – *Weight factor 1*
- It encourages landowner cooperation (LC). – *Weight factor 1*
- It promotes recreation and additional economic or educational opportunities (R). – *Weight factor 1*
- It expands public access and community participation (PA). – *Weight factor 1*
- It benefits the entire watershed (EW). – *Weight factor 1*

For each specific statement above, use the following scoring system to rate the actions included in the Preliminary POA on the evaluation worksheet:

Yes, directly: *3 points*

Eventually: *2 points*

Maybe: *1 points*

No, not at all: *0 points*

Sample First Pass Evaluation Worksheet

The sample worksheet on the following page serves as one tool to assist future evaluations of the potential actions included in the *POA*. Utilizing agreed upon criteria in conjunction with an Excel worksheet would help to identify potential actions that deserve further study and consideration during the development of the watershed management plan. Once these potential actions are identified and additional information for each is obtained, then a second pass evaluation could be conducted to determine which actions are to be implemented in the watershed and the priority for implementation associated with each action.

FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION–PROTECTION STRATEGIES & ACTIONS	EVALUATION CRITERIA								
	Mission			Opportunity					
	SR	E	SO	F	RH	LC	R	PA	EW
Factor:	2	2	2	1	1	1	1	1	1
I-A Stream Corridor Restoration									
SC1 Restore the stream corridor through a variety of methods									
SC2 Seek an appropriate balance for riparian vegetative cover									
SC3 Work w/ organizations that can hold conservation easements									
SC4 Deternine the feasibility & need for a gravel budget									
SC5 Create toolbox of exotic species removal/replace't methods									
I-B Species & Habitat Recovery									
SH1 Collaborate to control unnatural erosion watershed-wide									
SH2 Identify & recommend practices that manage flow									
SH3 Use available data to map weak links in habitat/migration									
SH4 Analyze impact of river/stream modifications & withdrawals									
SH5 Identify natural resources that provide erosion control									
I-C Uplands Restoration									
UR1 Examine grading & erosion control ordinances									
UR2 Use vegetation management techniques									
UR3 Investigate upland groundwater recharge & infiltration opps.									
UR4 Assess effectiveness of the Sonoma Co. hillside ordinance									
UR5 Establish continuous habitat corridors, where appropriate									
UR6 Promote more stewardship programs (e.g., RCDs)									
UR7 Identify highly erosive soils & fault lines									

Scoring System for Mission Evaluation Criteria

Yes, completely:	3 points
Somewhat supportive:	2 points
Maybe:	1 point
No, not at all:	0 points

Scoring System for Opportunity Evaluation Criteria

Yes, directly:	3 points
Eventually:	2 points
Maybe:	1 point
No, not at all:	0 points

Additional Comments:

Second Pass Evaluation Criteria

The following criteria are examples of the types of questions and information that would need to be compiled to objectively evaluate and prioritize potential actions for future implementation:

- Is the action beneficial because its impact is long-term, immediate or both? *(POA Action Planning Matrix and Prioritizing Flow Chart for Specific Activities could be used as a potential tool to obtain information.)*
- Does the action promote resilience in the ecosystem during periods of environmental stress or is continuous maintenance and ongoing action necessary? (*Prioritizing Flow Chart for Specific Activities could be used as a potential tool to obtain information.)*
- Is the action desirable because funding sources are readily available, funding is possibly available with a carefully worded and structured proposal, or funding has been proposed but not finalized? *(POA Action Planning Matrix could be used as a potential tool to obtain information.)*
- Is implementation feasible because a similar project is being done in other parts of the watershed or other watersheds, or agencies, organizations and volunteers can readily accomplish it? Or, will it take a major redirection of effort by agencies, organizations or volunteers? *(POA Strategy Maps could be used as a potential tool to obtain information.)*
- Will the action be supported by federal, state and/or local entities? *(POA Action Planning Matrix could be used as a potential tool to obtain information.)*
- Does the action involve a system-wide approach that positively impacts the main stem, tributaries, habitats (terrestrial, riparian and instream) and land areas throughout the watershed? *(Prioritizing Flow Chart for Specific Activities could be used as a potential tool to obtain information.)*
- Does the action represent a preventive and proactive measure that would minimize harm to human health and/or the environment, or a reactive and curative approach? (*Prioritizing Flow Chart for Specific Activities could be used as a potential tool to obtain information.)*
- Is scientific information readily available? If not, will research be based on scientific methods that are broadly accepted and available, sparsely tested or only experimental? Will the research investment build on current capacity or, if not, can it be replicated? *(RRIIS and POA Action Planning Matrix could be used as a potential tool to obtain information.)*
- Is the action, as currently described, easily understood or is it complicated and clarification is required? *(RRIIS could be used as a potential tool to obtain information.)*

6. Next Steps

6. NEXT STEPS

Several next steps have been identified to ensure the *POA* remains a "living document" and serves as a valuable community resource toward the development of a watershed management plan. Many of the next steps below use the action development and implementation tools described in Chapter 5 and the additional data provided in the appendices.

- Structure RRWC (e.g., workgroups) to refine and prioritize the critical issues and potential actions in the *POA* with a focus on the development of a watershed management plan.
- Establish RRWC protocols and procedures for ensuring the *POA* remains a "living document."
- Develop a protocol for periodic updates of the *POA*. For example, attach reports to the *POA* (e.g., every two or three years) highlighting next steps and actions accomplished.
- Note where little or no information is available for Related Activities, Projects and Programs in Appendix IV. This step may require additional research and/or suggest areas where the RRWC can provide high value-added work.
- Identify potential actions and related projects that can be implemented immediately or during the watershed management planning process.
- List unresolved policy issues and continue panel sessions and data collection for future discussions of these issues and potential solutions.
- Review, modify and implement the Action Evaluation Criteria provided in Chapter 5 to help further prioritize potential actions, focus the work of the RRWC, and identify in-depth analyses for inclusion into the watershed management planning process.
- For each priority action, use the Action Planning Matrix provided in Chapter 5 and the Detailed Potential Actions in Appendix IV to further refine resource levels, lead responsibilities, partners, and timeframe for implementation. This step entails direct collaboration with resource agencies.
- Review and monitor the Identified Data and Technical Study Needs in Appendix II to ensure the information needs of the *POA* and watershed management plan are met.
- Actively use RRIIS to promote collaboration, information sharing and high quality research and project development.
- Develop a "Citizens Guide to the *POA*" to help the RRWC fulfill its outreach, education, and funding objectives.
- Simultaneous to the above tasks, use the *POA* as leverage for obtaining grants and other funding that can be used for implementation and to help sustain the ongoing work of the RRWC.

Appendices

THE REGULATORY ENVIRONMENT

The following pages contain brief summaries of the federal, state and local watershed management and resource policies that affect restoration and resource management in the Russian River watershed. This information is provided to ensure that all future actions are carried out in compliance with the appropriate regulatory authorities. Beginning on the following page, applicable regulatory information is organized in tables for each of the primary strategy areas that guided the *POA* development process. Specific policies that overlap between the primary strategy areas are repeated for each and policies that are implemented by more than one public agency appear multiple times within the table.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION – PROTECTION	
Environmental Protection Agency (EPA)	▪ The **Clean Water Act (CWA)** mandates that projects impacting water quality, including activities related to the 10-year floodplain and beneficial uses within the "river system" receive certification under Section 401 and Section 404. The EPA delegates administrative responsibility for Section 404 (i.e., wetlands) and Section 403 of the CWA to regional agencies, such as the North Coast Regional Water Quality Control Board (NCRWQCB) - As part of the Clean Water Act (Section 303), agencies must determine a Total Maximum Daily Load (TMDL), which is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated and to account for seasonal variation in water quality. ▪ All federal construction/maintenance projects or construction/maintenance projects with a federal nexus that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**.
Federal Energy Regulatory Commission (FERC)	▪ The Commission's legal authority is derived from the Federal Power Act of 1935, the **Natural Gas Act (NGA)** of 1938, the **Natural Gas Policy Act (NGPA)** of 1978, the **Public Utility Regulatory Policies Act** of 1978, and the **Energy Policy Act** of 1992. Consequently, FERC regulates the transmission and sales of natural gas, oil and electricity; licenses and inspects private, municipal and state hydroelectric projects; and, oversees environmental matters related to natural gas, oil, electricity and hydroelectric projects.
United States Army Corps of Engineers (USACE)	▪ As part of the **Clean Water Act (CWA)**, the USACE has authority over dredging and filling in the "waters of the United States," including wetlands. Projects that fall under the jurisdiction of the USACE must receive permits under Section 404 of this Act. ▪ All federal construction or maintenance projects that affect the natural environment are required to comply with the **National Environmental Policy Act (NEPA)** Review. Projects focusing on navigation, flood protection and ecosystem restoration are generally administered by USACE. ▪ As part of the **Rivers and Harbors Act (RHA)**, the USACE has authority over any work within a tidal or navigable waterway, including tidal wetland. Work may include activities such as, dredging, filling or the installation of structures. Any work in these waters must be permitted by the USACE, under Section 10 of RHA.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION – PROTECTION (CONT.)	
Fish & Wildlife Service (USFWS) **National Marine Fisheries Service (NMFS)**	▪ The Fish and Wildlife Service, within the Department of the Interior, and the National Marine Fisheries Service, within the Department of Commerce, share responsibility for the administration of the **Endangered Species Act (ESA)**. As part of the ESA, projects that affect federally listed fish, bird, amphibian and plant species or their essential habitats must obtain an 1081 Permit - Incidental Take Statement (Section 7 Consultation) and complete a Coordination Act Report (CAR).
California Resources Agency	▪ State and local agencies are required by the **California Environmental Quality Act (CEQA)** to identify the significant environmental impacts of their projects and to avoid or mitigate those impacts, if feasible.
California Department of Fish and Game (DFG)	▪ The **California Endangered Species Act (CESA)** addresses rare, threatened or endangered amphibians, birds, fish, invertebrates, mammals, plants and reptiles. Projects affecting these species or their essential habitats should comply with Section 2080 of the Fish and Game Code prohibiting the take of endangered or threatened species. Additionally, these projects should complete Incidental Take Permit Applications (Fish and Game Code section 702 and 2081d) and should undergo mitigation planning to offset project caused losses of listed species populations and their essential habitat.
Tribal Policies	▪ Projects affecting federally recognized tribal lands must comply with the **Native American Graves Protection and Repatriation Act (NAGPRA)** and the **Archeological Resource Protection Act (ARPA)**. ▪ Projects that affect tribal lands should work with tribal governments to address issues of historic concern such as ceremonial grounds, burial grounds and traditional fishing and/or hunting areas. ▪ Projects on federally recognized tribal lands must meet additional tribal requirements specified in the Clean Air Act (CAA), Clean Water Act (CWA) and the Endangered Species Act (ESA).

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION – PROTECTION (CONT.)	
Sonoma County Permit and Resource Management Department	▪ In addition to the applicable federal and state regulations, projects in Sonoma County should follow relevant policies included in the County General Plan and the County Zoning Regulations. Currently, the majority of watershed restoration and resource management permits are contained in Section 6 of the 1989 General Plan (Resource Conservation Element).
Mendocino County Planning and Building Department	▪ In addition to the applicable federal and state regulations, projects within Mendocino County should follow relevant policies established by the Mendocino County Planning and Building Department. Potential permit categories include coastal, zoning and general plan, construction and building, sewage disposal, water provision, and use, movement or encroachment on county roads.

STRATEGY AREA II: WATER CONDITIONS & CHARACTERISTICS	
Environmental Protection Agency (EPA)	▪ The **Clean Water Act (CWA)** mandates that projects impacting water quality, including activities related to the 10-year floodplain and beneficial uses within the "river system" receive certification under Section 401 and Section 404. The EPA designates administrative responsibility for Section 404 (i.e., wetlands) and Section 403 of the CWA to regional agencies, such as the North Coast Regional Water Quality Control Board (NCRWQCB) - As part of the Clean Water Act (Section 303), agencies must determine a Total Maximum Daily Load (TMDL), which is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated and to account for seasonal variation in water quality. ▪ All federal construction/maintenance projects or construction/maintenance projects with a federal nexus that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**.
Federal Energy Regulatory Commission (FERC)	▪ The Commission's legal authority is derived from the Federal Power Act of 1935, the **Natural Gas Act (NGA)** of 1938, the **Natural Gas Policy Act (NGPA)** of 1978, the **Public Utility Regulatory Policies Act** of 1978, and the **Energy Policy Act** of 1992. Consequently, FERC regulates the transmission and sales of natural gas, oil and electricity; licenses and inspects private, municipal and state hydroelectric projects; and, oversees environmental matters related to natural gas, oil, electricity and hydroelectric projects.
United States Army Corps of Engineers (USACE)	▪ As part of the **Clean Water Act (CWA)**, the USACE has authority over dredging and filling in the "waters of the United States," including wetlands. Projects that fall under the jurisdiction of the USACE must receive permits under Section 404 of this Act. ▪ All federal construction or maintenance projects that affect the natural environment are required to comply with the **National Environmental Policy Act (NEPA)** Review. Projects focusing on navigation, flood protection and ecosystem restoration are generally administered by USACE. ▪ As part of the **Rivers and Harbors Act (RHA)**, the USACE has authority over any work within a tidal or navigable waterway, including tidal wetland. Work may include activities such as, dredging, filling or the installation of structures. Any work in these waters must be permitted by the USACE, under Section 10 of RHA.

STRATEGY AREA II: WATER CONDITIONS & CHARACTERISTICS (CONT.)	
Fish and Wildlife Service (USFWS) **National Marine Fisheries Service (NMFS)**	▪ The Fish and Wildlife Service, within in the Department of the Interior, and the National Marine Fisheries Service, within in the Department of Commerce, share responsibility for the administration of the **Endangered Species Act (ESA)**. As part of the ESA, projects that affect federally listed fish, bird, amphibian and plant species or their essential habitats must obtain an 1081 Permit - Incidental Take Statement (Section 7 Consultation) and complete a Coordination Act Report (CAR).
California Resources Agency	▪ State and local agencies are required by the **California Environmental Quality Act (CEQA)** to identify the significant environmental impacts of their projects and to avoid or mitigate those impacts, if feasible.
California Department of Fish and Game (DFG)	▪ The **California Endangered Species Act (CESA)** addresses rare, threatened or endangered amphibians, birds, fish, invertebrates, mammals, plants and reptiles. Projects affecting these species or their essential habitats should comply with Section 2080 of the Fish and Game Code prohibiting the take of endangered or threatened species. Additionally, these projects should complete Incidental Take Permit Applications (Fish and Game Code section 702 and 2081d) and should undergo mitigation planning to offset project caused losses of listed species populations and their essential habitat.
California Coastal Commission (CCC)	▪ The **California Coastal Act** aims to protect California's 1100-mile coastline for current and future generations. To meet the Coastal Act policies, local governments must submit a Local Coastal Plan (LCP). After an LCP is approved, the Commission's coastal permitting authority is transferred to the local government.
State Water Resources Control Board (SWRCB)	▪ Projects that involve the use or generation of a hazardous substance or pollutant that is discharged into the water must create a Pollution Prevention Plan as outlined in Section 13263.3 of the **Clean Water Enforcement and Pollution Prevention Act of 1999** (SB709) and Amendments (SB 2165). ▪ The **Water Commission Act of 1913** dictates that a Priority-based Water Right Permit (Clean Water Code 1200) be obtained to address water rights.

STRATEGY AREA II: WATER CONDITIONS & CHARACTERISTICS (CONT.)	
North Coast Regional Water Quality Control Board (NCRWQCB)	▪ The North Coast Regional Water Quality Control Board is designated by the EPA as the entity to enforce and protect the water quality standards established by the **Clean Water Act (CWA)**. Projects affecting surface or ground water supplies must receive a certification based on Section 404 of the CWA. Additionally, agencies must determine a Total Maximum Daily Load (TMDL) and obtain a National Pollutant Discharge Elimination System (NPDES) permit from NCRWQCB. ▪ Any project that affects surface or groundwater must meet the waste discharge requirements as specified in the **Porter-Cologne Water Quality Control Act** (California Water Code, Division 7).
Tribal Policies	▪ Projects affecting federally recognized tribal lands must comply with the **Native American Graves Protection and Repatriation Act (NAGPRA)** and the **Archeological Resource Protection Act (ARPA)**. ▪ Projects that affect tribal lands should work with tribal governments to address issues of historic concern such as ceremonial grounds, burial grounds and traditional fishing and/or hunting areas. ▪ Projects on federally recognized tribal lands must meet additional tribal requirements specified in the Clean Air Act (CAA), Clean Water Act (CWA) and the Endangered Species Act (ESA).
Sonoma County Permit and Resource Management Department	▪ In addition to the applicable federal and state regulations, projects in Sonoma County should follow relevant policies included in the County General Plan and the County Zoning Regulations. Currently, the majority of watershed restoration and resource management permits are contained in Section 6 of the 1989 General Plan (Resource Conservation Element).
Mendocino County Planning and Building Department	▪ In addition to the applicable federal and state regulations, projects within Mendocino County should follow relevant policies established by the Mendocino County Planning and Building Department. Potential permit categories include coastal, zoning and general plan, construction and building, sewage disposal, water provision, and use, movement or encroachment on county roads.

STRATEGY AREA III: CONNECTIONS BETWEEN HUMAN ACTIVITY & HABITAT	
Environmental Protection Agency (EPA)	▪ As dictated by the **Clean Air Act (CAA)**, all projects that address air quality must comply with the National Ambient Air Quality Standards. ▪ The **Clean Water Act (CWA)** mandates that projects impacting water quality, including activities related to the 10-year floodplain and beneficial uses within the "river system" receive certification under Section 401 and Section 404. The EPA designates administrative responsibility for Section 404 (i.e., wetlands) and Section 403 of the CWA to regional agencies, such as the North Coast Regional Water Quality Control Board (NCRWQCB) - As part of the Clean Water Act (Section 303), agencies must determine a Total Maximum Daily Load (TMDL), which is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated and to account for seasonal variation in water quality. ▪ All federal construction/maintenance projects or construction/maintenance projects with a federal nexus that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**.
Federal Energy Regulatory Commission (FERC)	▪ The Commission's legal authority is derived from the Federal Power Act of 1935, the **Natural Gas Act (NGA)** of 1938, the **Natural Gas Policy Act (NGPA)** of 1978, the **Public Utility Regulatory Policies Act** of 1978, and the **Energy Policy Act** of 1992. Consequently, FERC regulates the transmission and sales of natural gas, oil and electricity; licenses and inspects private, municipal and state hydroelectric projects; and, oversees environmental matters related to natural gas, oil, electricity and hydroelectric projects.
United States Army Corps of Engineers (USACE)	▪ As part of the **Clean Water Act (CWA)**, the USACE has authority over dredging and filling in the "waters of the United States," including wetlands. Projects that fall under the jurisdiction of the USACE must receive permits under Section 404 of this Act. ▪ All federal construction or maintenance projects that affect the natural environment are required to comply with the **National Environmental Policy Act (NEPA)** Review. Projects focusing on navigation, flood protection and ecosystem restoration are generally administered by USACE. ▪ As part of the **Rivers and Harbors Act (RHA)**, the USACE has authority over any work within a tidal or navigable waterway, including tidal wetland. Work may include activities such as, dredging, filling or the installation of structures. Any work in these waters must be permitted by the USACE, under Section 10 of RHA.

STRATEGY AREA III: CONNECTIONS BETWEEN HUMAN ACTIVITY & HABITAT (CONT.)	
Natural Resources Conservation Service (NRCS)	▪ All projects that potentially affect prime farmland are required to obtain a Farmland Conversion Impact Rating as mandated by the **Farmland Protection Policy Act**.
California Resources Agency	▪ State and local agencies are required by the **California Environmental Quality Act (CEQA)** to identify the significant environmental impacts of their projects and to avoid or mitigate those impacts, if feasible.
California Coastal Commission (CCC)	▪ The **California Coastal Act** aims to protect California's 1100-mile coastline for current and future generations. To meet the Coastal Act policies, local governments must submit a Local Coastal Plan (LCP). After an LCP is approved, the Commission's coastal permitting authority is transferred to the local government.
California Department of Forestry and Fire Protection	▪ To protect and enhance the State's unique forest and wildland resources, projects in forested and wildland areas must comply with the **Forest Practice Act and Rules** (Code II Title 14 CCR Chapters 4, 4.5 and 10) by developing a Timber Harvest Plan. ▪ The **Z'Berg-Nejedly Forest Practice Act** is intended to assure the continuous growing and harvesting of commercial forest tree species and to protect the soil, air, fish and wildlife and water resources. Projects that include timber operations are required by this Act to develop a Timber Harvest Plan prepared by a registered professional forester. ▪ In addition to the above-mentioned acts, projects must meet site-specific fire codes.
State Water Resources Control Board (SWRCB)	▪ Projects that involve the use or generation of a hazardous substance or pollutant that is discharged into the water must create a Pollution Prevention Plan as outlined in Section 13263.3 of the **Clean Water Enforcement and Pollution Prevention Act of 1999** (SB709) and Amendments (SB 2165). ▪ The **Water Commission Act of 1913** dictates that a Priority-based Water Right Permit (Clean Water Code 1200) be obtained to address water rights.

STRATEGY AREA III: CONNECTIONS BETWEEN HUMAN ACTIVITY & HABITAT (CONT.)	
North Coast Regional Water Quality Control Board (NCRWQCB)	▪ The North Coast Regional Water Quality Control Board is designated by the EPA as the entity to enforce and protect the water quality standards established by the **Clean Water Act (CWA)**. Projects affecting surface or ground water supplies must receive a certification based on Section 404 of the CWA. Additionally, agencies must determine a Total Maximum Daily Load (TMDL) and obtain a National Pollutant Discharge Elimination System (NPDES) permit from NCRWQCB. ▪ Any project that affects surface or groundwater must meet the waste discharge requirements as specified in the **Porter-Cologne Water Quality Control Act** (California Water Code, Division 7).
Tribal Policies	▪ Projects affecting federally recognized tribal lands must comply with the **Native American Graves Protection and Repatriation Act (NAGPRA)** and the **Archeological Resource Protection Act (ARPA)**. ▪ Projects that affect tribal lands should work with tribal governments to address issues of historic concern such as ceremonial grounds, burial grounds and traditional fishing and/or hunting areas. ▪ Projects on federally recognized tribal lands must meet additional tribal requirements specified in the Clean Air Act (CAA), Clean Water Act (CWA) and the Endangered Species Act (ESA).
Sonoma County Permit and Resource Management Department	▪ In addition to the applicable federal and state regulations, projects in Sonoma County should follow relevant policies included in the County General Plan and the County Zoning Regulations. Currently, the majority of watershed restoration and resource management permits are contained in Section 6 of the 1989 General Plan (Resource Conservation Element).
Mendocino County Planning and Building Department	▪ In addition to the applicable federal and state regulations, projects within Mendocino County should follow relevant policies established by the Mendocino County Planning and Building Department. Potential permit categories include coastal, zoning and general plan, construction and building, sewage disposal, water provision, and use, movement or encroachment on county roads.

IDENTIFIED DATA & TECHNICAL STUDY NEEDS

This appendix presents information about the types of data and technical studies required to further develop and implement the potential actions included in Chapter 4. Agency representatives and technical experts helped to identify the data and technical study needs below.

Identified Data or Technical Study Need	***Relevant Potential Action***
Ortho-photos of entire basin (database)	All potential actions
Salmon population studies (year-by-year for multiple streams)	All potential actions
Current imagery data (especially Mendocino County)	All potential actions
Current land use data	All LU potential actions
County zoning classifications (GIS layer)	All LU potential actions
Timber growth, potential yield and harvest data	LU2
Sonoma County soils data	LU3
Public access data	LU4
Photo points to track restoration progress (GIS data)	SC1
All known variable and inputs for stream corridor restoration modeling	SC1
Engineering studies of bank stabilization approaches	SC1
Inventory of existing corridor encroachments	SC1
Consolidated multi-agency, multi-group restoration projects data (GIS layer)	SC1
Level of shade canopy calculations	SC2
Channel incision modeling	SC2, SC1, SH2
Valuable natural resources (GIS layer)	SC2, SC3, UR5, LU4, RA2
Inventory of open space, parks and undeveloped land areas	SC2, SC3, UR5, LU4, RA2

Identified Data or Technical Study Need	*Relevant Potential Action*
Vegetation cover data (GIS layers)	SC2, SC5, LU2
Stream flow pattern data	SC2, SH2, SH4, WS1, WS2, WS3, LU6, PE3
Gravel data (e.g., types and size classes, sources, and methods of extraction and transport, and related economic benefits)	SC4
Estuary data	SH1, SH2, WS1
Roads data	SH1, UR3, WS3, LU1, LU2
Road assessment data	SH1, UR3, WS3, LU1, LU2
Natural and human-induced bank erosion data (GIS layer)	SH1, UR3, WS3, WQ5, WQ6, LU1, LU2, LU3, LU6, DC3
Studies of potential retention, recharge and infiltration sites	SH4, UR3, WS2, WS3, LU3
Engineering studies of construction methods for off-channel infiltration and detention ponds	SH4, UR3, WS2, WS3, LU3
Valuable upland habitat data	UR5
Water quality studies (including temperature)	WQ1, WQ2, WQ3, WQ6
Additional sub-basin assessment data	WQ3
Water availability data	WS1
Water rights data	WS1, PE3
Known aquifers (GIS layer)	WS1, PE3
Changes in subsurface flows studies	WS1, SH4, PE3
Engineering studies about linkages between groundwater and subterranean and surface flows	WS1, SH4, PE3

POA STRATEGY AREA MAPS

Throughout the *POA* planning process, information about current activities, projects and programs in the watershed was collected and mapped for each of the strategy areas that guided the development of potential actions. The maps on the following pages illustrate some of the efforts undertaken by resource agencies and managers, environmental and stewardship groups, sub-watershed councils, Mendocino and Sonoma Counties, cities, and special districts in the watershed during 2002.

Information about the activity, project or program, including name, participating entities or organizations and general locations, was obtained using Current Activity, Project and Program Profile forms (see Chapter 5). The forms were distributed at meetings of the Steering Committee, caucuses and Agency Partners only and, therefore, the maps in this appendix do not represent a complete inventory of activities, projects and programs existing in the watershed.

Russian River Watershed Council

Fluvial Geomorphology & Habitat Restoration–Protection

Activities, Projects & Programs (Active in 2002)

Watershed-wide Activities, Projects and Programs

Related to Fluvial Geomorphology and Habitat Restoration–Protection

Community-based Restoration Projects
(National Marine Fisheries Service)

Environmental Quality Incentives Program, *EQIP* - for Beneficial Management Practices on Agricultural Lands
(Natural Resources Conservation Service, USDA Farm Service Agency and county committees, local RCDs)

Fish Friendly Farming Program
(Laurel Marcus and Associates, Sotoyome RCD)

FishNet 4C - Fishery Network of the Central California Coastal Counties
(Counties of Mendocino, Sonoma, Marin, San Mateo, Santa Cruz and Monterey, Department of Fish and Game, California Resources Agency, National Marine Fisheries Service)

Giant Reed Assessment, Mapping, Research and Removal
(Sonoma County Water Agency, Circuit Rider Productions, Inc.)

Grapegrower Erosion Control Workshops
(Sotoyome RCD, Sonoma County Grape Growers Association, Mendocino County RCD, Natural Resources Conservation Service Mendocino Winegrowers Alliance)

Habitat Conservation Program
(National Marine Fisheries Service)

North Bay Klamath Resource Information System, *KRIS*
(Kier Associates, California Resources Agency, Institute for Fisheries Resources)

North Coast Watershed Assessment Program, *NCWAP*
(Sonoma County Water Agency, North Coast Regional Water Quality Control Board)

Recovery Planning Process for West Coast Salmon
(National Marine Fisheries Service)

Riparian Habitat Mapping - mainstem and selected adjacent land areas
(Circuit Rider Productions, Inc., California Coastal Conservancy, California Department of Water Resources)

Russian River Basin Planning and Maping
(Department of Fish and Game, Hopland Research and Extension Center)

Russian River Coho Salmon Recovery Program
(Russian River Coho Salmon Recovery Workgroup)

Russian River Endangered Species Act Section 7 Consultation
(Sonoma County Water Agency, Army Corps of Engineers, National Marine Fisheries Service, Mendocino County Russian River Flood Control and Water Conservation Improvement District)

Russian River Interactive Information System, *RRIIS*
(RRWC Watershed Information Assessment and Monitoring Workgroup, Hopland Research and Extension Center, Circuit Rider Productions, Inc., MIG, Inc.)

Russian River Property Owners Association habitat work
(Russian River Property Owners Association)

Russian River Restoration and Watershed Planning Program
(Department of Fish and Game, Hopland Research and Extension Center)

Russian River Watershed Geographic Information System
(National Marine Fisheries Service, Circuit Rider Productions, Inc.)

Russian RiverKeeper Project
(Friends of the Russian River)

Salmon and Habitat Inventory and Restoration
(RRWC, Department of Fish and Game)

Stream Assessments
(Department of Fish and Game)

USDA Soil and Water Conservation Programs - rural lands
(Natural Resources Conservation Service, local RCDs, private landowners)

Yearly Instream Clean Up - Redwood Valley to Cloverdale
(Russian River Unlimited)

For more information, contact the Russian River Watershed Council: PO Box 3908 Santa Rosa, CA 95402, or visit the website: www.rrwc.net

Map Data Sources:
The Californian Spatial Information Library and California Department of Forestry and Fire Protection (CALWATER 2.2)

Activies, Projects and Programs Sources:
Current Activity, Program and Project Profile forms were distributed at meetings of the RRWC Steering Committee, caucuses and Agency Partners. Specific information provided on the forms has been highlighted on this map.

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Russian River Watershed Council

Water Conditions & Characteristics

Activities, Projects & Programs (Active in 2002)

Watershed-wide Activities, Projects and Programs

Related to Water Conditions and Characteristics

Environmental Quality Incentives Program, *EQIP* - for Beneficial Management Practices on Agricultural Lands
(USDA Natural Resources Conservation Service, USDA Farm Service Agency and county committees, local RCDs)

North Bay Klamath Resource Information System, *KRIS*
(Kier Associates, California Resources Agency, Institute for Fisheries Resources)

North Coast Watershed Assessment Program, *NCWAP*
(Sonoma County Water Agency, North Coast Regional Water Quality Control Board)

Riparian Habitat Mapping - mainstem and selected adjacent land areas
(Circuit Rider Productions, Inc., California Coastal Conservancy, California Department of Water Resources)

Russian River Basin Planning and Maping
(Department of Fish and Game, Hopland Research and Extension Center)

Russian River Endangered Species Act Section 7 Consultation
(Sonoma County Water Agency, Army Corps of Engineers, National Marine Fisheries Service, Mendocino County Russian River Flood Control and Water Conservation Improvement District)

Russian River Watershed Geographic Information System
(National Marine Fisheries Service, Circuit Rider Productions, Inc.)

Russian River Interactive Information System, *RRIIS*
(RRWC Watershed Information Assessment and Monitoring Workgroup, Hopland Research and Extension Center, Circuit Rider Productions, Inc., MIG, Inc.)

Russian RiverKeeper Project
(Friends of the Russian River)

Total Maximum Daily Load, *TMDL*
(North Coast Regional Water Quality Control Board)

USDA Soil and Water Conservation Programs - rural lands
(USDA Natural Resources Conservation Service, local RCDs, private landowners)

Water Diversion Projects Compilation on CD
(Friends of the Russian River, Pacific Watershed Associates)

Water Storage Potential Identification and Evaluation
(Friends of the Eel River, Army Corps of Engineers, local governments/agencies, land owners)

Yearly Instream Clean Up - Redwood Valley to Cloverdale
(Russian River Unlimited)

For more information, contact the Russian River Watershed Council: PO Box 3908 Santa Rosa, CA 95402, or visit the website: www.rrwc.net

Map Data Sources:
The Californian Spatial Information Library and California Department of Forestry and Fire Protection (CALWATER 2.2)

Activies, Projects and Programs Sources:
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Potter Valley Project Amendment Review
(Federal Energy Regulatory Commission, Pacific Gas and Electric, National Marine Fisheries Service, Department of Fish and Game)

Coyote Valley Dam
(Army Corps of Engineers, Mendocino County Russian River Flood Control & Water Conservation Improvement District, Sonoma County Water Agency)

Mendocino County General Plan Update
(Mendocino County Board of Supervisors, Planning and Building Services)

MENDOCINO COUNTY

Mendocino County Grading Ordinance Review
(Mendocino Board of Supervisors, Planning and Building Services)

Ukiah Creeks Trash Removal Project - Mendocino Fisheries Program
(City of Ukiah Center for Education and Manpower, local schools)

LAKE COUNTY

Road Assessments
(Mendocino County RCD)

Redwood Valley Outdoor Education Project
(Mendocino County RCD)

MENDOCINO COUNTY RCD

Water Supply and Transmission System Project
(Sonoma County Water Agency, cities, local water districts)

Road Assessments
(Sotoyome RCD)

Sonoma County General Plan Update
(Sonoma County Board of Supervisors, Permit and Resource Management Department)

Warm Springs Dam
(Army Corps of Engineers, Sonoma County Water Agency)

Flood Control
(Sonoma County Water Agency)

SONOMA COUNTY

Sanitation Districts and Zones
(Sonoma County Water Agency, local water districts and zones)

Sonoma County Grading Ordinance Development and Implementation
(Sonoma County Board of Supervisors, Permit and Resource Management Department)

SOTOYOME RCD

Russian River Creek Stewardship Program - Parsons, McNab, Maacama, Upper Mark West, Matanzas, Hobson, Fife, Hulbert Creeks
(Sotoyome RCD, Laurel Marcus & Associates, Dennis Jackson, Russian River tributary landowners and residents, Circuit Rider Productions, various Russian River Agencies and other RCDs)

House and Garden Audit
(Laurel Marcus and Associates, Sotoyome RCD)

GOLD RIDGE RCD

Incremental Recycled Water Program
(Santa Rosa Subregional Reclamation System)

National Pollutant Discharge Eliminate System for Stormwater Discharges
(City of Santa Rosa Public Works, Sonoma County, Sonoma County Water Agency, North County Regional Water Quality Control Board)

Dutch Bill Creek Restoration Program
(Dutch Bill Creek Watershed Group, Gold Ridge RCD, Department of Fish and Game, National Marine Fisheries Service, Department of Conservation, Sonoma County Water Agency)

Atascadero/Green Valley Creek Restoration Program
(Atascadero/Green Valley Creek Watershed Group, Gold Ridge RCD, Department of Fish and Game, Sonoma County Water Agency)

Storm Run-off Project at Oak Grove School
(Atascadero Creek and Green Valley Creek Watershed Council, City of Santa Rosa, Oak Grove School in Graton)

Wastewater Forest and Summer Recharge of Green Valley Creek
(Sonoma County Water Agency - Graton County Sanitation District)

Redwood Forest Transpiration Enhanced Subsurface Effluent Disposal Project
(Sonoma State University)

Laguna de Santa Rosa Feasibility Study - a study of sedimentation impacts on flooding and habitat
(Army Corps of Engineers)

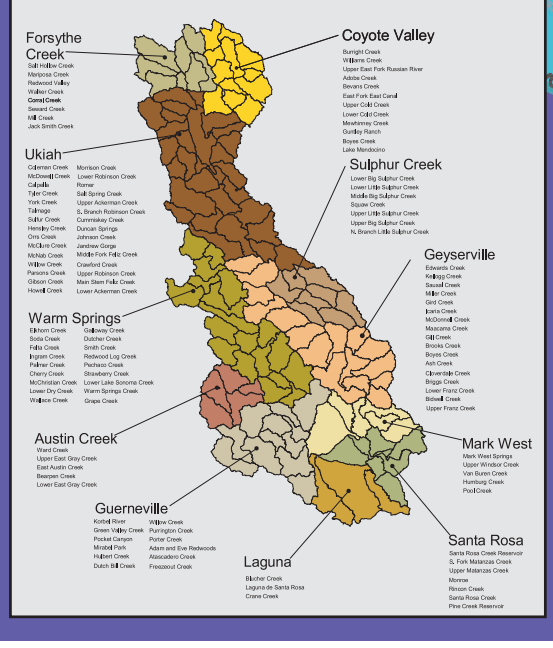
Lake Mendocino
Ukiah
Lake Sonoma
Cloverdale
Geyserville
Healdsburg
Windsor
Santa Rosa
Sebastopol
Rohnert Park
Cotati

LEGEND

- Road
- Major Road
- County Background
- Hydrologic Subareas
- Rivers/Streams
- Lakes/Waterbodies
- Resource Conservation District Boundaries

Elevation
- 0-1500 Feet
- 1501-2500 Feet
- 2501-3500 Feet
- 3501-5000 Feet
- 5001-7000 Feet

Hydrologic Subareas and Planning Watersheds



Russian River Watershed Council

Connections Between Human Activity & Habitat

Activities, Projects & Programs (Active in 2002)

Watershed-wide Activities, Projects and Programs

Related to Connections Between Human Activity and Habitat

Community-based Restoration Projects
(National Marine Fisheries Service)

Environmental Quality Incentives Program, *EQIP* - for Beneficial Management Practices on Agricultural Lands
(USDA Natural Resources Conservation Service, USDA Farm Service Agency and county committees, local RCDs)

Fish Friendly Farming Program
(Laurel Marcus and Associates, Sotoyome RCD)

FishNet 4C - Fishery Network of the Central California Coastal Counties
(Counties of Mendocino, Sonoma, Marin, San Mateo, Santa Cruz and Monterey, Department of Fish and Game, California Resources Agency, National Marine Fisheries Service)

Forest Assistance
(Department of Forestry and Fire Protection, USDA Forest Service, USDA Natural Resources Conservation Service)

Giant Reed Assessment, Mapping, Research and Removal
(Sonoma County Water Agency, Circuit Rider Productions, Inc.)

Grapegrower Erosion Control Workshops
(Sotoyome RCD, Sonoma County Grape Growers Association, Mendocino County RCD, Natural Resources Conservation Service, Mendocino Winegrowers Alliance)

North Bay Klamath Resource Information System, *KRIS*
(Kier Associates, California Resources Agency, Institute for Fisheries Resources)

Resources Directory
(RRWC, Sotoyome RCD)

Riparian Habitat Mapping - mainstem and selected adjacent land areas
(Circuit Rider Productions, Inc., California Coastal Conservancy, California Department of Water Resources)

Russian River Basin Planning and Maping
(Department of Fish and Game, Hopland Research and Extension Center)

Russian River Endangered Species Act Section 7 Consultation
(Sonoma County Water Agency, Army Corps of Engineers, National Marine Fisheries Service, Mendocino County Russian River Flood Control and Water Conservation Improvement District)

Russian River Watershed Geographic Information System
(National Marine Fisheries Service, Circuit Rider Productions, Inc.)

Russian River Interactive Information System, *RRIIS*
(RRWC Watershed Information Assessment and Monitoring Workgroup, Hopland Research and Extension Center, Circuit Rider Productions, Inc., MIG, Inc.)

Russian River Property Owners Association habitat work
(Russian River Property Owners Association)

Russian River Restoration and Watershed Planning Program
(Department of Fish and Game)

Russian RiverKeeper Project
(Friends of the Russian River)

Soil and Water Technical Assistance
(USDA Natural Resources Conservation Service, local RCDs)

USDA Soil and Water Conservation Programs
(USDA Natural Resources Conservation Service, local RCDs, private landowners)

Yearly Instream Clean Up - Redwood Valley to Cloverdale
(Russian River Unlimited)

For more information, contact the Russian River Watershed Council: PO Box 3908 Santa Rosa, CA 95402, or visit the website: www.rrwc.net

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DETAILED POTENTIAL ACTIONS (IDEAS AND RESOURCES)

This appendix is a "work in progress" and will be updated based on subsequent reviews and future editing of the *POA*. The objective of this appendix is to provide an organizing structure for obtaining the information necessary to further develop and prioritize the potential actions identified in Chapter 4 of this living document. The ideas and resources contained in this appendix were obtained through discussions with agency representatives and each of the RRWC caucuses.

During a preliminary prioritization exercise conducted at the September 14, 2002 RRWC meeting, RRWC members were asked to identify a subset of the Chapter 4 potential actions for the consultant team to provide preliminary implementation details. These potential actions were reviewed and discussed by agency representatives. As a result, technical input regarding possible tasks, potential partners, related activities, projects and programs, and relevant references for each potential action was obtained. In the course of obtaining this information, detail was presented for other potential actions besides those prioritized by the RRWC. This appendix also includes the preliminary implementation details for these additional potential actions.

The primary strategy areas and appropriate strategies organize this chapter and the numbering of the potential actions in this appendix corresponds with the numbering used in Chapter 4. In addition, related actions from the complete list of potential actions in Chapter 4 have been highlighted to identify overlap between the different strategies. The potential actions identified by the RRWC during the preliminary prioritization exercise are noted below with the following icon:

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY AND HABITAT RESTORATION–PROTECTION

Strategy I-A: Stream Corridor Restoration

Potential Action SC1: Restore the stream corridor through a variety of stream corridor protection and watershed management methods (e.g., meander corridor setbacks, floodplain and wetland protection, and riparian revegetation).

Tasks may or may not include:

A. Develop a bibliography of existing materials, case studies and models of restoration activities, projects and programs.

B. Review and support recommendations and actions in existing best management (BMPs) and fish enhancement plans such as the *Russian River Basin Fisheries Restoration Plan – Review Draft* (DFG).

C. Obtain input from private property owners about their issues and barriers to implementing existing BMPs and continue to work directly with private property owners throughout development processes

D. Update current stream corridor restoration models to ensure technical models are comprehensive. Incorporate all variables (e.g., solar radiation) to promote restoration decisions that are based on all known inputs and energy balances.

E. Use all available information, such as the recovery goals being developed for National Marine Fisheries Service's Recovery Planning Process for West Coast Salmon, to develop standardized criteria for identifying successful and effective restoration activities, projects and programs. Consider the following as potential criteria for determining appropriate practices/measures:

- Stream flow patterns,
- Appropriate locations for levees or offset levees,
- Flooding impacts related to bank hardening and dams,
- Recreational access to public land areas,
- Fish passage, bridge and culvert impacts on velocity, stability, flow and fish passage,
- Reach specific techniques,
- Adjacent land values, and
- Landowner participation and community involvement.

F. Investigate engineering options that may sustain a relatively natural form and function for the river and tributaries in spite of the current sediment budget deficit present in the watershed (e.g. grade control structures near the mouths of tributaries incorporating necessary fish passage structures).

G. Model the extent of channel incision resulting from flow and sediment imbalances in both the mainstem and its tributaries. Use this information to determine the efficacy of historic remediations and the level of active stream bank erosion that may be advisable to restore fluvial geomorphic balance.

H. Use information collected from above tasks to identify highly successful and effective measures (e.g., native plant methods and bioremediation projects) for voluntary and mandatory implementation in areas where natural and human-induced erosion must be minimized or controlled.

I. Identify projects that typically use bank hardening techniques and work with state and federal agencies to develop alternative analyses for soft approaches and incentives during permitting.

J. Inventory existing corridor encroachments and evaluate opportunities for incremental restoration.

K. Monitor restoration effectiveness utilizing protocols being developed DFG.

Rationale (Issues Addressed)

The identification and development of stream corridor protection and watershed-wide management methods such as riparian vegetation enhancements, setbacks or wetland reforestation may directly address the critical issues affecting the stream corridor such as loss of riparian vegetation and beyond beneficial bank erosion and sedimentation. Several approaches ranging from nonintervention to substantial intervention for managed recovery exist; however, the main objective of Potential Action SC1 is to identify and develop methods that halt degradation before it occurs and enable continuous, unassisted ecosystem recovery (The Federal Interagency Stream Restoration Work Group 1998).

Potential Partners

USACE, NMFS, NRCS, SCC, NCRWQCB SCWA, MCIWPC, MCRRFC&WCID, Mendocino County Farm Bureau, Sonoma County Farm Bureau, UCCE, HREC, RCDs, Russian River Property Owners Association, RRWC

Related Activities, Projects and Programs

Recovery Planning Process for West Coast Salmon (NMFS), Navarro Sediment and Temperature TMDL (NCRWQCB), Russian River Enhancement Plan – Draft (SCC)

Relevant References

California Salmonid Stream Habitat Restoration Manual (DFG), Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), Effectiveness Monitoring Protocols for Restoration (DFG, UCB, Humboldt State University), Russian River Section 7 Consultation (SCWA, USACE, NMFS, MCRRFC&WCID), Stream Corridor Restoration: Principles, Processes, and Practices, (The Federal Interagency Stream Restoration Work Group), Ground Bioengineering for Slope Protection and Erosion Control (Schiechtl and Stern), Culvert Inventory and Fish Passage Evaluation of the Humboldt County Road System (Taylor)

Related Potential Action(s)

SC1, SC2, SC3, SC4, SC5, UR4, UR6, WQ3, LU3, DC4, DC10

Potential Action SC2: Seek an appropriate balance for riparian vegetative cover throughout the watershed.

Tasks may or may not include:

A. Develop a bibliography of existing materials, case studies and models regarding riparian vegetation cover (i.e., types, function, methods for calculating appropriate levels, enhancement strategies, etc.)

B. Use existing information to determine appropriate methods for calculating level of shade canopy necessary for improving structure and function of corridor.

C. Use existing GIS data, such as RRGIS data, to assess the current state of riparian vegetative cover throughout the watershed.

D. Develop a process or "roadmap" that includes specific criteria to help agencies, resource managers, sub-watershed councils and landowners determine and achieve minimum level of shade canopy necessary.

Rationale (Issues Addressed)

The current heavily vegetated mainstem corridor may reflect an artifact resulting from regulated flows while tributary corridors may by artificially sparse as a result of water withdrawals. Other riparian forests have been lost due to dropping water tables resulting from channel incision in the mainstem and its tributaries. Riparian vegetation cover enhancements in appropriate locations may reverse the decline in shade canopy and, consequently, halt rising water temperatures. In addition, riparian vegetation along stream corridors and tributaries may help to stabilize banks, reduce sedimentation and restore the structure and function of the stream corridor (CRP, SCWA 1998).

Potential Partners

USACE, DFG, CDF, CRP, NMFS, SCWA, RCDs, NASA, WCB, local land trusts

Related Activities, Projects and Programs

Conservation Reserve Enhancement Program (FSA), Timber Harvest Activity Map (CDF), Fish Friendly Farming Program (Laurel Marcus and Associates, Sotoyome RCD)

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), California Salmonid Habitat Restoration Manual (DFG), Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD), RRGIS (NMFS, CRP), RRIIS (CRP, HREC, MIG), KRIS (Kier Associates, SCWA)

Related Potential Action(s)

SC1, SC3, SC5, DC4, DC8, DC10

Potential Action SC3: Work with organizations that can hold conservation easements to develop standard easement definitions and evaluation protocols for establishing riparian habitat and corridors in sensitive areas.

Tasks may or may not include:

A. Develop a bibliography of existing materials, case studies and models of conservation easements and, specifically, information about identifying appropriate locations, funding mechanisms, implementation protocols and collaborative strategies.

B. Compile a list of national and local organizations that can hold conservation easements within Sonoma and Mendocino Counties.

C. Work with County planning departments, Sonoma County Agricultural Preservation and Open Space District, land trust organizations and property owners to identify existing protocols and evaluate the effectiveness of these protocols.

D. Initiate a collaborate process and develop standard easement definitions and evaluation protocols for establishing riparian habitat and corridors in sensitive areas.

E. Use information collected from tasks above to develop recommendations for improvements at the County level.

Rationale (Issues Addressed)

A conservation easement, or a deed restriction applied to a land area voluntarily by the owner, serves to protect resources such as productive agricultural land, ground and surface water, and habitat. Conservation easements are flexible; they may cover an entire parcel or portions of a property and they limit specific activities dependent on the needs of the landowner. Standard easement definitions and evaluation protocols may enhance landowner understanding of conservation easements, increase implementation of easements on private properties, and maximize the benefits for watershed resources. Increasing the amount of protected land in the watershed may minimize disturbances to the stream channel and riparian vegetation.

Potential Partners

USACE, EPA, NRCS, Resources Agency, DFG, Department. of Conservation, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, Sonoma County Agricultural Preservation and Open Space District, Mendocino County Farm Bureau, Sonoma County Farm Bureau, FishNet 4C, Cities, Land Trust Alliance, The Nature Conservancy, Greenbelt Alliance, local land trusts, RRWC

Related Activities, Projects and Programs

Not available

Relevant References

Not available

Related Potential Action(s)

SC1, SC2, SC3, SC4, UR4, UR5, LU3, DC8

Potential Action SC4: Determine the feasibility and need for a basin-wide and reach-specific gravel budget that is based on stream hydrology and identifies the gravel recruitment needs for healthy fisheries.

Tasks may or may not include:

A. Review the two Counties' aggregate resource management plans to identify opportunities for achieving a coordinated analysis of gravel extraction and supply.

B. Collect data regarding different gravel types and size classes, sources, and methods of extraction and transport to better understand the related economic benefits.

C. Evaluate the amount of gravel lost due to retention behind in-stream dams.

D. Identify reaches where natural bank erosion needs to occur to help maintain natural gravel recruitment for the river system and methods, such as meander corridor setbacks, easements, or direct acquisitions, for sustaining these sites and related river functions.

E. Use information to determine if extraction impacts the physical structure and function of the river and its tributaries, the recovery of salmonid species, or the regional/local economy.

F. Work with industries dependent on gravel extraction to investigate potential cost-effective alternatives to river-mined gravel.

Rationale (Issues Addressed)

A basin-wide gravel budget may improve understanding about gravel supplies in the watershed and the environmental costs (i.e., disturbances to the stream channel, loss of riparian vegetation, and excessive band erosion and sedimentation) versus the economic benefits associated with extraction (NMFS 1996). The goal of a basin-wide gravel budget is to achieve sustainable mining and minimize watershed-wide impacts. Any such gravel budget should account for sediment losses due to retention behind on-stream dams.

Potential Partners

USGS, NMFS, CGS, DFG, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, FishNet 4C, RRWC

Related Activities, Projects and Programs

Mad River Case Study (Humboldt County Community Development Services)

Relevant References

Mendocino Aggregate Resource Management Plan, Sonoma County Aggregate Resource Management Plan, Gravel Extraction Plan – draft in preparation (NMFS), Russian River Section 7 Consultation (SCWA, USACE, NMFS, MCRRFC&WCID)

Related Potential Action(s)

SH1

Potential Action SC5: Create a toolbox of non-toxic removal and replacement methods for exotic species that can be easily disseminated for application by private property owners, stewardship groups, resource agencies, and local municipalities.

Tasks may or may not include:

A. Review available resources and materials to identify and evaluate non-toxic plant removal methods and identify methods and indigenous species for appropriate replacement.

B. Use publications and current efforts by Circuit Rider Productions, Inc. (CRP) and Hopland Research and Extension Center (HREC) as models for identifying types, sources and locations of exotic species as well as strategies for removing harmful, invasive species.

C. List specific exotic species to be removed due to their potential threat to riparian vegetation.

D. Use existing vegetation maps to illustrate the geographic location of exotic plant infestations.

E. Assess the extent of potential impact (positive or negative) for each exotic plant type found within the watershed.

F. Identify additional data needed to develop site-specific or project level actions for exotic plant removal.

Rationale (Issues Addressed)

The removal of exotic species may improve the form and function of the stream corridor resulting from a loss of riparian vegetation, rising water temperatures, disturbances to the stream channel and excessive bank erosion and sedimentation. Exotic species, particularly those identified as invasive, may eradicate native vegetation and prevent re-growth, increase

fire danger and usurp large amounts of water. In addition, exotic vegetation does not provide the same habitat values for many species compared to native vegetation in riparian areas (CRP, SCWA 1998).

Potential Partners

NRCS, County Agricultural Commissioners, RCDs, UCCE, HREC, CRP, California Native Plant Society

Related Activities, Projects and Programs

Giant Reed Assessment, Mapping, Research and Removal (CRP, DFG, SCWA), Weed Abatement Program (Sonoma and Mendocino Counties), The Pierce's Disease/Riparian Habitat Workgroup

Relevant References

California Salmonid Stream Habitat Restoration Manual (DFG), Riparian Vegetation Management for Pierce's Disease in North Coast California Vineyards (The Pierce's Disease/Riparian Habitat Workgroup), The House and Garden Audit: Protecting Your Family's Health and Improving the Environment Audit: Protecting Your Family's Health and Improving the Environment (Laurel Marcus, Sotoyome RCD), RRGIS (NMFS, CRP)

Related Potential Action(s)

SC1, SC2

Strategy I-B: Species and Habitat Restoration

Potential Action SH1: Collaborate with property owners, agencies and educational institutions to establish appropriate watershed-wide control of unnatural erosion through run-off protocols, better management practices and activities that promote water resource sustainability (e.g., groundwater recharge).

Tasks may or may not include:

A. Identify no-net run-off or reduction strategies including BMPs that include educational, management and regulatory measures.

B. Work together to develop alternative strategies for improving topsoil conditions in cultivated areas and subsoil water infiltration near riparian areas.

C. Encourage activities that reduce the impact of impermeable surfaces and increase opportunities for groundwater recharge.

D. Support incentive-based programs that encourage property owner participation and minimize accelerated run-off.

E. Identify and remediate sources or mechanisms for sediment delivery.

Rationale (Issues Addressed)

Widespread adoption of better management practices on privately owned land may help to proactively reduce run-off, erosion and the potential for flash flood flows in streams and tributaries. Run-off, erosion and floods contribute to the sedimentation of spawning gravels and filling of pools and estuaries used by steelhead, coho and chinook (NMFS 1996).

Potential Partners

NRCS, NCRWQCB, RCDs, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, RRWC

Related Activities, Projects and Programs

Fish and Game Fisheries Restoration Grants Program, 319H and 205J Grants Program (EPA), EQIP (NRCS), Wetland Reserve Program (NRCS), Fish Friendly Farming Program (Laurel Marcus and Associates, Sotoyome RCD)

Relevant References

Handbook for Forest and Ranch Roads (Weaver, Hagans), California Salmonid Stream Habitat Restoration Manual (DFG), Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD), Electronic Field Office Technical Guide (NRCS), Soil Quality Institute (NRCS), County Grading Ordinances

Related Potential Action(s)

SH5, UR1, UR3, UR4, WS3, WQ3, WQ5, WQ6, LU1, LU2, LU3, LU6, PE1, DC3

Potential Action SH2: Identify and recommend practices that manage flow for economic and ecological benefits and establish a flow regime that is appropriate for listed species and the sustainability of natural habitat in both the mainstem and tributaries.

Tasks may or may not include:

A. Review findings from the Section 7 Consultation process and compile additional data developed by resource agencies (e.g., DFG, DWR and NMFS).

B. Support an ecological study of estuaries to improve understanding regarding estuary function and potential role in flow management.

C. Apply NMFS policy development efforts regarding flow requirements.

D. Participate in the Russian River Coho Salmon Recovery Program.

E. Use all available information to determine appropriate seasonal flows and high impact areas for the implementation of flow management practices.

Rationale (Issues Addressed)

Regulated flows in the mainstem and tributaries has led to channel incision, channelization, diminished gravel recruitment, riparian encroachment and habitat simplification. As a result, salmonid rearing habitat has decreased due to high summer flows and increased velocities that make pool stratification impossible (Steiner Environmental Consulting 1996). Instream flow management that considers salmonid needs and life cycles may help to sustain fisheries and beneficial uses within the watershed.

Potential Partners

USACE, NMFS, DWR, DFG, CCC, NCRWQCB, SCWA, MCRRFC&WCID, RRWC, Trout Unlimited, Pacific Coast Federation of Fishermen's Associations, Bodega Marine Lab, Russian River Coho Salmon Recovery Workgroup

Related Activities, Projects and Programs

Recovery Planning Process for West Coast Salmon (NMFS), Russian River Coho Salmon Recovery Program (Russian River Coho Salmon Recovery Workgroup)

Relevant References

Russian River Section 7 Consultation (SCWA, USACE, NMFS, MCRRFC&WCID), Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Streams (DFG, NMFS)

Related Potential Action(s)

SC2, SC4, WS1, WS2, WS3, LU6, PE3

Potential Action SH4: Analyze impact of river and stream modifications and water withdrawals on subterranean water flows to enhance groundwater and underground systems that maintain functional if not ideal flows for listed species.

Tasks may or may not include:

A. Determine role of rivers as part of the subsurface water system and vice versa.

B. Identify changes in subsurface flows and possible factors causing such changes.

C. Determine how channel modifications may impact the interconnection between groundwater and subterranean and surface flows.

D. Use information collected from tasks above and additional engineering studies to develop recommendations for improving surface and subsurface flows.

Rationale (Issues Addressed)

A stream channel can function as a recharge (stream loses water) or discharge (stream gains water) area depending on the elevation of the groundwater along the stream corridor. Groundwater elevation can vary significantly over short distances along the stream corridor based on subsurface characteristics (The Federal Interagency Stream Corridor Restoration Working Group 1998). Therefore, eliminating stream channel disturbances may help to minimize changes in the distances and connections between groundwater supplies and subterranean and river/stream flows.

Potential Partners

USGS, USACE, DWR, CGS, SCWA, MCRRFC&WCID

Related Activities, Projects and Programs

Not available

Relevant References

Stream Corridor Restoration: Principles, Processes, and Practices (The Federal Interagency Stream Corridor Restoration Working Group)

Related Potential Action(s)

SC2, SC4, SH2, WS1, WS2

Strategy I-C: Uplands Restoration

Potential Action UR1: Examine grading and erosion control ordinances to ensure that they reduce sedimentation and other hydrological impacts.

Tasks may or may not include:

A. Develop a list of BMPs and case studies of efforts in other counties that effectively reduce erosion, run-off and sedimentation throughout the watershed.

B. Review BMPs and provide input into the current grading erosion ordinance guidelines submitted to the Mendocino County Planning Commission.

C. Participate in efforts to develop a grading ordinance in Sonoma County.

Rationale (Issues Addressed)

Grading and erosion control standards supported by comprehensive ordinances may minimize sediment impacts to anadromous streams (Harris, Kocher, Kull 2001). An effective grading and erosion control ordinance would emphasize erosion control rather than sediment control. Such an ordinance could be applied to minimize winter grading, regulate land conversions, urbanization, development and land use practices, and maximize soil permeability.

Potential Partners

NRCS, NCRWQCB, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, FishNet 4C, RCDs, RRWC

Related Activities, Projects and Programs

Fish Friendly Farming Program (Laurel Marcus and Associates, Sotoyome RCD), Napa River Watershed Task Force (see Appendix VI)

Relevant References

Draft Mendocino Grading Ordinance, Sonoma Grading Permit, Napa County Grading Ordinance, Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD), Electronic Field Office Technical Guide (NRCS)

Related Potential Action(s)

SH1, SH5, UR3, UR4, WS3, WQ3, WQ5, WQ6, LU1, LU2, LU3, LU6, DC3, DC7

Potential Action UR2: Use vegetation management techniques to preserve natural vegetation, reduce invasive species, and benefit the watershed.

Tasks may or may not include:

A. Compile existing studies and case studies regarding innovative vegetation management approaches and methods for identifying appropriate conditions (e.g., flora and fauna) and locations (e.g., upland areas) for prescribed burning.

B. Work with property owners and local community groups to learn about vegetation management techniques used in upland areas throughout the watershed to identify successful practices and projects for potential implementation in other areas of the watershed.

C. Review vegetation management techniques such as prescribed burning, shaded fuelbreak and ground mulch included in CDF's Vegetation Management Plan and application process.

D. Review CDF's unit plans for Mendocino and Sonoma County to identify high hazard areas, actions (e.g., prescribed burning, intensive inspection program, shaded fuelbreak, etc.) recommended and rationale provided. Use information to also identify areas designated as lower priority areas for CDF action and support community led vegetation management planning processes to implement specific vegetation management tools based on the wildland conditions, proximity to residential homes and businesses, and resources (i.e., labor and tools) available within in the community.

E. Ensure collaboration between CDF and the community to assist homeowner associations and community groups apply for federal grants, such as the Wildland Urban Interface Grant and Community Fire Defense Grant, and obtain tools (e.g., brush cutters and chippers, saws, disposal sites, etc.) necessary for implementing different vegetation management techniques.

Rationale (Issues Addressed)

The benefits of various vegetation management techniques may help to alleviate negative impacts associated with land conversions, specific land use practices and reductions in soil permeability. Identifying the appropriate vegetation management tools based on specific land conditions and interconnections within the ecosystem may help to simulate old-growth forests, sustain long-term health of upland woodlands, enhance wildlife habitat, increase water yield, and reduce fire impacts on residences.

Potential Partners

USACE, CDF, local fire districts, CCC, homeowner associations, property owners

Related Activities, Projects and Programs

Wildfire Management Fuelbreak (Lake Sonoma Ranch Estate Homeowners Association, USACE, Geyserville Fire District)

Relevant References

Fire and Fire Surrogate Treatments for Ecosystem Restoration (UCB), Overall Unit Fire Plan (CDF), Vegetation Management Program EIR (CDF)

Related Potential Action(s)

SC1, SC2

Potential Action UR3: Investigate upland groundwater recharge and infiltration opportunities to reduce excessive run-off, improve soil infiltration and increase water-holding capacity in the watershed.

Tasks may or may not include:

A. Conduct a complete inventory of current efforts in upland areas, case studies, and existing BMPs intended to reduce run-off and discharge, such as use of permeable paving materials for local road construction and maintenance, and identify potential results for each approach. Consider a range of approaches including regulatory, educational and management measures.

B. Work with property owners and local community groups to learn about recharge and infiltration techniques used in upland areas throughout the watershed to identify successful practices and projects for potential implementation in other areas of the watershed.

C. Develop standardized criteria for identifying successful and effective recharge and infiltration techniques.

D. Use compiled information and criteria to identify highly successful and effective techniques or develop additional strategies for improving topsoil conditions in cultivated areas and subsoil water infiltration near riparian areas.

E. Collaborate with property owners to apply experimental methods in upland demonstration areas for educational purposes and, specifically, to test new methods and engage in two-way learning opportunities.

F. Encourage activities that enhance opportunities for groundwater recharge and reduce the impact of impermeable surfaces such as erosion and potential opportunities for flash flooding in the stream and its tributaries.

G. Promote implementation of on-site infiltration techniques through a campaign that provides public information about individual water responsibilities and low impact development strategies.

H. Support incentive-based programs to encourage property owner participation and minimize discharge.

Rationale (Issues Addressed)

Potential Action UR5 was developed to minimize erosion and run-off resulting from many of the activities, practices and impacts identified as critical issues in upland areas including urbanization and infrastructure development, impacts from overgrazing, decreased soil permeability, and pesticide run-off impacts. The rationale behind this potential action is reduce run-off and discharge where it starts. The goal is to work together toward no-new-net run-off/discharge approaches.

Potential Partners

NRCS, NCRWQCB, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, RCDs, RRWC

Related Activities, Projects and Programs

Fisheries Restoration Grants Program (DFG), 319H and 205J Grants Program (EPA), Fish Friendly Farming Program (Laurel Marcus and Associates, Sotoyome RCD)

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), Handbook for Forest and Ranch Roads (Weaver, Hagans), California Salmonid Stream Habitat Restoration Manual (DFG), County Grading Ordinances, Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD)

Related Potential Action(s)

SH1, SH5, UR1, UR4, WS3, WQ3, WQ6, WQ5, LU1, LU2, LU3, LU6, DC3

Potential Action UR4: Assess the effectiveness of the Sonoma County Vineyard Erosion and Sediment Control Ordinance (also known as the "hillside ordinance") to determine if the ordinance promotes or reduces hillside erosion and run-off and meets the RRWC mission and goals.

Tasks may or may not include:

A. Evaluate the watershed-wide benefits and impacts associated with the current ordinance in Sonoma County to identify pros/cons and potential improvements.

B. Identify and evaluate existing BMPs and adaptive management opportunities regarding (e.g., crop cover, structural and non-structural plans, setbacks, etc.) for potential incorporation into the hillside vineyard ordinance.

C. Establish a task force to evaluate and provide recommendations to develop a new ordinance on a watershed scale.

D. Use information from tasks above to support the development of a hillside vineyard ordinance in Mendocino County. Identify no-net run-off or reduction strategies that include educational, management and regulatory measures.

Rationale (Issues Addressed)

The Sonoma County Vineyard Erosion and Sediment Control Ordinance requires agricultural setbacks of 25-50 feet from streams and does not allow clearing of native vegetation within setback width (Harris, Kocher, Kull 2001). The ordinance does allow

clearing and planting on all slopes under 50 percent. Assessing the effectiveness of the ordinance may help to identify the current status of soil permeability, run-off and erosion as well as the impact of agriculture and pesticide use within the watershed.

Potential Partners

NRCS, NCRWQCB, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, Sonoma County Agricultural Commissioner's Office, FishNet 4C, RCDs, RRWC

Related Activities, Projects and Programs

Napa County Grading Ordinance, Fish Friendly Farming Program (Laurel Marcus and Associates, Sotoyome RCD)

Relevant References

Handbook for Forest and Ranch Roads (Weaver, Hagans), Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD), Electronic Field Office Technical Guide (NRCS)

Related Potential Action(s)

SH1, SH5, UR1, UR5, WS3, WQ3, WQ5, WQ6, LU1, LU2, LU3, LU6, DC3

Potential Action UR5: Establish continuous habitat corridors, where appropriate, to enhance migration corridors and minimize fragmentation.

Tasks may or may not include:

A. Review resource management goals developed by HREC, other research centers and resource agencies for oak woodland restoration.

B. Map upland resources, migration corridors and fragmentation areas utilizing GIS.

C. Use recovery goals being developed by National Marine Fisheries Service and other wildlife/fishery organizations for potential evaluation criteria.

D. Use information above to identify upland areas that provide valuable habitat (e.g., oak woodlands, meadows, and forests) and model to determine appropriate protection and restoration measures.

E. Review DFG's Effectiveness Monitoring Protocol being developed with UCB and Humboldt State University for implementation throughout the watershed.

Rationale (Issues Addressed)

Protecting and restoring open space, movement corridors for flora and fauna, diverse vegetative communities and rare habitat in upland areas may help to promote connectivity throughout the watershed. Connectivity facilitates the flow of energy, materials and species between critical ecosystems in the watershed and, as a result, aids the recovery and sustainability of the stream corridor and habitat (The Federal Interagency Stream Restoration Work Group 1998).

Potential Partners

USACE, NMFS, DFG, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, Sonoma County Agricultural Preservation and Open Space District, UCB, Humboldt State, HREC, CRP, RCDs, RRWC, International Union for Conservation of Nature and Natural Resources, Worldwide Wildlife Fund, Sierra Club, Trout Unlimited, The Nature Conservancy

Related Activities, Projects and Programs

Recovery Planning Process for West Coast Salmon (NMFS), EQIP (NRCS), WHIP (NRCS)

Relevant References

Effectiveness Monitoring Protocol (DFG, UCB, Humboldt State University), RRGIS (NMFS, CRP)

Related Potential Action(s)

SC2, SC3, UR5, SH3, DC4, DC8

STRATEGY AREA II: WATER CONDITIONS AND CHARACTERISTICS

Strategy II-A: Water Supply, Quantity and Storage

Potential Action WS1: Establish water budgets for the Russian River watershed and its sub-basins.

Tasks may or may not include:

A. Develop a bibliography of existing materials, case studies and models regarding water budgets.

B. Define the purpose and scope of a water budget based on model case studies and other research (e.g., Butte County, New York City and Colorado).

C. Develop a formal list of questions that the water budget model needs to answer and types of data needed.

D. Tailor models in other watersheds and sub-watersheds to address the specific questions, needs and conditions identified in the Russian River watershed.

E. Invite all agencies involved in water supply issues to present information about diversion, transfer, and conservation activities for the development of a usable water budget.

F. Work directly with appropriate agencies to help collect relevant data and encourage the deployment of gauges and monitoring equipment in streams, tributaries, wells and groundwater supplies.

G. Map and size known aquifers throughout the watershed.

H. Use information to develop a seasonal or monthly (dry and wet year) model water budget for potential implementation in the watershed.

I. Ensure a model water budget includes comprehensive and continual monitoring systems to identify trends over time and wet and dry season characteristics.

Rationale (Issues Addressed)

The conceptual diagram on the following page illustrates the different elements and interconnections that may be examined in the development of a water budget. An accurate water budget that is well defined and continuously managed throughout the watershed, including its sub-watersheds, may enhance understanding about the relationship between water quantity and flow and allow resource management and restoration actions to be comprehensively evaluated for implementation.

Potential Partners

USACE, USGS, NMFS, DFG, DWR, NCRWQCB, SCWA, Sonoma County Permit and Resource Management, MCWA, RRWC, Eel/Russian River Commission, Mendocino County Inland Power and Water

Related Activities, Projects and Programs

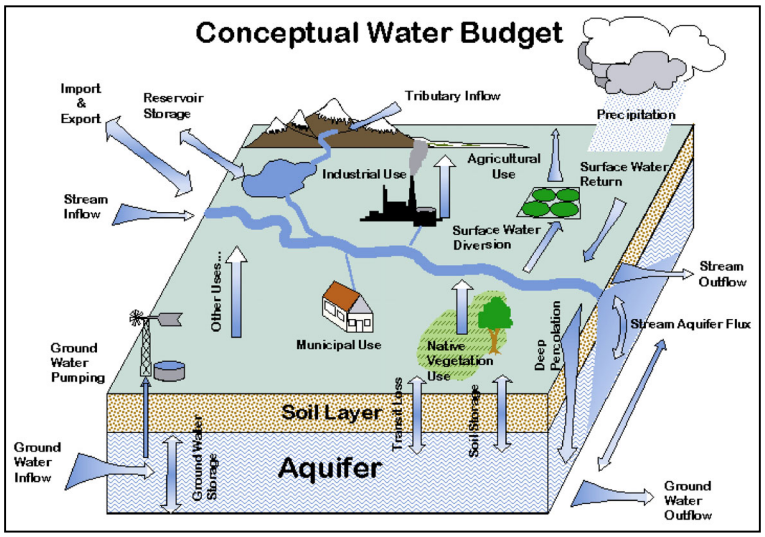
FERC Review of the Potter Valley Project Amendment

Relevant References

Section 7 Consultation, FERC re-licensing, Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Streams – June 12, 2002 (DFG and NMFS Joint Policy), Russian River Estuary Management Plan (SCWA)

Related Potential Action(s)

SH1, SH2, WS2, PE3, DC9



This diagram illustrates a conceptual water budget developed by the Colorado Division of Water Resources, Office of the State Engineer.

Potential Action WS2: Evaluate reports and studies regarding dam operations and maintenance projects to determine the watershed-wide impacts of agency activities and potential alternatives (e.g., low and pulse flow mechanisms, new pipelines, inflatable dams and infiltration ponds).

Tasks may or may not include:

A. Review findings of Section 7 Consultation process and Biological Opinion to evaluate and support high priority restoration actions.

B. Review findings of pending USACE reconnaissance and feasibility studies related to the raising of Coyote Valley Dam and provide input during agency/public review periods.

C. Provide input about agencies' project objectives (e.g., the raising of Coyote Valley Dam) and timelines to ensure implementation produces timely and desired results.

D. Review and support mitigations such as habitat enhancement, acquisition, and bypasses during project planning processes.

E. Determine the feasibility of alternative or flexible approaches for increasing water storage capacity. Consider the following approaches:

- Raising Coyote Valley Dam;
- Building pipelines from reservoirs to users, including those upstream;
- Recharging aquifers;

- Implementing local projects, such as inflatable dams, infiltration ponds, off-stream storage and above-ground cisterns;
- Withholding water in reservoirs during dry seasons or low flows (i.e., after growing season, before winter rain)

Rationale (Issues Addressed)

Dams block access to upstream habitat for anadromous species in the watershed and prohibit downstream movement of sediment that results in a further decrease of habitat availability and rising water temperatures (Steiner Environmental Consulting 1996). SCWA and USACE both operate and maintain dam and water diversion facilities in the watershed, including Warm Springs and Coyote Dams. In addition, both agencies conduct other water-related activities such as flood control, water diversion and storage, hydroelectric power generation, and fish production and passage. USACE and SCWA, signed a Memorandum of Understanding (MOU) with NMFS establishing a framework for the consultation and conference required by the ESA to determine the related impacts of their activities on anadromous species in the Russian River. The Biological Assessments and Opinion resulting from the Section 7 Consultation process, along with other findings from additional studies, may improve knowledge of water quantity, flow and diversion impacts on the watershed and promote consensus regarding watershed-wide water supply strategies among various agencies.

Potential Partners

USACE, SCWA, NMFS, MCRRFC&WCID

Related Activities, Projects and Programs

Russian River Section 7 Consultation (SCWA, USACE, NMFS, MCRRFC&WCID), Lake Mendocino Fishway Bypass Proposal (Steiner Environmental Consulting)

Relevant References

Factors for Decline: A Supplement to the Notice of Determination for West Coast Steelhead under the Endangered Species Act (NMFS), Russian River Section 7 Consultation (SCWA, USACE, NMFS, MCRRFC&WCID), Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), A History of the Salmonid Decline in the Russian River (Steiner Environmental Consulting)

Related Potential Action(s)

SH2, SH4, WS1, PE3

Potential Action WS3: Identify and evaluate potential recharge and retention sites for opportunities to store excess flows.

Tasks may or may not include:

A. Develop a list of existing materials, case studies and models regarding recharge and retention opportunities.

B. Develop standardized criteria for identifying successful and effective structural and non-structural techniques for potential implementation.

C. Use all available information and criteria to identify highly successful and effective recharge and retention techniques (e.g., use of permeable materials for local road construction and maintenance).

D. Work with property owners to identify and map sites within the watershed where water recharge or retention may benefit groundwater systems and instream flows.

E. Use information collected from tasks above and additional engineering studies to determine the feasibility and impact of constructing off-channel infiltration and detention ponds to provide stream water flow when and where appropriate for native species recovery.

F. Identify the environmental impacts and operational and management responsibilities associated with each potential technique including construction of ponds.

G. Encourage activities that reduce the impact of impermeable surface and enhance groundwater recharge.

Rationale (Issues Addressed)

Recharge and retention sites may help to minimize the extent of run-off and resulting erosion in the watershed. Off-channel infiltration and detention ponds, where appropriate, can provide a mechanism for retaining excess water flow and recharging groundwater supplies. Potential benefits of such mechanisms may include maintained minimum flows and enhanced fish passage and migration.

Potential Partners

NRCS, NCRWQCB, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, RCDs, RRWC

Related Activities, Projects and Programs

Fisheries Restoration Grants Program (DFG), 319H and 205J Grants Program (EPA), Fish Friendly Farming Program (Laurel Marcus and Associates, Sotoyome RCD)

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), Handbook for Forest and Ranch Roads (Weaver, Hagans), California Salmonid Stream Habitat Restoration Manual (DFG), County Grading Ordinances, Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD)

Related Potential Action(s)

SH1, SH5, UR1, UR3, UR4, WQ3, WQ5, WQ6, LU1, LU2, LU3, LU6, DC3

Potential Action WS5: Support and promote consumer and business incentives that promote water conservation.

Tasks may or may not include:

A. Identify and evaluate existing information, approaches and resources regarding water conservation incentives.

B. Use available information to develop incentives that are feasible and appropriate for implementation

C. Work with consumers and business representatives to develop outreach strategies and implement incentives in the community.

Rationale (Issues Addressed)

Incentives offered to consumers and local businesses may help promote proactive measures to conserve water in homes, stores and offices. An incentives campaign to promote and implement water conservation measures may also increase public awareness regarding water supply and demand, rights and responsibilities.

Potential Partners

DWR, SCWA, MCIWPC, RCDs, RRWC, local Chamber of Commerces

Related Activities, Projects and Programs

Fish Friendly Farming Program (Laurel Marcus and Associates, Sotoyome RCD), SCWA Conservation Programs, Agriculture wastewater re-use.

Relevant References

The House and Garden Audit: Protecting Your Family's Health and Improving the Environment Audit: Protecting Your Family's Health and Improving the Environment (Laurel Marcus, Sotoyome RCD), Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD)

Related Potential Action(s)

SA2, PE3, PE5, PE7

Strategy II-B: Water Quality

Potential Action WQ1: Explore a wide range of methods and feasibility for treating and reusing wastewater in the watershed.

Tasks may or may not include:

A. Conduct a quantitative and qualitative assessment of wastewater and run-off requirements included in new development plans and land use regulations.

B. Determine methods and impacts of delivering wastewater to redwood and poplar groves for bioremediation and reuse.

C. Explore alternatives for diverting urine from the waste stream for beneficial purposes (e.g., plant watering).

D. Assess feasibility of using household grey water in topsoil for home or decorative plantings.

E. Work with property owners to develop and evaluate methods for delivering usable wastewater to appropriate agricultural uses.

F. Use information collected from tasks above to develop recommendations for improving reuse/reclamation strategies at the County level. Encourage specific wastewater regulations that consider the rural or urban character of the land and future population growth and ensure regulations are implemented equally throughout the entire watershed.

Rationale (Issues Addressed)

Treated wastewater may carry pollutants that can end up in the river or streams and impact overall water quality and native species in the watershed. Potential Action WQ 4 seeks to identify and evaluate innovative and cost-effective mechanisms for the further treatment of secondary wastewater. Full treatment of wastewater increases opportunities to reuse wastewater for a range of beneficial uses and keeps watershed resources in the watershed.

Potential Partners

USACE, DWR, NCRWQCB, SCWA, MCIWPC, Cities, sub-watershed groups, RRWC

Related Activities, Projects and Programs

Not available

Relevant References

Not available

Related Potential Action(s)

WS1, WS4, WQ4, SA2

Potential Action WQ2: Increase citizen and property owner involvement in the long-term monitoring of water quality.

Tasks may or may not include:

A. Support and promote watershed-wide participation in water quality assessment workshops for property owners.

B. Encourage widespread adoption of better management practices that benefit native species in streams and tributaries.

B. Work with NCRWQCB to implement the First Flush Event within the Russian River watershed.

C. Provide data collection assistance during the first significant run-off event of the wet season to allow NCRWQCB to interpret data and prioritize actions.

D. Use monitoring results and outcomes to increase awareness about water quality, nutrients, conductivity and turbidity impacts resulting from run-off, erosion and the transport of sediment. Consider the Neuse River Monitoring Project in North Carolina as a model for reporting and disseminating data "live" via the Internet.

E. Use water quality data to promote implementation of BMPs, restoration projects and the TMDL process.

F. Review the Mendocino County and UCCE project designed to assist TMDL planning and implementation.

Rationale (Issues Addressed)

Increased citizen involvement in the monitoring of water quality allows data to be collected from diverse locations throughout the watershed and over long periods of time. Working with agency staff and water quality experts may help to ensure that the data collected by citizens is reliable and useful for determining types and sources of pollutants. In addition, enhancing citizen understanding about water quality in their community may promote voluntary application of better management practices.

Potential Partners

NCRWQCB, MCWA, County Agricultural Commissioners, City of Santa Rosa, UCCE, RRWC

Related Activities, Projects and Programs

Laguna de Santa Rosa Feasibility Study (USACE), Pesticide Management Program (USDA), RCD Stewardship Programs, Neuse River Monitoring Project (University of North Carolina)

Relevant References

Water Quality Monitoring Technical Guide Book (Oregon Watershed Enhancement Board), City of Santa Rosa Stormwater Plan and Monitoring Program, The House and Garden Audit: Protecting Your Family's Health and Improving the Environment Audit: Protecting Your Family's Health and Improving the Environment (Laurel Marcus, Sotoyome RCD)

Related Potential Action(s)

WQ6, SA1, SA2, PE3, PE5, PE7, DC5

Potential Action WQ3: Identify, map and support efforts at the sub-basin level to reduce impacts including, but not limited to, sedimentation, runoff, dissolved oxygen, and high water temperature.

Tasks may or may not include:

A. Use completed stream and watershed assessments to obtain information about efforts at the sub-basin level.

B. Continue and coordinate watershed assessments to obtain comprehensive information about the watershed and identify priority projects for implementation at the sub-basin level.

C. Review assessment results and existing BMPs to develop recommendations for water quality improvements at the sub-basin level.

D. Recommend and develop projects at the reach or parcel scale.

Rationale (Issues Addressed)

Due to the varying geology, climate, vegetation, fish species distribution and land use practices, this potential action focuses on the sub-basins and recognizes that better management practices have been applied throughout the watershed to minimize the impacts associated with sedimentation, run-off, contaminated surface flows, treated wastewater and other seasonal discharges. Identifying and mapping these efforts may provide a

comprehensive view of overall water quality and the interconnections between different tributaries and the mainstem.

Potential Partners

NCRWQCB, RCDs, HREC, sub-watershed groups, RRWC

Related Activities, Projects and Programs

RCD Watershed Assessments (e.g., Dooley, Tomki and Forsythe Creeks), DFG Stream Assessments

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), GIS Basin Planning and Mapping (DFG), RRGIS (NMFS, CRP), Russian River Basin Plan (NCRWQCB), Oregon Watershed Assessment Manual (Oregon Watershed Enhancement Board)

Related Potential Action(s)

SC5, SH1

Potential Action WQ6: Collaborate with agency staff and County representatives (e.g., County personnel, citizen, economic environmental and other groups) to identify model erosion control and bank stabilization ordinances, programs and practices that lead to improved water quality.

Tasks may or may not include:

A. Support the development and implementation of erosion control ordinances in both Mendocino and Sonoma County.

B. Develop a list of existing BMPs, including bank stabilization techniques, designed to minimize erosion and sedimentation impacts on water quality and identify potential results associated with each.

C. Develop bilingual educational materials about BMPs.

D. Disseminate information about appropriate and effective BMPs and adaptive management practices throughout the community and support incorporation into County ordinances.

E. Promote exemptions in County ordinances for restoration projects that are publicly funded when the benefits outweigh the adverse risks.

F. Encourage private landowners to implement alternative conditioning projects during permitting.

Rationale (Issues Addressed)

Potential Action WQ2 recognizes the direct linkages between land use activities, stream channel function and water quality. Identifying model erosion control and bank stabilization approaches may help to provide a range of effective measures for reducing the water quality impacts associated with sedimentation, runoff and discharge.

Potential Partners

USACE, NRCS, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, FishNet 4C, RCDs, RRWC

Related Activities, Projects and Programs

Napa River Watershed Task Force (see Appendix VI)

Relevant References

Handbook for Forest and Ranch Roads (Weaver, Hagans), Russian River Basin Fisheries Restoration Plan – Review Draft (DFG)

Related Potential Action(s)

SH1, SH5, UR1, UR3, UR4, WS3, WQ3, WQ5, LU1, LU2, LU3, LU6, PE1, DC3

STRATEGY AREA III: CONNECTIONS BETWEEN HUMAN ACTIVITY AND HABITAT

Strategy III-A: Land Use, Development and Management

Potential Action LU1: Support and encourage fish-friendly programs and maintenance plans to ensure that roads and culverts do not contribute to significant soil erosion and sedimentation in the watershed nor restrict fish and wildlife passage.

Tasks may or may not include:

A. Review road and infrastructure assessment protocols to ensure resulting recommendations are based on a standardized set of minimum qualifications that can be applied throughout the watershed and evaluated periodically.

B. Support a coordinated effort among state and federal agencies currently developing new standards to decrease the number and types of fish barriers.

C. Encourage both Counties to adopt criteria developed by state and federal agencies.

D. Identify alternative construction methods that use material mixtures consisting of permeable cement or other porous materials and larger culverts.

E. Develop a certification and renewal process for road construction and grading operators requiring a comprehensive understanding of fish friendly BMPs, road impacts on ecosystems and their inhabitants.

F. Assist the Counties and municipalities to update existing handbooks and ensure that recommended practices are current and innovative (e.g., recommendations regarding culvert size and replacement). Use the San Mateo County Watershed Protection Program's Performance Standards for Road Maintenance developed by San Mateo County Public Works as a model.

G. Educate the community and private property owners about fish friendly road design characteristics and function to ensure appropriate road use (e.g., slower speeds on unpaved roads) and proper construction and maintenance of dips, ditches and slopes.

H. Provide materials and expand opportunities for private property owners to conduct road assessments.

Rationale (Issues Addressed)

NMFS, DFG and FishNet 4C have identified several negative impacts associated with road and culvert construction and maintenance in the watershed including fish barriers and increased sedimentation. The focus of this potential action is to use the data and recommendations that have been developed to implement fish friendly practices and improve road and culvert construction and maintenance at the County level.

Potential Partners

USACE, NMFS, DFG, CDF, SCC, Caltrans, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, FishNet 4C, RCDs, municipal public works and transportation departments, RRWC

Related Activities, Projects and Programs

Fisheries Restoration Grants Program (DFG), RFP, County Road Maintenance Manual for Northwestern California Watersheds: A Water Quality and Stream Habitat Protection Guide – Draft 2002 (5 Counties Salmon Restoration Program), Fish Passage Forum (NMFS, USFS, DFG, SCC, FishNet 4C)

Relevant References

California Salmonid Stream Habitat Restoration Manual (DFG), Handbook for Forest and Ranch Roads (Weaver, Hagans), Effects of County Land Use Policies and Management Practices on Anadromous Salmonids and their Habitats. Final report prepared for the FishNet 4C program of Sonoma, Marin, San Mateo, Santa Cruz and Monterey Counties (Harris, Kocher, Kull), San Mateo County Watershed Protection Program's Performance Standards for Road Maintenance (San Mateo County Department of Public Works)

Related Potential Action(s)

SH1, SH5, UR1, UR3, WS3, WQ3, WQ6, LU2, LU3, DC3, DC4

Potential Action LU2: Improve forest management practices to protect stream conditions and promote soil retention.

Tasks may or may not include:

A. Review the CDF Timber Harvest Plan (THP) rules, Non-industrial Timber Management Plan (NTMP) guidelines, and Timber Conversion rules.

B. Develop a list of BMPs and identify potential results associated with each.

C. Identify and map County zoning classifications, locations of different timber types, age-classes and changes over time to better understand watershed-wide resources.

D. Review timber growth, potential yield and harvest data for the watershed and determine the range of economic uses for each timber type and age-class to better understand the related economic benefits.

E. Use information collected from tasks above to promote existing protocols (e.g., road decommissioning) for minimizing watershed-wide impacts in forested areas before and after logging occurs.

F. Train landowners to implement BMPs and protocols developed to enhance forest management practices.

Rationale (Issues Addressed)

This potential action addresses the negative impacts associated with logging and forestry practices such as regional landscape changes and increased soil-erosion and run-off.

Potential Partners

NMFS, DFG, CDF, NCRWQCB, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, FishNet 4C, UCB, Humboldt State University, HREC, RRWC, Forest Stewardship Council, SmartWood

Related Activities, Projects and Programs

Timber Harvest Activity Map (CDF)

Relevant References

THP Guidelines (CDF), NTMP Guidelines (CDF), Timber Conversion Rules (CDF), RRGIS (NMFS, CRP), California Salmonid Stream Habitat Restoration Manual (DFG), Handbook for Forest and Ranch Roads (Weaver, Hagans)

Related Potential Action(s)

SC5, SH1, UR2, LU1, PE3

Potential Action LU3: Review and recommend improvements to city and county building requirements including sediment and erosion controls.

Tasks may or may not include:

A. Develop a list of existing materials, case studies and models from other counties regarding setback ordinances, slope specifications, bioremediation opportunities, and BMPs.

B. Review the effectiveness of the RCD strategy regarding allowable impacts along stream corridors.

C. Collaborate to develop standardized criteria for identifying successful and effective BMPs, ordinances and regulations.

C. Identify successful and effective BMPs and model ordinances/regulations for compilation in a better practices guidebook to promote regulatory improvements and landowner education.

D. Use all available information and criteria to determine the feasibility and potential benefit of implementing a range or gradient of "impact acceptability zones". Consider "zones" that include appropriate setback or easement widths based on the specific land use or activity, a stream's meander belt characteristics, and other existing site conditions. For example, a) no activity or development allowed in zone 0-25 feet along stream, b) trails and tractor turn-outs allowed in zone 25-50 feet along stream, c) agriculture and grazing allowed in zone 75+ feet along stream.

Rationale (Issues Addressed)

Setback ordinances provide green or open spaces that minimize disturbances to the stream corridor and riparian habitat. Depending on the width of the setback, natural bioremediation processes may occur and help to improve water quality and supplies. Similarly, slope specifications may help to reduce the amount and velocity of run-off, which would increase opportunities for natural processes such as infiltration to occur and reduce the extent of erosion on hillsides.

Potential Partners

USACE, EPA, NRCS, Resources Agency, DFG, Department. of Conservation, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, Sonoma County Agricultural Preservation and Open Space District, Mendocino County Farm Bureau, Sonoma County Farm Bureau, FishNet 4C, Cities, Land Trust Alliance, The Nature Conservancy, Greenbelt Alliance, local land trusts, RRWC

Related Activities, Projects and Programs

Napa River Watershed Task Force (see Appendix VI)

Relevant References

Draft Mendocino Grading Ordinance, Sonoma Grading Permit, Napa County Grading Ordinance, Fish Friendly Farming – Farm Assessment and Conservation Plan Workbook (Laurel Marcus and Associates, Sotoyome RCD), Electronic Field Office Technical Guide (NRCS)

Related Potential Action(s)

SH1, SH5, UR1, UR4, UR3, WS3, WQ3, WQ6, WQ5, LU1, LU2, LU4, LU6, LU7, RA2, DC3

Potential Action LU4: Establish watershed priorities and promote policy recommendations to protect sensitive land areas.

Tasks may or may not include:

A. Review DFG's *Russian River Fisheries Restoration Plan* for watershed restoration priorities.

B. Identify significant natural resources within the watershed and related sustainability opportunities.

C. Create a watershed-wide inventory of different open space, parks and undeveloped land areas.

D. Use land use data and maps compiled by the Sonoma County Open Space District, DFG, land trusts and others to create data overlays that can be applied to mapped areas of sensitive and critical habitat, wetlands, and riparian zones, watershed-wide.

E. Develop "protection" criteria based on comprehensive analyses of existing open space, wetland, riparian and habitat information.

F. Develop approaches or methods for the reuse of a land area or water supply based on the extent of existing development and natural resource requirements.

G. Consider a range of reuse opportunities that allow for recreational, educational or stewardship activities and identify where protection measures or development is appropriate.

H. Encourage the development of publicly managed parks along the river to minimize impacts of uncontrolled public access (e.g., trash in river, trampled vegetation, and disruptions to wildlife) and support community clean-up activities.

I. Recommend a "tool box" approach to the Mendocino and Sonoma County Board of Supervisors for the implementation of practices designed to protect sensitive and viable resource areas in existing open spaces, state and local parks, habitat corridors, and wastewater disposal areas.

Rationale (Issues Addressed)

Private property is often obtained by public entities when the value of the land has significantly decreased due to prior uses of the land. This limits the reuse potential of the land for public benefit yet allowing the land to remain unused is not a viable option either. Potential Action LU4 seeks to place specific protections on valuable land now so that potential reuse for public benefit is a viable option.

Potential Partners

USACE, EPA, NRCS, Resources Agency, DFG, Dept. of Conservation, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, Sonoma County Agricultural Preservation and Open Space District, Mendocino County Farm Bureau, Sonoma County Farm Bureau, FishNet 4C, cities, Land Trust Alliance, The Nature Conservancy, Greenbelt Alliance, local land trusts, RRWC

Related Activities, Projects and Programs

Reuse of Wilson's Grove (Windsor), Conservation Reserve Enhancement Program (FSA)

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG), RRGIS (NMFS, CRP)

Related Potential Action(s)

SC2, SC3, SH3, UR5, LU3, LU7, RA2, DC4, DC8, DC10

Potential Action LU6: Monitor and encourage the implementation of land use and development programs to address stormwater discharges.

Tasks may or may not include:

A. Identify and analyze range of policies intended to address stormwater discharge.

B. Develop a list of existing BMPs designed to minimize stormwater discharge impacts on watersheds and identify potential results associated with each.

C. Ensure program development is coordinated with the NCRWQCB's Phase II Stormwater Implementation Regulations and TMDL process as well as Air Quality Control Board (AQCB) policies to promote comprehensive policy improvements.

Rationale (Issues Addressed)

Stormwater discharge directly increases with the amount of natural vegetation that is covered by impermeable surfaces in an area. During heavy rainfalls, a stream's annual flow may be delivered as stormwater run-off rather than baseflow. In addition, less flow is available for recharge in areas with impermeable surfaces due to increased volumes of run-off. The result is reduced baseflow levels during periods without rainfall (The Federal Interagency Stream Restoration Work Group 1998). Therefore, stormwater must be addressed during land use and development planning processes.

Potential Partners

EPA, ARB, NCRWQCB, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, RCDs, municipal public works and transportation departments, RRWC

Related Activities, Projects and Programs

TMDL (NCRWQCB), NPDES (NCRWQCB)

Relevant References

Phase II Stormwater Implementation Regulations (NCRWQCB), City of Santa Rosa Stormwater Management Plan (SCWA, County of Sonoma, City of Santa Rosa), Start at the Source - Residential Site Planning and Design Guidance Manual for Stormwater Quality Protection (Bay Area Stormwater Management Agencies Association)

Related Potential Action(s)

UR1, UR3, WS3, WQ6, WQ5

Strategy III-B: Regulatory Accountability and Action

Potential Action RA1: Encourage learning opportunities such as informational workshops involving agencies, landowners, community and steward groups and sub-watershed councils.

Tasks may or may not include:

A. Provide forums to share success stories and innovations inside and outside of the Russian River watershed.

B. Support BMPs and educational programs offered by agencies to preclude regulatory action.

Rationale (Issues Addressed)

The focus of this potential action is to increase access to information about watershed management approaches, restoration practices and new innovations that currently exist. The implementation of this action highlights the informational resources and experts available from within the watershed. Providing forums and opportunities for learning and dialogue may promote information sharing, multi-way learning, and collaborations that would benefit the watershed.

Potential Partners

NRCS, NCRWQCB, SCC, Mendocino County, Sonoma County, RCDs, RRWC, sub-watershed groups

Related Activities, Projects and Programs

Sonoma County Blue Circle (UCCE, FishNet 4C, West County Watersheds Network, 4SOS)

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG)

Related Potential Action(s)

SA1, SA2, PE3, PE9

Potential Action RA2: Coordinate and develop protocols for identifying standard habitat and wetland protections to be used during land use planning and development decisions. The same protocols may apply across counties, municipalities, and special districts.

Tasks may or may not include:

A. Establish a citizen advisory board that would provide on-going input at County Planning Commission and Board of Supervisors' meetings for the implementation and use of habitat/wetland protection protocols.

B. Outline the differing roles and responsibilities between Counties, cities and special districts regarding environmental protection and development.

C. Develop a list of existing materials, case studies and models regarding habitat and wetland protections used during land use and development planning processes.

D. Develop standardized criteria for identifying successful and effective restoration activities, projects and programs.

E. Use all available information and criteria to identify highly successful and effective protection protocols for implementation during planning processes.

Rationale (Issues Addressed)

Development and land use protocols that do not extend beyond the scope of development and land use may not consider the value of specific natural resources within an ecosystem. Developing protection protocols may help to ensure valuable resources such as habitat and wetlands are protected during development and land use planning processes. However, site-specific protection measures only may have little value in an ecosystem such as a watershed and, therefore, protocols should be standardized to assist implementation throughout the watershed.

Potential Partners

USACE, EPA, NRCS, Resources Agency, DFG, Department. of Conservation, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, Sonoma County Agricultural Preservation and Open Space District, MCRRFC&WCID, SCWA, Mendocino County Farm Bureau, Sonoma County Farm Bureau, FishNet 4C, cities, Land Trust Alliance, The Nature Conservancy, Greenbelt Alliance, local land trusts, RRWC

Related Activities, Projects and Programs

Not available

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG),

Related Potential Action(s)

LU3, LU7, DC4, DC8, DC10

Potential Action RA3: Adapt and/or develop informational and outreach materials about existing regulations, permitting processes, land use development decisions, and appropriate contacts at all levels of government for distribution to agencies and the public.

Tasks may or may not include:

A. Disseminate contact information for regulatory and permitting offices at all levels of government to agencies and the public.

B. Adapt and/or develop informational and outreach materials about existing land use and development regulations that are user-friendly, understandable and accessible for the general public.

C. Identify policies and procedures that directly apply to property owners and their Counties and cities (e.g., land use, agriculture, wetlands, water quality, mining, etc.).

D. Consider developing a campaign using materials created to promote community awareness and understanding about why regulations exist and enhance understanding about the personal benefits and watershed-wide impacts of specific regulatory interventions.

Rationale (Issues Addressed)

Due to increasing population growth and development, land use and resource management policies have proliferated among many jurisdictions and entities. As a result permitting processes and ensuring compliance has become difficult. This potential action seeks to enhance understanding among citizens and also between regulatory agencies to ensure accurate and meaningful information is easily accessible. The goal is to prevent the fines or penalties and preclude additional regulatory actions in the community through enhanced awareness and understanding about existing laws and regulations.

Potential Partners

USACE, EPA, NCRWQCB, SCC, Mendocino County Planning and Building, Sonoma County Permit and Resource Management, cities, RRWC, League of Women Voters

Related Activities, Projects and Programs

Not available

Relevant References

Guide to Watershed Project Permitting (CARCD)

Related Potential Action(s)

SH1, WQ6, SA2

Strategy III-C: Stewardship Activities

Potential Action SA1: Provide stewardship training opportunities where needed at the sub-watershed level.

Tasks may or may not include:

A. Consider the stewardship activities of sub-watershed groups as potential topics for training programs and educational curricula.

B. Use existing models for establishing a network of sub-watershed groups to assist with the development, implementation and staffing of training opportunities.

C. Use the RRIIS to promote and track training opportunities and support network of sub-watershed councils.

Rationale (Issues Addressed)

Stewards provide direct care and services that help restore the health of the watershed and its resources. Their efforts may be hindered if they cannot access the appropriate information to do the job and, as a result, the entire watershed may suffer. Providing stewards with the appropriate training and resources would enable citizens and stakeholders to participate in restoration projects, focus their efforts on the most critical watershed issues (e.g., need for additional on-site pollution and sediment prevention measures), and minimize duplicative or counterproductive activities in the watershed.

Potential Partners

NRCS, NMFS, EPA, NCRWQCB, RCDs, UCCE, Occidental Arts and Ecology Center, Dutch Bill Creek Watershed Group, other sub-watershed groups, RRWC

Related Activities, Projects and Programs

UCCE Workshops, RCD Stewardship Programs

Relevant References

RRIIS (CRP, HREC, MIG)

Related Potential Action(s)

UR6, RA1, PE3, PE5, DC6

Potential Action SA2: Foster partnerships between federal and state agencies, the RRWC and local community organizations to optimize available resources.

Tasks may or may not include:

A. Develop a process by which RRWC members share ideas and resources to promote stewardship activities throughout the watershed.

B. Support collaborations between agency staff and private property areas to establish demonstration projects and test new approaches (e.g., fencing and alternative sediment prevention practices for potential implementation watershed-wide).

C. Use the Bear Creek Watershed case study and others as models of collaborative strategies, site-specific ecological improvement approaches, and educational and fundraising opportunities (e.g., eco-tourism).

D. Implement RRWC priorities for salmonid species.

Rationale (Issues Addressed)

This potential action recognizes the people in the watershed as sources of valuable ideas, information and energy for the successful implementation and maintenance of restoration and management approaches. Developing strategic partnerships in the watershed may help to connect funding and tools with stewardship activities, increase coordination between different projects and programs, and enhance communication among agencies and property owners. In short, partnering may help to maximize resources required to recover native species in the watershed.

Potential Partners

NRCS, NMFS, EPA, NCRWQCB, DFG, RCDs, sub-watershed groups, RRWC

Related Activities, Projects and Programs

Bear Creek Watershed Case Study (see Appendix VI)

Relevant References

Russian River Basin Fisheries Restoration Plan – Review Draft (DFG)

Related Potential Action(s)

UR6, WS5, WQ6, RA1, RA3, RA5, PE5

Strategy III-D: Public Education and Outreach

Potential Action PE1: Present the Phase II Plan of Action (POA) as a tool to educate elected officials and decision-makers throughout all levels of government about the potential actions required to address the critical issues existing in the Russian River watershed.

Tasks may or may not include:

A. Use the California League of Cities conference as a forum for presenting the POA to increase support, participation, collaboration and resource (i.e., funding, volunteer time, etc.) opportunities among city officials and department staff.

B. Identify supporting documents and planning processes (e.g., DFG's *Russian River Basin Fisheries Restoration Plan* and Section 7 Consultation) to increase support and coordination of these efforts.

Rationale (Issues Addressed)

The development of the *POA* included discussions of critical issues, current restoration efforts and agency planning processes to identify potential solutions for recovering listed species and restoring the overall health of the watershed. The intent of this RRWC product is to provide community input for the development of the watershed management plan. Presenting this document to elected officials and decision-makers, including the issues, actions and opportunities for collaborations with resource agencies that it contains, may help to increase widespread participation in the development of a comprehensive management plan as well as enhance local practices.

Potential Partners

Mendocino County Board of Supervisors, Sonoma County Board of Supervisors, RCDs, cities, RRWC

Related Activities, Projects and Programs

Not available

Relevant References

Not available

Related Potential Action(s)

SH1, WQ6

Potential Action PE2: Develop a citizen recognition program that awards the "Top 10" private citizens, property owners and local businesses for exemplary behavior and practices that positively impact the health of the watershed.

Tasks may or may not include:

A. Identify case studies of model award programs to determine effective tools such as websites, ceremonies and financial prizes for implementation in the Russian River watershed.

B. Work with RCDs, property owners and local businesses to ensure the appropriate implementation of such a program.

Rationale (Issues Addressed)

The rationale behind Potential Action PE2 is to promote collaboration within the community, identify models for additional implementation, and diversify restoration and recovery approaches. Highlighting positive approaches may help to identify the interconnections between habitat and human activities and rewarding actions may promote stewardship.

Potential Partners

Mendocino County, Sonoma County, RCDs, cities, RRWC, local Chamber of Commerces

Related Activities, Projects and Programs

Not available

Relevant References

Not available

Related Potential Action(s)

SA2, PE3

Potential Action PE3: Promote awareness of watersheds, basins, and aquifers and their relationship to water flow, supply and quality.

Tasks may or may not include:

A. Develop accessible, easy-to-understand and bi-lingual educational programs and materials to increase awareness about the interrelated components and issues within the watershed. Include information regarding the following:

- Basic definitions of watershed elements, functions and structure,
- Water supply and demand including the impact of dams and dam operations (i.e., public and private),
- Water rights related to both groundwater and instream uses,
- Groundwater systems,
- Critical flow and usage patterns
- Future water needs, and
- Potential impacts of conservation and re-use measures.

B. Develop "step-by-step" descriptions about how landowners and homeowners can implement water conservation and re-use practices on private properties and in homes

and local businesses to minimize negative impacts on streams and river flows (e.g., flush toilets and reuse of grey water or strategies defining the proper use and maintenance of on-site septic systems).

C. Continue outreach and expand information presented at Water Rights Seminar.

D. Use RRIIS as a tool for coordinating program development efforts, disseminating materials to the public, and responding to new information (e.g., press releases and news articles) through an open and engaging online discussion forum.

Rationale (Issues Addressed)

This potential action seeks to improve the overall understanding of the complex yet interconnected watershed system to promote awareness and proactive protection measures. The goal is to minimize the need for regulatory approaches and foster an environment where people work together to ensure economic and ecological sustainability.

Potential Partners

USGS, Resources Agency, NCRWCB, SCWA, MCWA, RCDs, RRWC, 4SOS

Related Activities, Projects and Programs

Sonoma County Blue Circle (UCCE, FishNet 4C, West County Watersheds Network, 4SOS)

Relevant References

Not available

Related Potential Action(s)

SH4, UR2, WS1, WQ2, SA2, PE2

Potential Action PE6: Provide a watershed information center that serves as a central dispatch location providing press kits and public information materials for resource and community organizations to increase overall understanding and share information.

Tasks may or may not include:

A. Establish public computer or Internet workstation(s) to provide community members and organization representatives with access to RRIIS, other watershed group websites, resource agency information and computer modeling tools.

B. Consider existing and easily accessible locations for workstations, such as the public library.

C. Develop an informational brochure or pamphlet about RRIIS to inform resource managers and the public about the function and capabilities of the online data management tool.

D. Include video of the Water Rights Seminar as part of the information center resource library and identify venues and forums for showing the video.

Rationale (Issues Addressed)

Using available resources to promote public education and outreach is the focus of this potential action. Disseminating information via the Internet, community spaces and easy-to-understand materials, may increase overall awareness and promote action. A watershed information center that serves as an educational tool and utilizes existing technology may provide a low-cost mechanism for linking local efforts and key watershed decisions.

Potential Partners

NRCS, NCRWQCB, Mendocino County, Sonoma County, RCDs, cities, RRWC, HREC, CRP

Related Activities, Projects and Programs

Napa River Watershed Task Force (see Appendix VI)

Relevant References

RRIIS (CRP, HREC, MIG)

Related Potential Action (s)

PE3, PE4, PE5, PE6, PE7, PE8, PE9, DC6

ADDITIONAL POTENTIAL ACTIONS

Several potential actions were identified following the preliminary prioritization exercise on September 14, 2002. As a result, these potential actions were not reviewed nor discussed by the entire RRWC throughout the development of the *POA*. Additional potential actions are listed below to differentiate these potential actions from those in Chapter 4, which were the subject of in-depth discussion, and to retain these ideas for subsequent reviews and updates of this document. In addition, the potential actions identified during the panel session regarding long-term funding strategies, also held on September 14, 2002, are included in this appendix. The numbering for the potential actions below is continued from the potential actions for each strategy in Chapter 4.

SC6. Investigate methods and practices that help to shield or protect sensitive habitat areas from bright nighttime lights.

SH6. Reduce barriers to migration and spawning. Determine the feasibility of fishway bypasses and construction of off-stream storage to minimize reliance on in-stream storage.

WS6. Evaluate a moratorium on all further water diversions.

OS12. Consider revising the Rules of Operations to remove caucuses from the organizational structure.

LF7. Use the Plan of Action to apply for USACE budget appropriations for a Russian River Continuing Authority Program. Consider the San Francisco Bay Estuary Ecosystem Restoration as a model project that is seeking $50 million in funding to address restoration projects and studies.

LF8. Promote local landowner collaboration with RCDs and help private property owners' apply for the Environmental Quality Incentives Program (EQIP) and Wildlife Habitat Incentive Program (WHIP) offered by the NRCS.

LF9. Apply for state and county grant programs to fund fishery restoration projects. Consider the Fishery Restoration Grants Program and California Riparian Habitat Conservation Program offered by DFG or grant opportunities offered by the Mendocino County Fish and Game Commission or Sonoma County Fish and Wildlife Advisory Board. Encourage public agencies, non-profits and private organizations/individuals to obtain associated permits, maintain fiscal accountability and apply methods and practices identified in the DFG Restoration Manual to ensure greater likelihood of funding.

LF10. Identify required resources for resource management agencies to continue programs and projects. For example, actual and proposed DFG staff cutbacks may negatively impact the ability of the DFG to provide the in-kind support to the RRWC that's necessary to receive federal matching funds.

LF11. Support proposed federal policy revisions that may increase the ability of the federal government to participate in local projects from 50% to 100%.

LF12. Build relationships with potential funding sources (e.g., the State Coastal Conservancy) through inviting their representative to participate in RRWC activities, panel discussions and meetings. Use the *POA* to help educate potential funding sources about the work of the Council.

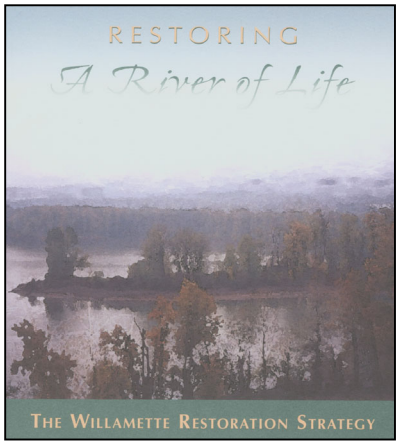
LF13. Explore County Fish and Game Commission funding for RRWC activities. This Commission receives fine violation monies and may be an untapped source of funds.

RELEVANT CASE STUDIES (USED FOR THE DEVELOPMENT OF THE *POA*)

An in-depth review was completed for specific case studies selected by the Steering Committee to inform the development of the *POA*. Specifically, the case studies serve as practical models of watershed restoration planning processes in terms of the context, decision-making processes, stakeholder involvement, obstacles and outcomes. The case studies were presented to the RRWC early in the *POA* planning process to provide models of effective planning processes and restoration strategies for potential application in the Russian River watershed.

Three case studies were selected for in-depth review based on specific common issues and valuable lessons learned, geographic location and environmental conditions, stakeholder involvement, organizational structure, and type of restoration strategy. The case studies reviewed and presented were the *Willamette Restoration Strategy*, *Napa River Watershed Task Force*, and *Bear Creek Watershed Restoration Project*. Each of these case studies is described in this appendix.

THE WILLAMETTE RESTORATION STRATEGY



The Willamette River reached an alarming degree of deterioration that posed major threats to human health and levels of native species. A significant portion of the river and tributaries did not meet national water quality standards. The State Health Division was prompted to issue advisories regarding the risks of eating fish. The Willamette's chinook population suffered drastic decline.

Based on the recommendation of a special task force created to investigate the deteriorating condition of the Willamette River, a State of Oregon executive order was passed in October of 1998 initiating a unique approach to preserve and manage the watershed. As a result, the Willamette Restoration Initiative (WRI) was formed to develop a plan of action and manage its implementation. Funding was provided through the state legislature and five federal agencies. The organizational framework provided for a board of directors and key permanent staff members. The Initiative was charged with accomplishing several objectives:

- Protect and restore fish and wildlife habitat
- Increase populations of declining species
- Enhance water quality
- Properly manage floodplains

The result of the WRI's work toward developing a holistic and integrated action plan was the *Willamette Restoration Strategy*. The *Strategy* was focused on four key areas including Clean Water, Water Quantities, Habitat and Hydrology, and Institutions and Policies. For each component, critical actions and integrated state and federal agency measures were developed. The document was organized into the following structure:

- Profile of the Willamette Basin
- Working for the Basin's Best Interests
- Measuring Restoration Results
- Four Restoration Focus Areas
- Investing in the Future
- Recommended Actions

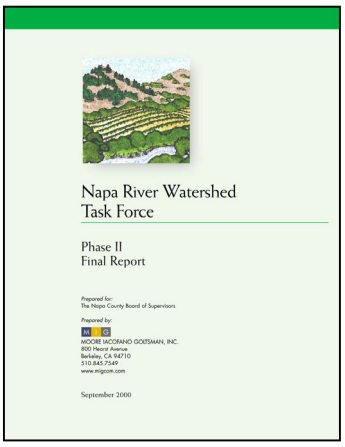
To achieve a high level of precision in the implementation of the recommended actions, the *Strategy* carefully delineated timetables, responsible parties, individual tasks, estimated costs, funding sponsors, success measures, geographic scope, potential obstacles, and required regulations. The *Strategy* made four practical recommendations that encompassed funding, implementation strategies, tracking systems, evaluation and refinement. The project has garnered more than $1 million for implementation and community outreach expenses. In 1998, the Willamette was designated an American Heritage River.

The WRI tapped into a statewide program known as the Oregon Plan. Following legislative and gubernatorial approval in February 2001, the *Strategy* became a supplement to the Oregon Plan, which was predicated on a participatory, wide-scale approach to natural resource management. The *Strategy* also relied on grass-roots efforts, voluntary measures, and better enforcement of existing regulations to restore native fish population to sustainable levels. Therefore, a key strategy of the WRI was to identify and leverage existing regulatory and legislative protection to maximize the efficacy of the recommended actions in the *Strategy*.

Several key accomplishments noted for the project to date include the widespread involvement of local communities in voicing their needs and values, identification of government resources and complementary regulatory policy, and resources gained for project implementation. Some of the lessons learned through the process were specific to the overly large board of directors and approaches compromised by opportunism. The process itself had the added value of bringing good exposure to the issue. The bottom-up, community driven approach was appropriate and beneficial. Despite some of the setbacks encountered, the effort was seen as productive and worthwhile.

For additional information about the Willamette Restoration Initiative or the *Willamette Restoration Strategy*, the following website can be used: <www.oregonwri.org>.

NAPA RIVER WATERSHED TASK FORCE


Napa River Watershed
Task Force

Phase II
Final Report

Prepared for:
The Napa County Board of Supervisors

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September 2000

The Napa River also faced a severe threat of decline or extinction of fish and other aquatic species. In response to the crisis, the Napa River Task Force was formed in December 1998 to develop a strategy that would mitigate and reverse the environmental deterioration. The Task Force was given a mandate to "examine a variety of short-term and longer-term conservation strategies related to sustainable land use, protection of natural resources and habitats, and the critical role of agriculture in the regional economy and quality of life." Key participants in the process included the project manager from the Napa County Conservation, Development and Planning Department (CDP), technical advisors, facilitation and document production consultants, and a Technical Review Team.

A series of meetings were held to disseminate and exchange information, as well as to develop goals, strategies to achieve the identified goals, and specific recommendations for implementing the strategies. The four strategy areas included:

- Compliance with conservation ordinance
- Improvements to conservation regulations
- Watershed Information Center
- Watershed Protection and Restoration Conservancy

A major information-gathering project was initiated in order to begin to understand and define the scope of the issues and to inform future watershed management decisions. Research was conducted on a variety of issues specific to the wine industry and urbanization trends, soil erosion, state/federal roles, and ecological protection/restoration.

The Phase I component of the Napa River Task Force program achieved several important successes. A key administrative citation ordinance was adopted. A staff member was hired at the District Attorney's office and an inspector at the CDP Department. The Task Force also created a conservation regulation "hotline." Overall, stakeholders noted an enhanced County & RCD collaboration.

Phase II of the project focused on a longer-term set of issues and objectives. The principal of these included:

- Improving water quality and removing the Napa River from the "impaired" list
- Improving habitat preservation, while maintaining agricultural economy

- Ensuring that all land disturbance activities were incorporated into regulatory and institutional approaches

The final report presented issues, recommendations and rationale on conservation regulations. It discussed the roles, funding opportunities, mission and suggested structure of the Watershed Information Center and Napa Watershed Conservancy as well as outlining key action steps.

The conservation regulations covered a range of areas that included:

- Stream Definitions
- Stream Setbacks
- Off-Site Hydrological Impacts
- Sedimentation in Water Supply Watersheds
- Biological Analysis & Resource Protection
- Oak Tree Preservation
- Fencing
- One Acre Exemption
- Timber Harvesting Plan (THP) and Timber Conversion Plan (TCP) Exemption
- Erosion Control Plan (ECP) Requirements Relative to Slope Criteria
- Watershed Protection/Restoration Fees
- Watershed Protection Incentives

Some of the key accomplishments noted for Phase II were: 1) the formation of an implementation committee; 2) the development of full-scale revisions; and 3) performance of an environmental review.

Several key lessons can be surmised from the Napa River project that may be applicable to the other planning processes. The process was lengthy and time consuming in many aspects. Different stakeholders and groups approached the project with different perceptions of the problem. Practical assignments of responsibility and realistic timelines proved to be problematic. Securing agency support and commitments are critical for effective implementation.

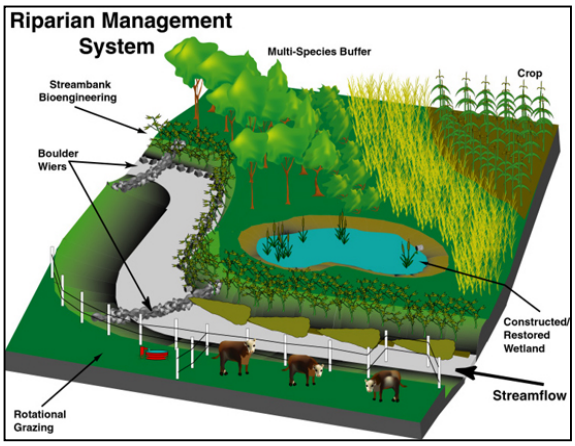
For additional information about the Napa River Watershed Task Force, visit the Napa County CDP Department website at: <www.co.napa.ca.us >.

BEAR CREEK WATERSHED RESTORATION PROJECT

This management project dealt with a geographic area cutting through the Western Corn Belt in a two-county jurisdiction in Iowa. The watershed faced an onslaught of threats to water quality and flow, including erosion and agricultural chemicals, flooding, and animal effluents. A 60-member Agroecology Issue Team was formed to develop restoration measures that would address the critical issues in the Bear Creek watershed. The team represented a partnership between the academic community and landowners. The team was charged with the following objectives:

- Develop flexible riparian management systems that are acceptable to farmers/landowners and that embrace landscape sustainability and diversity.
- Conduct on-farm research to understand the functions of riparian management systems.

The Team worked together to develop a system that would help to restore an intensively modified agricultural watershed, build upon existing efforts, and include broad applicability inside and outside Bear Creek watershed. The result of the Team's efforts was the creation of a Riparian Management System (RiMS) that includes many tools to rebuild and maintain the integrity of a watershed such as the use of buffer zones, constructed wetlands and rotational grazing practices.



This diagram highlights the basic yet flexible components of the Riparian Management System (RiMS) developed to resolve erosion, flooding, animal effluent, and invasive species problems facing many farmers in Bear Creek County, Iowa.

To enhance the feasibility of implementing RiMS, the Team tapped into a broader Conservation Reserve Program established by the 1985 Food Security Act. The goal of the Program is to mitigate erosion, soil loss and the destruction of species' habitats in cropland areas. The Program allows property owners to retire highly erodible or environmentally sensitive cropland from production for 10-15 years for an annual per acre rent plus cost to establish permanent cover.

Through this program, RiMS has been implemented as demonstration sites on approximately eight private properties and planned for 3 additional properties in the Bear Creek watershed. As a result, 66-108 feet of riparian buffer strips exist throughout the watershed today. A number of environmental improvements within the watershed were attributed to the project's impact such as:

- Reduction of bare soil areas
- Decrease in bank erosion

- Decline of sediment and nitrogen inputs
- Increase of vertebrates and shade cover
- Rebound of wildlife species
- Decrease in uplands erosion

As a result, the Bear Creek Restoration project was the recipient of several environmental awards, including designations as a National Showcase Watershed (1998) and NRCS National Restoration Site (2002). The Agroecology Issue Team of the Leopold Center for Sustainable Agriculture at Iowa State University offers tours of its demonstration areas allowing resource managers and property owners opportunities to learn more about RiMS and its application.

For additional information about the Agroecology Issue Team or the Bear Creek Watershed Restoration Project, the following website can be used: < www.buffer.forestry.iastate.edu >.

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LIST OF ACRONYMS & WEBSITES

4SOS	For Sake of the Salmon < www.4sos.org>
ARPA	Archeological Resource Protection Act <www2.cr.nps.gov/laws/archprotect.htm>
BA	Biological Assessment
BIA	Bureau of Indian Affairs <www.doi.gov/bureau-indian-affairs.html>
BLM	Bureau of Land Management <www.blm.gov/nhp>
BMPs	Best Management Practices
BO	Biological Opinion
BOR	Bureau of Reclamation <www.usbr.gov>
CAA	Clean Air Act <www.epa.gov/oar/oaq_caa.html>
CAC	Mendocino General Plan Update Citizen Advisory Committee
Cal/EPA	California Environmental Protection Agency <www.calepa.ca.gov>
CARCD	California Association of Resource Conservation Districts <www.carcd.org>
CCC	California Coastal Commission <www.coastal.ca.gov>
CCC	California Conservation Corps < www.ccc.ca.gov/cccweb/index.htm>
CDF	California Department of Forestry and Fire Protection <www.fire.ca.gov>
CDP	Napa County Conservation, Development and Planning Department <www.co.napa.ca.us >.
CEQA	California Environmental Quality Act <ceres.ca.gov/ceqa>
CESA	California Endangered Species Act <ceres.ca.gov/topic/env_law/cesa/stat>
CGS	California Geological Survey <www.consrv.ca.gov/CGS>
CIP	Capital Improvement Plan
CREP	Conservation Reserve Enhancement Program <www.fsa.usda.gov/dafp/cepd/crep.htm>
CRMP	Coordinated Resources Management and Planning < www.cacrmp.org>
CRP	Circuit Rider Productions, Inc. <www.crpinc.org>
CWA	Clean Water Act <www.epa.gov/region5/water/cwa.htm>
DFG	California Department of Fish and Game <www.dfg.ca.gov>
DWR	California Department of Water Resources <wwwdwr.water.ca.gov>
ECP	Erosion Control Plan

EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency <www.epa.gov>
EQIP	Environmental Quality Incentives Program <www.nrcs.usda.gov/programs/eqip>
ESA	Endangered Species Act <endangered.fws.gov/esa.html>
ESU	Ecologically Significant Unit
FERC	Federal Energy Regulatory Commission <www.ferc.gov>
FGC	California Fish and Game Commission <www.dfg.ca.gov/fg_comm.>
FSA	Farm Service Agency <www.fsa.usda.gov>
GIS	Geographic Information System
Gold Ridge RCD	Gold Ridge Resource Conservation District <sonomamarinrcds.org/district-gr>
HREC	University of California, Hopland Research and Extension Center <danrrec.ucdavis.edu/hopland/home_page.html>
IRWP	Incremental Recycled Water Program <www.recycledwaterprogram.com>
KRIS	North Bay Klamath Resource Information System <www.krisweb.com>
LCP	Local Coastal Plan
MCIWP	Mendocino County Inland Water and Power
MCRRFC&WCID	Mendocino County Russian River Flood Control and Water Conservation Improvement District
MCWA	Mendocino County Water Agency <www.co.mendocino.ca.us/direct.htm>
Mendocino County RCD	Mendocino County Resource Conservation District <mrcd.ca.nacdnet.org>
MIG	Moore Iacofano Goltsman, Inc. <www.migcom.com>
MOU	Memorandum of Understanding
NAGPRA	Native American Graves Protection and Repatriation Act <www.cr.nps.gov/nagpra>
NCRWQCB	North Coast Regional Water Quality Control Board <www.swrcb.ca.gov/rwqcb1>
NCWAP	North Coast Watershed Assessment Program <www.ncwatershed.ca.gov>
NEPA	National Environmental Policy Act <ceq.eh.doe.gov/nepa/nepanet.htm>
NGA	Natural Gas Act <www.ferc.fed.us/informational/acts/nga.htm>

NGPA	Natural Gas Policy Act <www.ferc.fed.us/informational/acts/ngpa.htm>
NMFS	National Marine Fisheries Service <www.nmfs.noaa.gov>
NOAA	National Oceanic and Atmospheric Association <www.noaa.gov>
NPDES	National Pollutant Discharge Elimination System <cfpub.epa.gov/npdes>
NRCS	Natural Resources Conservation Service <www.nrcs.usda.gov>
NTMP	Nonindustrial Timber Management Plan <www.fire.ca.gov/ResourceManagement/HarvestingForms.asp>
PG&E	Pacific Gas and Electric <www.pge.com>
POA	Plan of Action for the Phase II Development of the Russian River Watershed Management Plan <www.rrwc.net/poa.shtml>
PSP	Russian River Watershed Management and Protection Study Project Study Plan < www.spn.usace.army.mil/russian/psp1103.pdf>
PVID	Potter Valley Irrigation District
Resources Agency	California Resources Agency < www.resources.ca.gov>
RCD	Resource Conservation District(s) <www.nrcs.usda.gov/partners/districts.html>
RiMS	Riparian Management System < www.buffer.forestry.iastate.edu >
RHA	Rivers and Harbors Act <ww.sac.usace.army.mil/permits/sec10.html>
RRIIS	Russian River Watershed Interactive Information System <rriis.migcom.com> *(Note: this website is under development and the URL address may change upon its release.)*
RRGIS	Russian River Geographic Information System
RRWC	Russian River Watershed Council <www.rrwc.net>
SCC	California State Coastal Conservancy <www.coastalconservancy.ca.gov>
SCWA	Sonoma County Water Agency <www.scwa.ca.gov>
Sotoyome RCD	Sotoyome Resource Conservation District <sonomamarinrcds.org/district-ssr>
SWRCB	State Water Resources Control Board <www.swrcb.ca.gov>
TCP	Timber Conversion Plan
THP	Timber Harvesting Plan
TMDL	Total Maximum Daily Load <www.swrcb.ca.gov/rwqcb1/Program_Information/tmdl/tmdlprogram.html>
TRT	NMFS' Recovery Planning Process (for West Coast Salmon) Technical Recovery Team
UCCE	University of California Cooperative Extension <www.ucanr.org/ce.cfm >

USACE	U.S. Army Corps of Engineers <www.usace.army.mil>
USFS	U.S. Forest Service <www.fs.fed.us>
USFWS	U.S. Fish and Wildlife Service <www.fws.gov>
WCB	Wildlife Conservation Board <www.dfg.ca.gov/wcb>
WHIP	Wildlife Habitat Incentives Program <www.nrcs.usda.gov/programs/whip/>
WIAM	Watershed Information Assessment and Monitoring Workgroup of the Russian River Watershed Council <www.rrwc.net>
WRI	Willamette Restoration Initiative <www.oregonwri.org>
WSTSP	Water Supply and Transmission System Project