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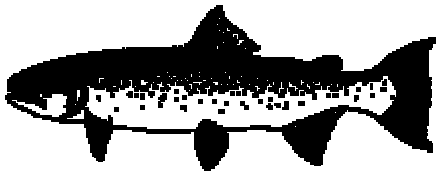

PLAN OF ACTION

…for the Phase II Development of the Russian River Watershed Management Plan

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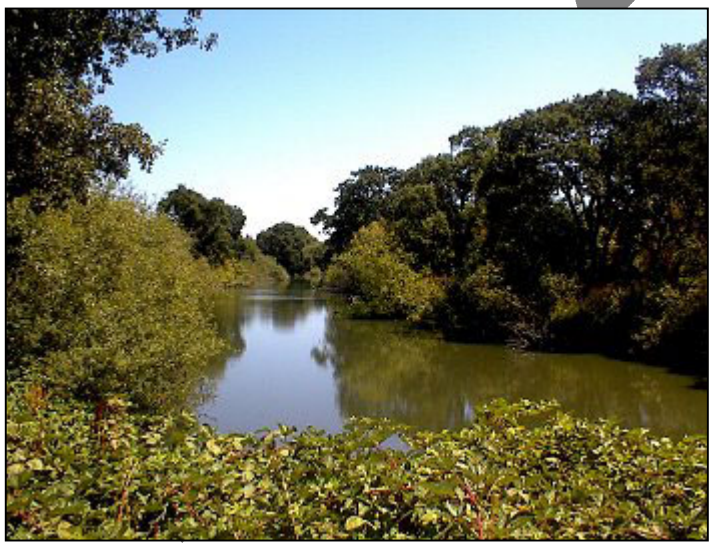
Table of Contents

1. INTRODUCTION

PURPOSE & BACKGROUND

The *Plan of Action for the Phase II Russian River Watershed Management and Protection Study (POA)* identifies critical issues, potential actions and tools for developing a comprehensive watershed management plan based on community input. The potential actions contained in this plan will be further evaluated and expanded with specific design recommendations during the future development of the watershed management plan in Phase II of the Russian River Watershed Management and Protection Study. The intent of the *POA* is to achieve the goals of the Russian River Watershed Council (RRWC) identified in the organization's mission statement. Specific to the restoration, economic and community needs in the Russian River watershed, this plan establishes criteria for future management and protection decisions and highlights the role of the community in related planning processes.



The Russian River is the primary source of water for more than 500,000 area residents 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, at one time abundant throughout the watershed, have been listed as threatened species under the Federal Endangered Species Act (ESA). In addition, coho salmon have been listed as "petition endangered" under the California ESA.

As a result, American Rivers, Inc. has designated the Russian River as the 15th most threatened river in North America. The State of California grouped the Russian River watershed in the highest category of impaired through the Unified Watershed Assessment outlined in the multi-agency Clean Water Action Plan.

In September 1997, Congress authorized the Russian River Ecosystem Restoration Reconnaissance Report by the San Francisco District of the U.S. Army Corps of Engineers (USACE) to review the effects of Coyote and Warm Springs Dam on the Russian River and its tributaries. The Reconnaissance Report proposed the development of the Russian River Watershed Management & Protection Study to address the structural and nonstructural watershed restoration measures that would need to be undertaken to provide erosion control and streambank protection, sufficient ground and water supplies, and a balance between environmental and economic sustainability in the watershed.

Introduction

USACE and the State of California Resources Agency (Resources Agency), recognizing the need for a new, comprehensive approach for improving the ecological health of the Russian River ecosystem, partnered to ensure the development of a comprehensive, community-based watershed management plan. Accordingly, the partners completed the Russian River Watershed Management & Protection Study Project Study Plan (PSP) which outlines 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 establishes a forum for stakeholders representing diverse economic, environmental and public 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 recommendations in the *POA* into a watershed management plan. The watershed management plan will determine the appropriate studies and tasks required for implementation and identify specific locations and design criterion for restoring an ecological balance within the watershed. The plan will include all necessary National Environmental Protection Act (NEPA)/California Environmental Quality Act (CEQA) documentation with the RRWC providing on-going public involvement during plan development.

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
- Water Conditions and Characteristics
- Human and Habitat Connections

In addition, three expert panels consisting of county planners, data collectors and analysts, and fiscal agents were convened to answer the following questions **<<the third panel regarding long-term funding is to be scheduled on Sept 14>>**:

- What is the most effective approach for stream protection and how can effective approaches be developed and implemented county-wide?
- 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?

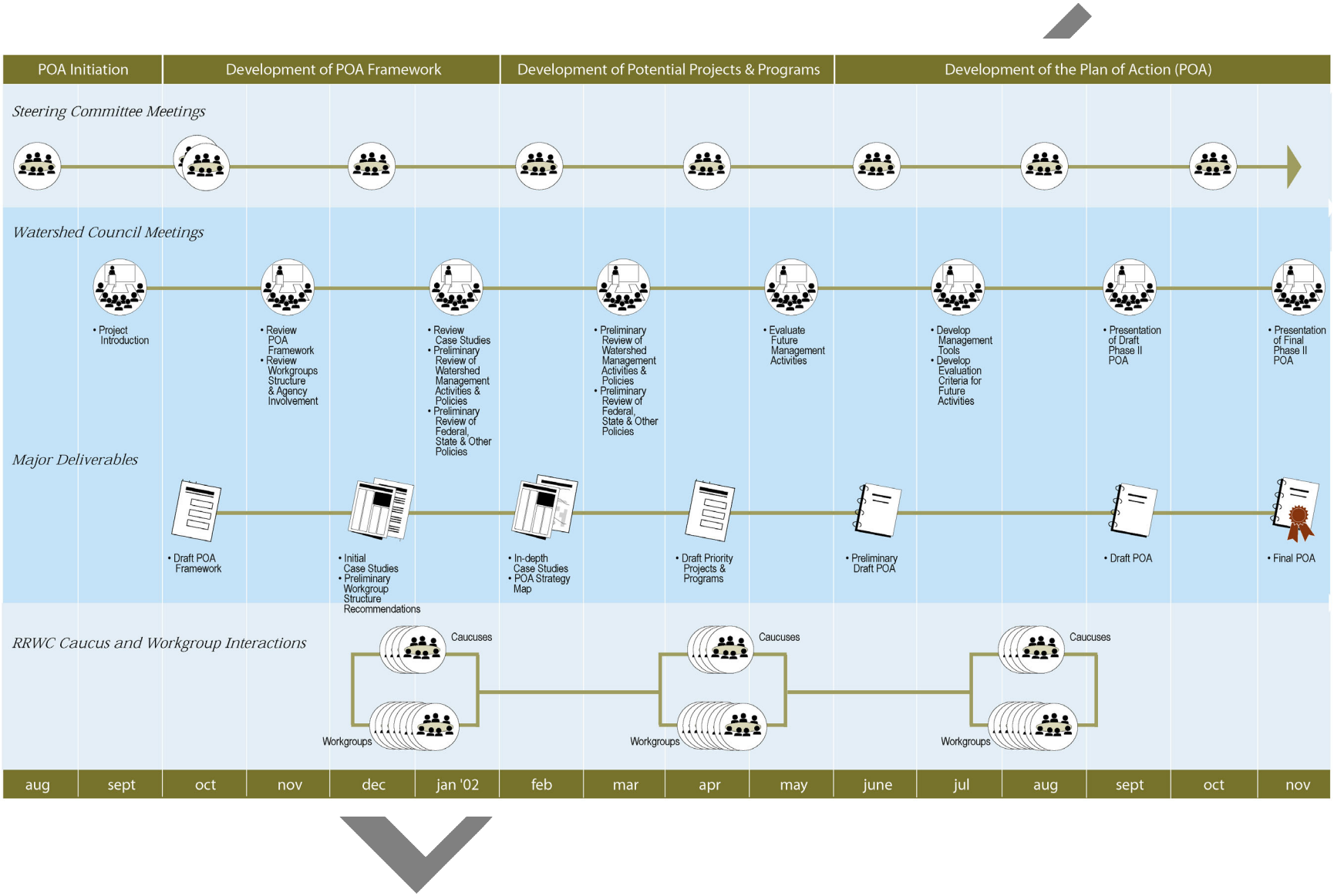
The results of the discussions and panel sessions at RRWC meetings were used to develop potential actions to address the critical issues. Throughout the action development process, agency representatives provided technical reviews of the actions contained in preliminary drafts of the *POA*. The

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*. Specifically, the caucuses discussed critical issues in the watershed and current restoration efforts, the pros and cons regarding a variety of preliminary organizational structure alternatives, and **<<the third meeting discussion is TBD>>**.

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.


POA Initiation
Development of POA Framework
Development of Potential Projects & Programs
Development of the Plan of Action (POA)
Steering Committee Meetings
Watershed Council Meetings
• Project Introduction
• Review POA Framework
• Review Workgroups Structure & Agency Involvement
• Review Case Studies
• Preliminary Review of Watershed Management Activities & Policies
• Preliminary Review of Federal, State & Other Policies
• Preliminary Review of Watershed Management Activities & Policies
• Preliminary Review of Federal, State & Other Policies
• Evaluate Future Management Activities
• Develop Management Tools
• Develop Evaluation Criteria for Future Activities
• Presentation of Draft Phase II POA
• Presentation of Final Phase II POA
Major Deliverables
• Draft POA Framework
• Initial Case Studies
• Preliminary Workgroup Structure Recommendations
• In-depth Case Studies
• POA Strategy Map
• Draft Priority Projects & Programs
• Preliminary Draft POA
• Draft POA
• Final POA
RRWC Caucus and Workgroup Interactions
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STRATEGIC FRAMEWORK

The RRWC's framework for developing a comprehensive community-based watershed management plan is presented on the following page. 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:

1. 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;

2. To ensure a strong, healthy, and diverse economy in the Russian River region; and

3. To promote stewardship of the Russian River and its watershed by developing an informed and engaged citizenry.

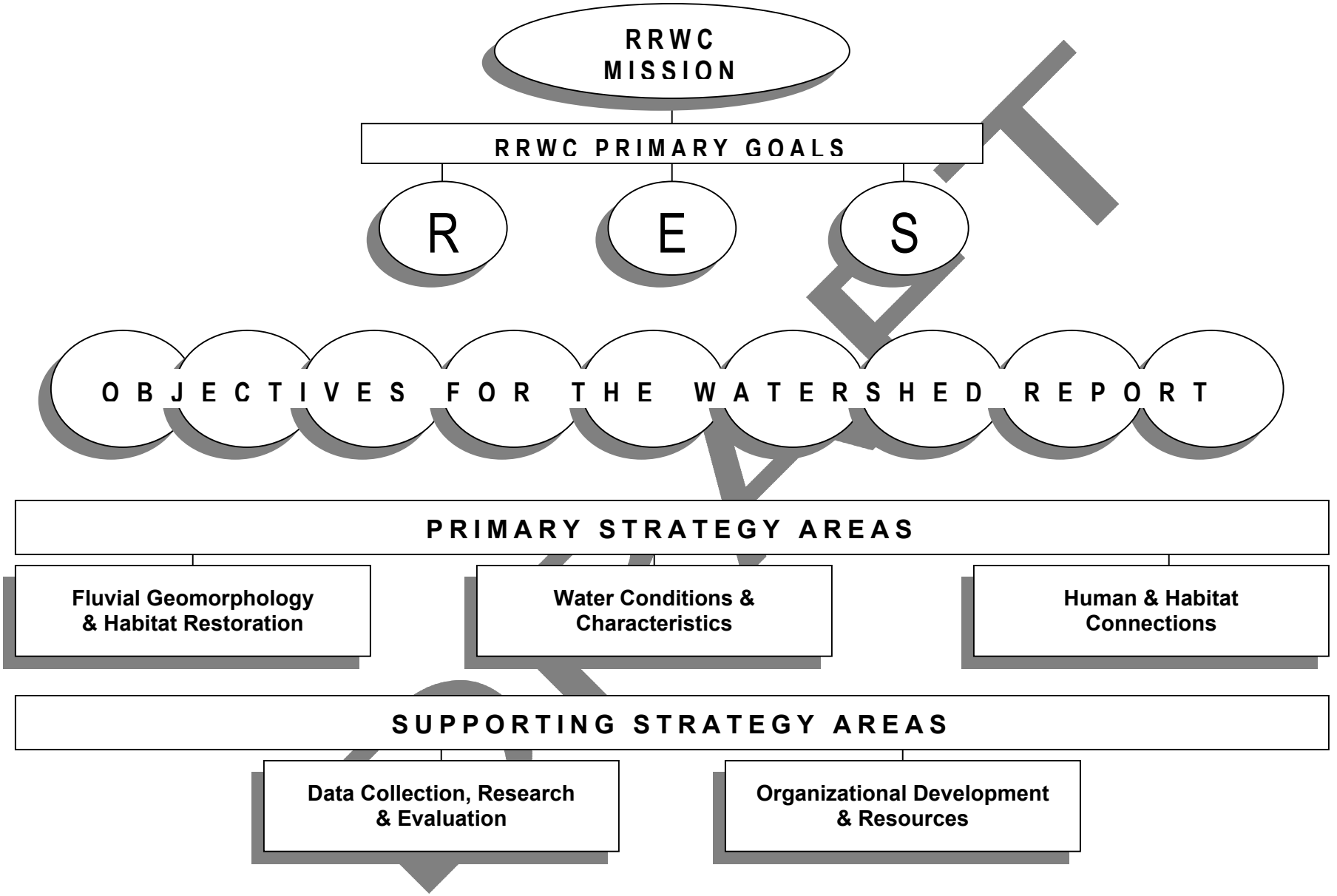
POA Objectives

The mission statement above was crafted by RRWC 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)

* The following coding system was used to link each of the *POA* objectives to the appropriate primary goal(s):

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


RRWC MISSION
RRWC PRIMARY GOALS
R
E
S
OBJECTIVES FOR THE WATERSHED REPORT
PRIMARY STRATEGY AREAS
Fluvial Geomorphology & Habitat Restoration
Water Conditions & Characteristics
Human & Habitat Connections
SUPPORTING STRATEGY AREAS
Data Collection, Research & Evaluation
Organizational Development & Resources

- **Identify high leverage points.** Similar to environmental constraints, high leverage points within the watershed guide the development and implementation of restoration measures. Measures implemented in specific areas within the watershed (i.e., roads or siltation areas) where significant improvements in the health of the entire watershed would result will be identified. Additional studies regarding potential long-term impacts are necessary to determine how to achieve the most beneficial impacts. (Recovery, Economy)

- **Identify practical solutions and best practices implemented in other watersheds to be used as models.** The practices and principles of watershed management are experiencing a resurgence of innovative ideas, programs and policies such as subtractive restoration measures as opposed to additive measures. This objective involves research regarding criteria and best practices already implemented that have proven to decrease negative impacts in the watershed and lessons learned regarding failed efforts. Agency collaboration is a key step to achieve this goal due to the extensiveness of their resource and contact lists. (Recovery, Economy, Stewardship)

- **Critically analyze on-going practices in the watershed.** The successful implementation of this goal seeks to identify appropriate and inappropriate restoration practices, current levels of stakeholder involvement, and existing data gaps. Comprehensive analyses involve long term assessments of conditions, policies and activities to obtain information about total impacts over time. (Recovery, Economy)

- **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 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. Human induced environmental constraints will also be evaluated to ensure that decisions affecting the watershed are based upon lessons learned from the past. (Recovery)

- **Document agency activities.** Documenting current activities conducted by agencies in the watershed would identify 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 "delegate" responsibilities to the appropriate agency.** Recognizing the extensive restoration needs within the watershed, it is essential that responsibilities be shared the between specific entities with the appropriate 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. Based on community involvement, Council members agree to the basic principles of inclusivity, tolerance, and accessibility to ensure full engagement and sharing among all Council members. The Council, as a whole, must ensure complete and on-going representation among all stakeholders and interests in the watershed. To this end, the Council 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 serve as focuses or directions for crafting strategies and actions to achieve the *POA* objectives and, consequently, achieve the RRWC's mission and primary goals.

The strategy areas are sorted into two categories: primary and supporting. The primary strategy areas are the strategy areas that are most critical for achieving salmonid recovery, a healthy and diverse economy, and stewardship activities in the watershed:

- Strategy Area I: Fluvial Geomorphology and Habitat Restoration
- Strategy Area II: Water Conditions and Characteristics
- Strategy Area III: Human and Habitat Connections

The supporting strategies are necessary to ensure the success of the strategies and actions for each of the primary strategy areas:

- Strategy Area IV: Data Collection, Research and Evaluation
- Strategy Area V: Organizational Development and Resources

Therefore, all strategy areas are equally important and provide the structure for addressing critical issues and implementing positive change within the watershed.

All strategy areas and related strategies are described on the following pages of this chapter.

Strategy Area I: Fluvial Geomorphology and Habitat Restoration

The key issues in the Russian River watershed are largely due to historic and recent modifications to the stream channel and its surroundings, which have resulted in a loss of functioning habitat and reduction in wildlife populations. Application of fluvial geomorphology understanding and principles ensures that a connection is made between the shape, form and function of the stream and the physical processes (natural and human-induced) that contribute to these attributes and the long-term sustainability of a stream's species and habitat. The following strategies have been identified as broad directions for developing restoration actions for the different but interconnected components of the ecosystem:

<<Add Diagram illustrating stream corridor and upland areas.>>

- **Stream Corridor Restoration** – Stream corridor restoration refers to the reestablishment of the physical structure and function of the river and its tributaries to a desired condition. Although it is impossible to recreate the natural condition of a stream corridor exactly (prior to major disturbances), the goal is to reestablish the natural stream corridor's 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).

- **Species and Habitat Recovery** – Habitat requirements of native species within the watershed are the focus of this strategy. Regaining the status of native species requires an understanding of their specific life stages and habitat needs. Subsequently, an analysis of the 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 the development of activities and projects for implementation within the transitional zone between the floodplain and surrounding landscapes in the watershed or the zone that comprises most of the land surface area within the watershed. Historically, human activities and practices between "ridge divides and river sides" have not been considered during aquatic restoration and recovery efforts due to a lack of knowledge and conclusive data regarding upland impacts on stream channels, water conditions, habitat and ecological diversity. The purpose of focusing on these areas, which include 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 minimize or eliminate disturbances that adversely impact the river, tributaries, native species and related habitat.

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 & Storage (Including Dams)** – This strategy requires the identification of critical water sources and storage locations, areas of inadequate or low water supplies, and the comprehensive impacts on native 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 along the stream corridor and related ecological impacts will serves 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 must consider the spatial and temporal characteristics of point and nonpoint source pollution, and lateral (short- and long-term impact of activities and conditions in the watershed) and longitudinal (short- and long-term impact of instream transport processes) factors.

Strategy Area III: Human and Habitat Connections

This strategy area, Human and Habitat Connections, originated from a discussion about fish passage and habitat connectivity issues. The discussion quickly transitioned into a broader discussion beyond salmonid life cycle needs and water supply and quality issues. Factors inhibiting species cycles and negatively impacting watershed resources were traced back to a lack of an overall understanding about the different but interconnected components of the ecosystem including its inhabitants. Land use practices, policy-making processes and other human activities often fail to take into account the different interconnections and related impacts throughout the entire watershed. 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 responsible entities 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 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 execute 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

Strategy Area IV: Data Collection, Research & Evaluation

This strategy area and/or strategy 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 leverage points where successful restoration projects can be duplicated and implemented. Developing a clearinghouse of watershed information and data resources will assist resource and regulatory entities in identifying data gaps.

Strategy Area V: 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 and sustain 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 allocation 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; and
  - 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.

PLAN ORGANIZATION

The *POA* is primarily organized by eight chapters. Appendices have been included to provide supporting information and direction for Phase II.

Chapter 1: Introduction

This chapter describes the purpose, background, development process and framework of the *POA*.

Chapter 2: Russian River Watershed Council

Chapter 2 provides historical and current information about the RRWC.

Chapter 3: Russian River Interactive Information System

This chapter presents information about the Russian River Interactive Information System including the specific tools provided by the online database.

Chapter 4: 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 5: The Regulatory Environment

Chapter 5 summarizes the regulatory authorities and policies administered that affect the implementation of resource management and development projects within the watershed.

Chapter 6: Critical Issues

Chapter 6 presents the critical issues existing within the watershed. The critical issues are organized by the five strategy areas and related strategies that guided the *POA* development process.

Chapter 7: Potential Action

The potential actions crafted throughout the *POA* development process are presented in this chapter. Similar to Chapter 6, this chapter organizes the potential actions by strategy area and appropriate strategy.

Chapter 8: Action Development and Implementation Tools

The final chapter in the *POA* summarizes the action development and implementation tools to be utilized in Phase II of the watershed management plan development process and beyond.

Russian River Watershed Council

2. RUSSIAN RIVER WATERSHED COUNCIL (RRWC)

The *POA* synthesizes the critical issues and potential actions as identified by the diverse stakeholders comprising the RRWC. The RRWC was formed through a cooperative effort between the USACE, Resources Agency, Sonoma and Mendocino Counties, and residents in the Russian River watershed to develop a watershed management plan. To fulfill this task, 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.

Specifically, the RRWC was formed to address the following during the development of the watershed management plan:

- Reduce the threat of flooding in the Russian River;
- Adjust the operations of Coyote and Warm Springs dams to mimic the basin's natural systems;
- Reduce channel degradation and erosion caused by gravel mining and channel constraint;
- Improve the Russian River's water quality; and
- Eliminate barriers to fish migration.

On October 3, 1998, over 200 people attended the first meeting of the RRWC. Today, the RRWC includes 54 members representing environmental organizations, economic groups, and the public. In addition, 20 non-voting agency representatives participate in RRWC meetings to provide technical input for discussions and status reports regarding agency studies, projects and activities. Over twenty RRWC meetings have been convened since the first meeting providing diverse 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.

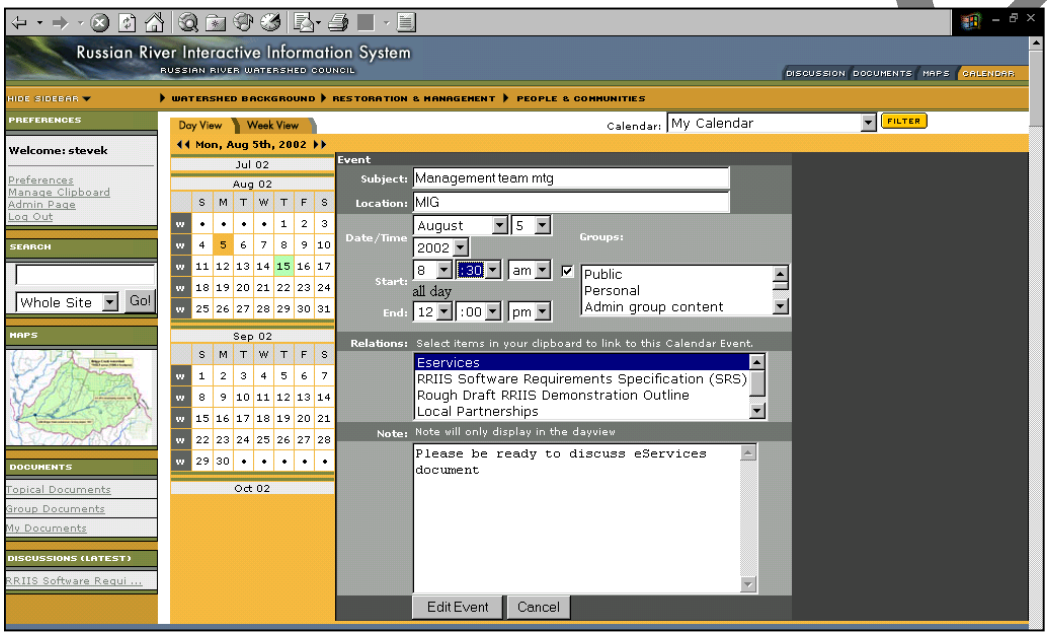
This document serves as the "organizational memory" regarding lessons learned and watershed needs. The potential actions contained in this document provides the building

blocks for the future development of composite, integrated measures that will contribute to alternative plans included in the watershed management plan.

Russian River Interactive Information System

3. RUSSIAN RIVER INTERACTIVE INFORMATION SYSTEM (RRIIS)

The Watershed Information, Assessment and Monitoring (WIAM) workgroup of 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. Circuit Rider Productions, Inc. (CRP), Moore Iacofano Goltsman, Inc. (MIG) and the University of California, Hopland Research and Extension Center (HREC) were contracted to develop an online database that supports mapping, restoration planning, and community outreach and education throughout the watershed.



Specifically, the RRIIS offers users the following communication tools:

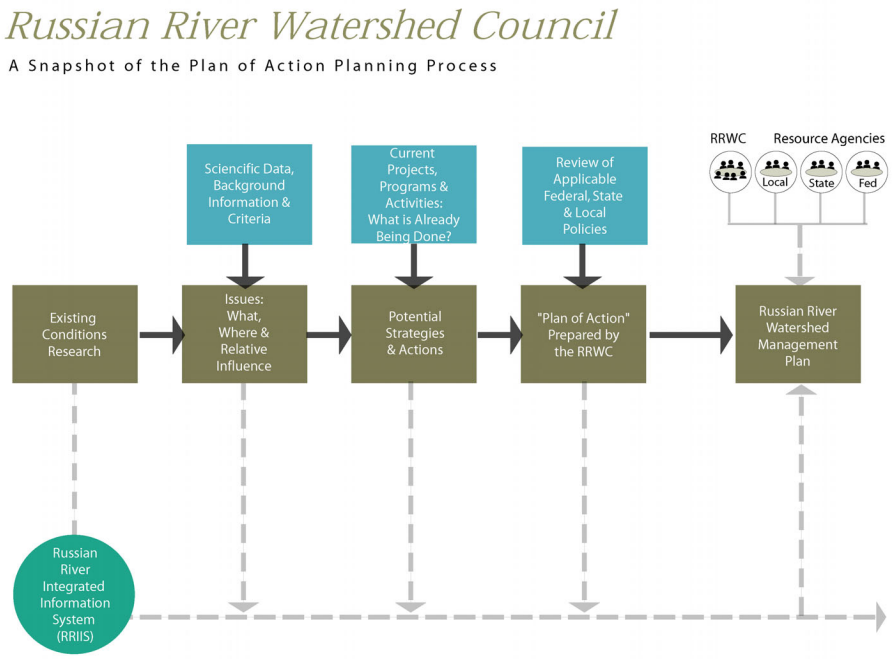
- Archived Discussion forum;
- Searchable agendas, minutes, reports, etc.;
- Shared calendar;
- Shared file system;
- Hot topics; and
- Expert, "best practice," bibliographic, funding and other watershed portal links.

The website is 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;
- Interactive newsletter;
- Customizable watershed portal page; and
- "Create your own" watershed tributary or restoration site.

4. 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 effectively manage resources within the watershed's boundaries. Some of the watershed-wide planning processes currently existing within the watershed are described below to illustrate future restoration measures that will impact the current status of species recovery and watershed-wide restoration. In addition, the projects below and others have been highlighted on three different maps in Appendix I. However, the information below and the maps do not represent a comprehensive listing of all projects currently existing within the watershed.



Watershed Management Plan

The diagram on this 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. This phase entails detailed task analysis for the preliminary measures identified in the *POA*. The RRWC will be responsible for incorporating the refined tasks into the restoration measures and alternative plans to meet the multi-objective goals of all stakeholders. The watershed management plan will finalize all information developed throughout Phase II and present the integrated vision for the management of an environmentally and economically sustainable ecosystem restoration program. The final watershed management plan will be completed in 2005.

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 facilities and operations on steelhead, coho salmon, and chinook salmon. The BA will be submitted to NMFS which will prepare a

Relationship to Other Planning Processes

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, the National Marine Fisheries Service (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 Evolutionary Significant Units (ESU's) to levels at which the specific species are no longer threatened and can be delisted under the ESA. The Technical Recovery Team (TRT) formed will identify factors for decline, specific limiting factors for each ESU and appropriate recovery goals for the watershed based on thorough analysis of data collected by NMFS and other resource management agencies including the Department of Fish and Game. The second phase of the planning process involves implementation of the actions 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.

Department of Fish and Game's Russian River Restoration and Watershed Planning Program

The Department of Fish and Game (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 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 in the *Russian River Basin Fisheries Restoration Plan (2002).* 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.

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 Mendocino, 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.

Data-related Projects

In addition to the RRIIS, several projects have been implemented to better collect, understand and share data regarding watershed issues and recovery efforts.

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 State of California Resources Agency North Coast Watershed Assessment Program (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 (GIS) being developed by NMFS and Circuit Rider Productions (CRP) is to create a centralized system for comprehensive assessments of watershed conditions and prioritization of areas in the watershed for restoration. This decision-making tool is designed to be user-friendly, high quality, and adaptive to allow for maximum use during recovery planning processes and community restoration efforts.

GIS Basin Planning and Mapping – To support DFG's Restoration and Watershed Planning Program, the RRWC provided a contract to DFG and HRCE 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.

5. THE REGULATORY ENVIRONMENT

The following tables provide a brief summary of the federal, state and local watershed management and resource policies that affect restoration and resource management in the Russian River watershed. This summary is provided to ensure that all future actions are carried out in compliance with the appropriate regulatory authorities. The tables are organized by 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.

This information is also included in Appendix I to provide detailed policy information for each of the recommended potential actions within the primary strategy areas.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY AND HABITAT RESTORATION	
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 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 or maintenance projects that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY AND HABITAT RESTORATION (CONTINUED)	
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 many wetlands. Projects that fall under the jurisdiction of the USACE must receive certification under Section 404 of this Act. ▪ All federal construction or maintenance projects that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**. Although NEPA Reviews are generally administered by the EPA, projects focusing on dams, flood protection and stream restoration are administered by USACE.
Fish and 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.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY AND HABITAT RESTORATION (CONTINUED)	
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 II: WATER CONDITIONS AND 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 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 or maintenance projects that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**.
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 many wetlands. Projects that fall under the jurisdiction of the USACE must receive certification under Section 404 of this Act. ▪ All federal construction or maintenance projects that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**. Although NEPA Reviews are generally administered by the EPA, projects focusing on dams, flood protection and stream restoration are administered by USACE.

STRATEGY AREA II: WATER CONDITIONS AND CHARACTERISTICS (CONTINUED)	
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).
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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.

STRATEGY AREA II: WATER CONDITIONS AND CHARACTERISTICS (CONTINUED)	
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.
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).

STRATEGY AREA II: WATER CONDITIONS AND CHARACTERISTICS (CONTINUED)	
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: HUMAN AND HABITAT CONNECTIONS	
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 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 or maintenance projects that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**.
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 many wetlands. Projects that fall under the jurisdiction of the USACE must receive certification under Section 404 of this Act. ▪ All federal construction or maintenance projects that affect the natural environment are required to obtain a Record of Decision upon completion of a **National Environmental Policy Act (NEPA) Review**. Although NEPA Reviews are generally administered by the EPA, projects focusing on dams, flood protection and stream restoration are administered by USACE.
National 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**.

STRATEGY AREA III: HUMAN AND HABITAT CONNECTIONS (CONTINUED)	
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 forestd 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: HUMAN AND HABITAT CONNECTIONS (CONTINUED)	
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).
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STRATEGY AREA III: HUMAN AND HABITAT CONNECTIONS (CONTINUED)	
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.

6. CRITICAL ISSUES

This chapter is organized by the five strategy areas that guided the *POA* development process. For each of the relevant strategies, the following critical issues were identified.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION

Strategy I-A: Stream Corridor Restoration

Discussions about restoring the stream corridor have largely focused on riparian vegetation and its role in maintaining natural processes and systems throughout 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 critical issues concerning stream corridors are therefore interconnected:

- **Loss of riparian vegetation 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 water temperature** due to amended instream flows during the summer, the loss of riparian cover along the stream corridor, and an increase in impervious surfaces throughout the watershed;
- **Disturbances to the stream channel** resulting from modifications over time (e.g., dams) and restoration measures intended to restore the stream corridor (e.g., bar removals, water impoundments, vegetation changes over time, etc.), and the need to restore the form and structure of the river (e.g., riffles, pools, runs, meanders, etc.) based on historic patterns; and
- **Excessive bank erosion and sedimentation** caused by a variety of land uses (e.g., gravel mining) and practices within the watershed and impacting the form, structure and function of the stream and its tributaries.

Strategy I-B: Species and Habitat Recovery

Steelhead trout, coho salmon and chinook salmon are anadromous fish species that, at one time, were abundant throughout the watershed. These species have been listed as threatened species under the Federal Endangered Species Act, and coho salmon have been listed as "petition endangered" under the California Endangered Species Act. 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. Specifically, the following critical issues have been identified and must be addressed in order to recover native species and habitat:

- **Loss of functioning and abundant instream habitat** resulting from various land use activities including agriculture and timber, and human-induced disturbances including gravel mining, dewatering of tributaries, and water pumping; and
- **Depletion of groundwater and groundwater contamination** and its direct impact on the river and its tributaries (e.g., instream volume and flows) as well as throughout the watershed (e.g., loss of infiltration areas) resulting from current water storage and transport methods (e.g., reservoirs, pipelines, etc.), various land use

activities (e.g., dams) and other human-induced disturbances within the watershed.

Strategy I-C: Uplands Restoration

Upland areas throughout the watershed directly interact with stream function through the hydrologic cycle and habitat connectivity. Potential impacts resulting from site-specific uses in upland areas are a function of slope, soil type, geology and watershed position and may disrupt this cycle and connectivity. Both Sonoma and Mendocino Counties experience land conversions that transform natural spaces in upland areas into intensive land uses such as agriculture or urban development areas. These changes to the land alter the natural ecosystem. The challenge is to balance activities in the uplands areas in light of the critical issues listed below:

- **Land conversions** resulting in land use activities that negatively impact the stream channel, species and habitat;
- **Urbanization and infrastructure development** resulting in an increase in impermeable surfaces as land areas are developed or modified (e.g., roads and parking lots), an increase in surface water run-off causing soil erosion and nutrient loss, and production of barriers that hinder wildlife migration (e.g., fencing);
- **Road expansion and construction** resulting from land conversions and urbanization and resulting in an increase in the amount of impermeable surface area and a disruption of species migratory patterns;
- **Logging and outdated forestry practices** related to reforestation and tree maintenance practices that do not consider the entire ecosystem (e.g., watering of trees), alter the landscape and increase soil erosion and run-off;
- **Impacts from overgrazing** such as decreased vegetation and degraded top-soil, resulting in increased soil erosion and effluent run-off;
- **Pesticide use and run-off** impacting water quality and habitat function throughout the entire ecosystem; and
- **Reduced soil permeability** resulting in increased run-off, erosion and sedimentation that negatively impacts salmonid populations in the main stem and tributaries throughout the watershed.

STRATEGY AREA II: WATER CONDITIONS & CHARACTERISTICS

Strategy II-A: Water Supply, Quantity & Storage (Including Dams)

The linkage between reduced total water supply and instream flows is a critical component toward better understanding water quantity, habitat and instream use issues. The lack of comprehensive understanding and analysis of surface and groundwater inflows, outflows, and changes in storage impedes the ability of policymakers to implement water supply, quantity and storage decisions. An accurate water budget that is well defined and continuously managed throughout the entire watershed, including its sub-watersheds, would allow resource management and restoration actions to be adequately assessed and evaluated for implementation. The critical issues listed below are addressed by the development of a water budget:

- **Insufficient knowledge of water quantity and flows** throughout the watershed. The lack of accurate and reliable information is further exacerbated by the lack of metering of direct water system withdrawals, overdraft (over time), and an overall uncertainty regarding the extent of groundwater resources. Water diversion, flood control, dam, pipeline and water storage projects are proposed and/or implemented without full understanding or information sharing between private and regulatory entities about the cumulative implications for water quantity and flows throughout the watershed. This water budget "information gap" is further widened by the inability to track private riparian water rights and illegal diversions;

- **Water leaving the watershed** directly depletes water supplies required to sustain an ecosystem and its inhabitants. A comprehensive watershed management approach would ensure both adequate water supplies and above minimum stream flows, and entail determinations of feasibility, desirability and costs/benefits associated with keeping water in its original basin;

- **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;

- **Continuing uncertainties about water rights** and the length of time involved in reallocating existing water rights. It is estimated that the Russian River and its tributaries are fully allocated between March 15 and December 15.

- **Lack of public awareness** and the urgent need to educate the public about government actions and the benefits of a water budget approach to water supply and demand which would address the impact of dam construction and operations, water rights, and groundwater systems and assess future water needs and potential impacts of conservation measures.

Strategy II-B: Water Quality

Water quality can be considered a lagging indicator regarding the health of the riparian stream corridor and the watershed. Improved water quality is often a direct or indirect result of stewardship, restoration and protection efforts 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:

- **Excessive 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 toxic runoff throughout the watershed** resulting from intensive land uses, road construction and maintenance practices, dumping and landslides that need to be identified and evaluated due to the immediate and cumulative bacterial and chemical effects produced in sensitive aquatic areas;

- **Groundwater contamination** resulting from a variety of sources including effluent disposal, saline intrusion,

industrial contamination, underground storage tanks, excessive nutrient contributions, and toxics (metals, organics or pharmaceuticals) percolating out of septic systems directly into the groundwater;

- **Rising water temperature** and the absence of current and comprehensive water temperature data and evaluations of related water quality impacts; and
- **Wastewater, sewage and other seasonal discharges** that carry pollutants such as pharmaceuticals, hormones, caffeine and other endocrine disrupting chemicals are direct results of increasingly urbanizing areas, inadequate infrastructure, and a historical reduction of seasonal wetland areas.

STRATEGY AREA III: HUMAN & HABITAT CONNECTIONS

Strategy III-A: Land Use, Development and Management

Fish barriers, excessive erosion and sedimentation are major consequences of land use, development and management practices currently existing in the watershed. Immediate concern exists due to the current 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:

- **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;
- **Increased stormwater discharge** as populated areas become increasingly developed without a comprehensive assessment of the potential impacts throughout the entire watershed;
- **The need to improve water and sewage treatment processes** to enhance water quality through the implementation of alternative methods for remediation and reuse; and
- **Ineffective local ordinances** due to a lack of understanding during planning processes about the total impacts of building and construction (e.g., roads, hillside developments, etc.) practices such as increased soil erosion and sedimentation throughout the entire watershed.

Strategy Area III-B: Regulatory Accountability and Action

Discussions regarding regulatory accountability and action throughout the POA development process have focused on the overall lack of enforcement of existing regulations and the need to improve interagency coordination. As a result, these discussions have transitioned into discussions about the role of the RRWC. For example, raising awareness and increased public education about the ecological benefits or consequences of certain regulations may be more effective then top-down approaches such as fines or stringent permit processes. Similarly, an effective and charismatic education campaign

targeted toward policy-makers at the state and federal level would help connect diverse agency efforts to local issues. The issues identified for regulatory accountability and action are:

- **Lack of coordinated and holistic decision-making** which results in only portions of the watershed being addressed by federal and state agencies and the absence of special resource area designations or growth boundaries that extend beyond or cross over city and county limits;
- **Negative public perception about regulations** resulting in a lack of awareness and adherence regarding land use policies, ordinances and permitting processes; and
- **Minimum requirements included in general plan and other local planning processes** instead of incentives that would encourage alternative practices or projects aimed toward achieving maximum benefits.

Strategy III-C: Stewardship Activities

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 will 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 to expand the number and types of conservation easements and land trusts throughout the watershed and to increase available resources; and
- **Lack of on-site pollution and sediment prevention measures** that could significantly reduce negative impacts on water quality, quantity, species and habitat if implemented directly at the source by private property owners.

Strategy III-D: Public Education and Outreach

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 expand target audience** beyond already informed or concerned citizens at the sub-watershed level to policy-makers in order to promote a high-powered and prominent campaign that educates elected officials and decision-makers at the federal, state, county and city level; and
- **Low visibility approaches** that fail to highlight the interconnections between humans and habitat and the need for available information to enhance these

connections and promote a balance of ecosystem and community needs.

STRATEGY AREA IV: DATA COLLECTION, RESEARCH & EVALUATION

Recent initiatives have been implemented to provide interactive and comprehensive information and assist 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 preliminary listing of these efforts has been included in Appendix A of this document. However, the following critical issues concerning the current status of watershed data and information continue to hinder restoration and recovery efforts:

- **Unclear data collection methods** including poorly defined or charged questions, undocumented methodologies and inadequately trained data collectors.
- **Lack of coordination and application of existing data** limiting synthesis and collaboration among different watershed and resource management entities and resulting in untimely action;
- **Inadequate or insufficient analysis of data** informing inappropriate watershed and resource management decisions;
- **Need to expand data sharing and translation of findings** to enhance the use and accessibility of watershed information by the public; and
- **Data and information gaps** that exist throughout the watershed related to historic modifications and changes over time, external variables and environmental inputs (e.g., global warming), toxic run-off, groundwater systems and hydrological cycles.

STRATEGY AREA V: ORGANIZATIONAL DEVELOPMENT & RESOURCES

Strategy V-A: Organizational Structure

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 or recommendations 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 in the watershed and, consequently, community-driven watershed restoration and salmonid recovery within the watershed. Specifically, the following issues have been identified:

- **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.

Strategy V-B: Long-term Funding

Recently, the RRWC has initiated a partnership with the Community Foundation Sonoma County to secure private funding and explore the possibility of becoming a 501c3 status. The following issues related to long-term funding within the RRWC have been identified but should be considered in conjunction with the developing partnership opportunity:

- **Inability to seek alternative funding opportunities** including private business funding and/or bond proposals due to the historical organizational structure of the RRWC;
- **Lack of an organizational vehicle for channeling funds** to implement potential activities and projects such as conservation easements;

7. POTENTIAL ACTIONS

This chapter is organized similar to the preceding chapter and documents potential actions for each of the five strategy areas that guided the *POA* development process. The potential actions beginning below were identified to address the critical issues in Chapter 6.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION

Strategy I-A: Stream Corridor Restoration

The goal of this strategy 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. Each action has been coded with **SC#** to signify this strategy.

SC1. Enhance riparian vegetative cover throughout the watershed.

SC2. Determine the feasibility and need for the development of a basin-wide gravel budget that includes critical thresholds to provide a systemic approach for evaluating the watershed-wide impacts and benefits of gravel extraction over time.

SC3. Restore the stream corridor through alternative stream corridor protection and watershed-wide management methods (e.g., setbacks or wetland reforestation) to avoid the creation of an engineered river.

Strategy I-B: Species & Habitat Recovery

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 critical issues related to Species and Habitat Recovery. Each action has been coded with **SH#** to signify this strategy.

SH1. Implement practices that manage flow for economic and ecological benefits and establish a natural flow regime (e.g., base flows in summer and peak flows in winter) for habitat sustainability.

SH2. Analyze impact of river channel alterations on subterranean water flows to enhance groundwater and underground systems and maintain ideal flows in the stream and tributaries.

SH3. Collaborate with property owners, agencies and educational institutions to implement current erosion controls, run-off protocols, and BMP's for long-term property management watershed-wide.

Strategy I-C: Uplands Restoration

The goal of the Uplands Restoration strategy is to recognize the effects of broad watershed activities (e.g., roads, development, grading, paving, vegetation removal, etc.) and minimize or eliminate disturbances in the transitional zone between the floodplain and surrounding landscapes in the watershed that adversely impact the river, tributaries, native

species and related habitat. The following potential actions were identified by the RRWC to address the critical issues related to Uplands Restoration. Each action has been coded with **UR#** to signify this strategy.

UR1. Review watershed restoration efforts in different upland areas throughout the watershed to identify successful practices and projects for potential implementation in other areas.

UR2. Improve logging activities to promote optimal stream flows and soil retention practices.

UR3. Identify upland habitat areas (e.g., woodlands) for protection and restoration to minimize habitat fragmentation and sustain migration corridors.

UR4. Support a no-new-net-run-off approach in upland areas.

UR5. Examine grading and erosion control ordinances to determine if they promote or reduce sedimentation and other hydrological impacts.

UR6. Recommend changes to the Sonoma County hillside ordinance based on an evaluation of watershed-wide impacts, existing BMP's, and adaptive management opportunities.

STRATEGY AREA II: WATER CONDITIONS & CHARACTERISTICS

Strategy II-A: Water Supply, Quantity & Storage (Including Dams)

The objective of Water Supply, Quantity & Storage (Including Dams) strategy is to identify critical water sources and storage locations, areas of inadequate or low water supplies, and the comprehensive 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 (Including Dams). Each action has been coded with **WS#** to signify this strategy.

WS1. Determine need and feasibility of implementing a water budget in the Russian River watershed.

WS2. Ensure comprehensive evaluations of 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. Implement consumer and business incentives that promote water conservation.

Strategy II-B: Water Quality

The purpose of the Water Quality strategy is to improve the essential character of water supplies within the watershed to achieve a desired and sustainable condition.The following potential actions were identified by the RRWC to address the critical issues related to Water Quality. Each has been coded with **WQ#** to signify this strategy.

WQ1. Identify, map and support efforts at the sub-basin level to reduce impacts associated with sedimentation, toxic runoff, dissolved oxygen, and high water temperature.

WQ2. 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.

WQ3. Increase citizen involvement in the long-term monitoring of water quality.

STRATEGY AREA III: HUMAN & HABITAT CONNECTIONS

Strategy III-A: Land Use, Development & Management

The following potential actions were identified by the RRWC to link Land use, Development and Management practices with the condition and functioning of the entire watershed. The goal of this strategy is to improve existing policies and policy development and enhance public understanding of ordinances and regulations which would, thereby, contribute to greater stream protection. Each has been coded with **LU#** to signify the Land Use, Development and Management strategy.

LU1. Develop fish-friendly operation programs and maintenance plans to ensure that roads and culverts do not contribute to significant soil erosion and sedimentation in the watershed.

LU2. Identify alternative methods for reclaiming and reusing secondary treated wastewater within the same sub-watershed area where the supply was originally stored.

LU3. Study land use and development policies to address storm water discharges.

LU4. Promote policies that create incentives for low impact developments and design.

LU5. Establish watershed priorities and develop policy recommendations for land areas that are suitable for extra protection or reuse as open space, state and local parks, habitat corridors and wastewater disposal areas.

LU6. Develop a campaign and clear guidelines to "balance habitat protection and land use development".

Strategy III-B: Regulatory Accountability & Action

The goal of the Regulatory Accountability and Action strategy is to ensure agencies assume full responsibility 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. Each action has been coded with **RA#** to signify this strategy.

RA1. Coordinate and develop protocols for identifying standard habitat and wetland protections to be used during land use and development planning processes across counties, municipalities, and special districts.

RA2. Adapt and/or develop informational and outreach materials about existing regulations, permitting processes and appropriate contacts at all levels of

government for distribution to agencies and the public.

RA3. Encourage learning opportunities such as informational workshops involving agencies, community and steward groups and sub-watershed councils.

Strategy III-C: Stewardship Activities

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 are coded with **SA#** to signify this strategy.

SA1. Prioritize the implementation and use of currently available resources (e.g., land, tools, equipment, labor, funds, etc.) to improve the health of the watershed.

SA2. Provide training opportunities where needed at the sub-watershed level.

SA3. Develop an 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

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 critical issues related to this strategy. Each has been coded with **PE#** to signify this strategy.

PE1. 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.

PE2. 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.

PE3. 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.

PE4. Implement a model K-12 watershed curriculum in local schools that has been tailored to the conditions and issues within the Russian River watershed.

PE5. Educate private citizens and landowners about the difference between watersheds, basins, and aquifers and their interconnections regarding water flow, supply and quality.

PE6. Identify strategic partnerships in the community and, in particular, develop relationships with local businesses to leverage resources and funding, and increase media opportunities about restoration activities.

PE7. Educate the public about environmental health and safety issues through future curriculum development processes and watershed information center materials.

STRATEGY AREA IV: DATA COLLECTION, RESEARCH & EVALUATION

The goal of this strategy is to enhance the use, application and sharing of data, research findings and evaluation results. Each potential action has been coded with **DC#** to signify the Data Collection, Research and Evaluation strategy.

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.

DC2. Ensure appropriate training is made available for data users and collectors. Provide training sessions to potential users of the Russian River Interactive Information System (RRIIS) to ensure RRWC members, resource managers and the public are able to access and add information.

DC3. Create a science review and advisory panel that includes local watershed and resource management experts and agency staff to provide input regarding project proposals and to clearly explain findings and implications related to cost/benefit assessments and different data analyses. Work collaboratively to interpret current or new policies such as the new state board regulations regarding stormwater discharge at construction sites, evaluate land application impacts including pesticide use in sensitive aquatic areas (e.g., the use of Rodeo versus Roundup), and identify improved or more effective measures. Work closely with local government to identify and evaluate the water quality impacts of public projects and processes.

DC4. Use key species indicators developed by National Marine Fisheries Service (NMFS) and habitat inventory data compiled by Department of Fish and Game (DFG) to identify appropriate locations for the implementation of recovery actions.

DC5. Develop standardized criteria to evaluate the impacts of specific restoration efforts. Review evaluation criteria developed and used by the US Army Corps of Engineers (USACE) to determine potential application for activities, projects and programs implemented by a variety of agencies, resource management organizations and steward groups.

DC6. Develop stream classifications that consider species' genetic, behavioral and population attributes.

DC7. Identify a lead entity to develop a coordinated assessment of rates of deterioration among different watershed resources and to integrate projects in upland and stream corridor areas. Work with Section 7 Consultation project partners to identify lead entity and apply findings from the development process. Develop a process to ensure stream assessments are achieved throughout both Sonoma and Mendocino Counties, based upon need.

DC8. Implement continuous and comprehensive water quantity and supply monitoring systems throughout the watershed to ensure data accounts for seasonal trends (e.g., wet and dry seasons) and various environmental conditions. 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. Use case studies of model monitoring and reporting strategies applicable to impaired waterways, such as the Neuse River Monitoring Project in North Carolina, which reports "live" data via the Internet. Incorporate monitoring into existing sedimentation studies such as the Army Corps of Engineers' feasibility study in the Laguna de Santa Rosa sub-watershed.

DC9. Consider the need and feasibility regarding the development of a water budget to improve groundwater and hydrologic cycle information (see critical actions and potential actions related to Water Supply, Quantity and Storage in Version 2.0 of the Preliminary POA).

DC10. Implement a system for modeling and monitoring existing refugia to identify appropriate locations for protection.

DC11. Change data collection/analysis practices to include assessment of cumulative effects including externalities and future obligations such as opportunity costs. Use alternative data and weigh equally to better understand impacts of all known inputs, ranging from development practices to global climate changes, in the watershed (e.g., number of building permits versus population growth figures or extent and rate of top soil loss or enhancement).

STRATEGY AREA V: ORGANIZATIONAL DEVELOPMENT & RESOURCES

Strategy V-A: Organizational Structure

The objective of this strategy, Organizational Structure, is to to create an effective organization that can sustain efforts over time to recover and restore the watershed. Each potential action below has been coded with **OS#** to signify the Organizational Structure strategy.

OS1. Revise the Project Study Plan and 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.

OS4. 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 train all members in RRWC policies and procedures.

OS5. Improve RRWC and Steering Committee meeting agendas to include workgroup status reports and clear procedures for action items.

OS6. Provide facilitation training for Steering Committee members.

OS7. Formalize current and new job descriptions to include reporting procedures, roles and responsibilities.

OS8. Develop strategies for recruiting and retaining members.

OS9. 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.

OS10. Identify project liaisons within the RRWC to track agency-driven restoration and planning efforts so the RRWC can participate in review and input processes.

Strategy V-B: Long-term Funding

This strategy is aimed toward 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. Each potential action below has been coded with **LF#** to signify the Long-term Funding strategy.

LF1. Work with the Army Corps of Engineers to ensure appropriate in-kind support.

LF2. Encourage and support state agencies to apply for Prop 13 funds to provide for integrated regional water management in coastal and/or inland areas.

LF3. Identify a "champion" to track grant opportunities and/or work with qualified agency/county/special district staff with grant writing and application experience to obtain federal and state funds or additional grants. Develop a protocol to be proactive regarding grant application processes. Understand who the provider is and convey the benefits that can be provided to the funding entity through a specific project or collaborative effort.

LF4. Work closely with the Community Foundation Sonoma County to learn about the fiscal opportunities and procedures associated with establishing a non-profit.

LF5. Work with SCWA to develop and implement the Watershed Association consisting of county and municipal officials and representatives charged with bringing watershed issues and needs to state and federal decision-makers. Establish relationship with counties and states to obtain monies and solidify commitments.

8. ACTION DEVELOPMENT AND IMPLEMENTATION TOOLS

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

ALTERNATIVE ORGANIZATIONAL STRUCTURE

The current RRWC organizational structure could be modified to reflect the *POA* and greater accountability within the organization. The objective is to ensure that the potential actions included in this document are carried forward for further study and refinement during the watershed management plan development process. **<<Alternative organizational structure is to be determined.>>**

RUSSIAN RIVER INTERACTIVE INFORMATION SYSTEM (RRIIS)

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 (see Chapter 3 for more information about the RRIIS).

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 II 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
- Water Conditions and Characteristics
- Human and Habitat Connections.

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

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 on the following page would

be used in conjunction with the sample evaluation worksheet on page X. 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*

Second Pass Evaluation Criteria

The following criteria are examples of the types of questions and information that would need to be compiled during the watershed management planning process in order to objectively evaluate 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 mainstem, 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.)*

DETAILED POTENTIAL ACTIONS

Additional information is provided for each potential action recommended for further evaluation and study during the Phase II development of the watershed management plan. This appendix is organized by the primary strategy areas and appropriate strategies. **<<The information in this appendix is undergoing agency review and will be added to the POA. At this time an example is provided below to illustrate the type of information to be provided for each of the potential actions (primary strategy areas only) included in Chapter 7 of this draft.>>**

Strategy Area I: Fluvial Geomorphology & Habitat Restoration

Strategy I-A: Stream Corridor Restoration

Potential Action SC1: Enhance riparian vegetative cover throughout the watershed.

Task(s) Included

A. Identify existing information and models to determine appropriate methods for calculating level of cover necessary to improve structure and function of corridor and re-vegetation strategies.

B. Use existing GIS data to assess the current state of riparian vegetative cover throughout the watershed (e.g., CDF mapping of Willow Creek).

C. 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 cover necessary.

Rationale (Issues Addressed)

TBD

Partners

TBD

Related Activities, Projects & Programs

TBD

Relevant Reference & Informational Materials

TBD

POA Strategy Area Maps

POA STRATEGY AREA MAPS

<<The 3 POA Strategy Area Maps used throughout the POA development process will be inserted here.>>

Other Potential Actions for Consideration

OTHER POTENTIAL ACTIONS FOR CONSIDERATION

The potential actions that follow were developed for each of the primary strategy areas during the *POA* development process but were not fully refined during Phase I. The potential actions included in Chapter 7 and Appendix I were identified by agency representatives and technical experts as the potential actions for which additional or supporting information was available. These other potential actions are provided in this plan to document additional measures for consideration or possible starting points for future action planning processes to further enhance the management and protection of the Russian River watershed.

STRATEGY AREA I: FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION

Strategy I-A: Stream Corridor Restoration

SC1. Review available resources and materials to identify and evaluate non-toxic plant removal methods and identify methods and species for appropriate replacement. Create a toolbox of removal and replacement methods that can be easily disseminated for application by private property owners, stewardship groups, resource agencies, and local municipalities. Use Circuit Rider Productions, Inc. and Department of Fish and Game stream recommendations and handbooks (see project 14 in Appendix A).

SC2. Encourage riparian easements in sensitive areas to connect refugia habitats and corridors. Use Sonoma County Open Space District's pilot program to develop standard easement definitions and evaluation protocols. Consider the value of the land versus the cost of the property loss for the property owner during the development of a standardized approach.

SC3. Identify projects that include bank hardening techniques and provide potential alternatives, such as native plant methods and bioremediation projects (see project 21 in Appendix A). Work with state and federal agencies to develop alternative analyses for soft approaches to bank hardening projects and incentives during permitting.

Strategy I-B: Species/Habitat Recovery

SH1. Identify effective fish enhancement programs throughout the watershed based on a standardized process and criteria. Use recovery goals being developed for National Marine Fisheries Service's Recovery Planning Process for West Coast Salmon as a source of potential evaluation criteria. Review recommended actions in Department of Fish and Game's Russian River Basin Fisheries Restoration Plan to develop and implement additional stream improvement and restoration programs focused on salmonid species recovery.

SH2. Identify natural resources that serve as erosion controls and support the protection of these resources through ordinances and erosion control plan requirements (e.g., crushed rock, oak trees and woodlands help stabilize soil and slopes, reduce erosion and support many plant and wildlife species). Use ordinances or guidelines that have been developed in other counties, such as Napa County, as models for potential implementation.

SH3. Use available data to map and restore broken/weak links in habitat and migration routes throughout the watershed (e.g., sparse riparian cover) to enhance fish passage and connections (see project 29 in Appendix A).

Strategy I-C: Uplands Restoration

UR1. Use fire management techniques designed to preserve the natural vegetation and benefit the entire watershed (see project 44 in Appendix A).

UR2. Conduct an environmental analysis to identify highly erosive soils and overlay with fault lines to identify locations of sensitive land areas requiring mitigation or regulated land use, if necessary.

UR3. Investigate opportunities for uplands groundwater recharge and infiltration development to decrease runoff and improve soil infiltration and water holding capacity in the watershed. Consider application of experimental methods or tests in upland demonstration areas within the watershed that can also be used for educational purposes. Promote implementation of on-site infiltration techniques through an outreach campaign about individual water responsibilities and low impact development strategies.

UR4. Promote Resource Conservation District (RCD) watershed stewardship programs (see activities, programs and projects 2, 5, 8, 9, 10, 11,12,15,16,19, 25, 28, 31 and 42 in Appendix A).

UR5. Consider construction of additional infiltration and sediment ponds used historically as a mitigation measure.

STRATEGY AREA II: WATER CONDITIONS & CHARACTERISTICS

Strategy II-A: Water Supply, Quantity & Storage (Including Dams)

WS1. Review current wastewater uses, policies and best practices (e.g. deliver more usable wastewater for agricultural uses). Develop alternative methods to restore stream flows based on the different requirements for passage of various species. Consider use of off-stream water retention tanks and infiltration ponds to restore stream flows as needed (see activities, programs and projects 12, 12, 16, 28, 30 and 31 in Appendix B).

WS2. Develop educational programs and materials related to a holistic approach regarding water supply and demand that addresses the impact of dams and dam operations (public and private), water rights (related to both groundwater and instream uses), groundwater systems, critical flow and usage patterns, an assessment of future water needs and the potential impacts of conservation measures. Continue outreach and expand information presented at Water Rights Seminar (see activities, programs and projects 5, 17, 20 and 28 in Appendix B).

WS3. Evaluate and identify potential recharge and retention sites or opportunities for winter flows (e.g., use of permeable paving materials for local road construction and maintenance). Include the environmental impacts and operational and management responsibility associated with each alternative (see project 31 in Appendix B).

Strategy II-B: Water Quality

WQ1. Support and promote watershed-wide participation in water quality assessment workshops for property owners.

Other Potential Actions for Consideration

Refer to the Mendocino County/University of California Cooperative Extension (UCCE) project designed to assist TMDL planning and implementation. Encourage widespread adoption of best farming practices that proactively reduce erosion and the potential for flash flood flows into the streams and tributaries.

WQ2. Closely monitor and study nutrient contributions and toxic contamination in areas where septic systems are common (AB 885 requires monitoring of septic systems).

WQ3. Explore a wide range of methods and feasibility for using wastewater in the watershed such as delivering water to redwood and poplar groves for bioremediation purposes. Examine ways to deliver usable wastewater to appropriate agricultural uses (see projects 16 and 30 in Appendix B).

STRATEGY AREA III: HUMAN AND HABITAT CONNECTIONS

Strategy III-A: Land Use, Development & Management

LU1. Update county building processes to include erosion and sedimentation ordinances that address appropriate slope specifications and other best management practices. Consider setback ordinances that provide green or open spaces and include width variations based on the specific land use or activity to allow for natural bioremediation processes. Identify model ordinances and regulations developed within different counties for compilation into a best practices guidebook.

Strategy III-B: Regulatory Accountability & Action

RA1. Develop a project review protocol to enable all appropriate agencies to provide input into project planning processes prior to project approval and/or implementation.

RA2. Advocate for agency sharing of case studies and models based on their extensive resources and contacts.

RA3. Consider development of a range or gradient of "impact acceptability zones" and appropriate agricultural and other easement widths for implementation along the stream corridor based on a stream's meander belt characteristics and 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. Review the current Sotoyome Resource Conservation District strategy regarding allowable impacts along stream corridors and consider applying this throughout the watershed.

Strategy III-C: Stewardship Activities

SA1. Review land trust regulations/stipulations existing within each county to determine differences and how to promote implementation of land trusts watershed-wide. Identify watershed conservancy models to increase the amount of protected land in the Russian River watershed and types of land protection strategies.

Strategy III-D: Public Education & Outreach

PE1. Develop a campaign that promotes community awareness and understanding about what land use regulations exist and why, and where community members can access information about applicable policies and procedures. Describe clearly the personal benefits and the positive

watershed-wide impacts that directly result from regulatory interventions.

PE2. Market a "save the river" message that encourages community members to "think outside the box" for the protection of watershed resources and species/habitat sustainability. Promote the implementation of low impact design and development alternatives intended to improve watershed resources. Support elected officials and entities that provide incentives for the implementation of alternative strategies and best management practices.

PE3. Increase watershed related press coverage in local, regional and national newspapers and explore opportunities to use the web or create a watershed channel on a television network. Use media to describe watershed problems and actions being implemented to address the issues, and to provide community information about how to obtain available resources to support watershed restoration and protection. Develop funding mechanisms specifically to enhance public outreach and education via the media due to the costs involved. Identify creative media opportunities and partnerships with local arenas or forums to illustrate the river's rate of change, such as showing aerial photographs in movie theaters and other local arenas. Continue to sponsor river fairs, rendezvous and other public events.

Relevant Case Studies

RELEVANT CASE STUDIES

<<Brief summaries of case studies presented to the RRWC will be inserted here. These case studies include the Napa River Watershed Task Force, Bear Creek Watershed, and the Willamette Restoration Strategy.>>

REFERENCE & INFORMATIONAL MATERIALS

FLUVIAL GEOMORPHOLOGY & HABITAT RESTORATION

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MIG, Inc. 2000. Napa River Watershed Task Force Phase II Final Report. Prepared for the Napa County Board of Supervisors.

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Acronym List

LIST OF ACRONYMS

ARPA	Archeological Resource Protection Act
BA	Biological Assessment
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BO	Biological Opinion
BOR	Bureau of Reclamation
CAA	Clean Air Act
CCC	California Coastal Commission
CDF	California Department of Forestry and Fire Protection
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CRP	Circuit Rider Productions, Inc.
CWA	Clean Water Act
DFG	California Department of Fish and Game
DWR	California Department of Water Resources
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Ecologically Significant Unit
GIS	Geographic Information System
HREC	University of California, Hopland Research and Extension Center
KRIS	North Bay Klamath Resource Information System
MCWA	Mendocino County Water Agency
MIG	Moore Iacofano Goltsman, Inc.
MOU	Memorandum of Understanding
NAGPRA	Native American Graves Protection and Repatriation Act
NCRWQCB	North Coast Regional Water Quality Control Board
NCWAP	North Coast Watershed Assessment Program
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Conservation Service
POA	Plan of Action for the Phase II Development of the Russian River Watershed Management Plan
PSP	Russian River Watershed Management and Protection Study Project Study Plan
RCD	Resource Conservation District(s)
RRIIS	Russian River Watershed Interactive Information System
RRWC	Russian River Watershed Council
SCC	California State Coastal Conservancy
SCWA	Sonoma County Water Agency
Study	Russian River Watershed Management and Protection Study
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
TRT	Technical Recovery Team
USACE	US Army Corps of Engineers
USFS	Forest Service
USFWS	Fish and Wildlife Service
WIAM	Watershed, Information, Assessment and Monitoring Workgroup of the Russian River Watershed Council