Russian River Action Plan

2nd Edition

March 2003

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SUMMARY

PURPOSE AND NEED FOR THIS REPORT

In October 1996, the National Marine Fisheries Service listed coho salmon in the Russian River as "threatened" under the federal Endangered Species Act (ESA). While this classification was a significant step toward recognition of the declining salmonid populations in the Russian River watershed, activities had been under way for some time to develop a coordinated effort to protect and restore the watershed's fisheries. As part of these efforts, in March 1997 the Sonoma County Water Agency (SCWA) published the first edition of the *Russian River Action Plan*. The Plan provided a detailed listing of actions needed to protect listed fish species, and identified opportunities to coordinate and cooperate with federal, state and local agencies to gain federal and/or state funding for projects.

Following the publication of the first edition of the *Russian River Action Plan*, two additional salmonid species were added to the list of "threatened" species under the ESA: steelhead in August 1997 and Chinook salmon in September 1999. These listings further increased attention and interest in restoration activities in the Russian River watershed, while complicating SCWA's water supply, flood control and sanitation responsibilities.

While a number of interrelated factors have affected the abundance of the salmonid populations in the Russian River, it has become increasingly apparent that restoration efforts that are scientifically grounded and adequately funded are imperative for the survival of these species and must commence immediately. Some projects to restore fisheries habitat and improve water quality already have been completed and are contributing to the salmonids' survival. However, much of the Russian River watershed's riparian habitat awaits restoration and critical spawning grounds within the watershed remain inaccessible. Efforts to establish a scientific framework for restoration activities must be coordinated with stakeholders in the region, and will require the expertise of fisheries biologists, land-use planners, natural resource managers, hydrologists and many others.

In an effort to again summarize the restoration needs within the watershed and identify opportunities for cooperation among federal, state and local agencies, and private property owners, SCWA has prepared this second edition of the *Russian River Action Plan*. The projects identified within this Plan, while in no way an exhaustive list of restoration activities within the watershed, represent the breadth and depth of activities required to improve conditions and reverse population declines of salmonids within the Russian River watershed. *Any project within this document that receives funding or is considered for funding is subject to environmental review and public noticing requirements of the California Environmental Quality Act (CEQA) and/or the National Environmental Policy Act (NEPA).*

THE NEED FOR STATE AND FEDERAL ASSISTANCE

The decline of salmonid species within the Russian River watershed has posed difficult challenges for local communities. The new regulatory requirements resulting from the listing of these species have affected diverse sectors of the economy, including private and public land management, forestry, agriculture, fishing, recreation, power production, water supply and waste management. Constraints on water resources and land use could place extreme burdens on public and private projects, affecting economic vitality within the region. At the same time, the cost of recovery efforts to save historic runs of salmon and steelhead also threatens to overwhelm the financial resources available at the local level. This is why state and federal assistance to save the salmon is so critical.

DESCRIPTION OF THE RUSSIAN RIVER WATERSHED

The Russian River originates in central Mendocino County north of the city of Ukiah, and flows into the Pacific Ocean at Jenner, about 20 miles west of the city of Santa Rosa. The main channel of the Russian River is approximately 110 miles long, and drains a watershed area of about 1,485 square miles.

There are two large lakes in the Russian River watershed: Lake Mendocino and Lake Sonoma. Lake Mendocino, impounded by Coyote Valley Dam, is located on the east fork of the Russian River. The lake began storing water in 1959, has a capacity of 118,900 acre-feet and captures a drainage area of about 105 square miles. Lake Sonoma is impounded by Warm Springs Dam at the confluence of Warm Springs Creek and Dry Creek, about 14 miles northwest of the city of Healdsburg. Lake Sonoma began storing water in 1982, has a capacity of 381,000 acre-feet and captures a drainage area of about 130 square miles.

The Russian River watershed is primarily an agricultural area with the greatest emphasis on vineyard and orchard crops. Major orchard crops include prunes, pears and apples, while other crops such as cherries and walnuts are also

produced. Besides agriculture, there is a growing trend toward light industry and commercial development, and a significant telecommunications industry within the region. The production and processing of timber, agricultural and animal products; gravel removal and processing; energy production; and miscellaneous light manufacturing operations are additional industrial activities in the watershed. The Russian River watershed also has developed an international reputation for the production of premium wines, contributing to a strong tourism industry within the region.

Riparian habitat along the Russian River

WATERSHED MAP

BACK OF WATERSHED MAP

LIST OF ABBREVIATIONS

BA	Biological Assessment
BO	Biological Opinion
CDFG	California Department of Fish and Game
CDOT	California Department of Transportation
CODAR	Coastal Radar
EQIP	Environmental Quality Incentives Program
ESA	Endangered Species Act
FEP	Fisheries Enhancement Program
GIS	Geographic Information System
IPM	Integrated Pest Management
KRIS	Klamath River Information System
MOU	Memorandum of Understanding
NCRWQCB	California Regional Water Quality Control Board, North Coast Region
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
OCSD	Occidental County Sanitation District
Prop 13	Costa-Machado Water Act of 2000 (Proposition 13)
RCD	Resource Conservation District
RRIIS	Russian River Interactive Information System
SCWA	Sonoma County Water Agency
SFRWQCB	California Regional Water Quality Control Board, San Francisco Bay Region
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture

ACCOMPLISHMENTS

ACCOMPLISHMENTS

State and federal assistance to support local watershed restoration efforts has already resulted in significant benefits for the threatened salmonid populations. Building on the success of these efforts, highlighted below, local entities will continue to work cooperatively to develop innovative, effective restoration projects to save these imperiled species.

The Costa-Machado Water Act of 2000 (Proposition 13) included $1 million for the County of Sonoma to help protect, restore and enhance the environmental and economic value of the Russian River watershed within Sonoma County's boundaries. At the direction of the Sonoma County Board of Supervisors, the Sonoma County Water Agency developed the Russian River Watershed Project Evaluation Team to establish criteria, invite and evaluate proposals, and make recommendations to the Board regarding watershed restoration projects to receive funding from Proposition 13 funds. The team consisted of nine representatives from local watershed groups, the agricultural community, legislative and regulatory agencies, and SCWA staff. Nine projects were selected for funding, with amounts ranging from $5,400 to $400,000. In an effort to expedite the processing of the grant contracts, SCWA has offered to administer the grant funds through the State Water Resources Control Board. SCWA staff may also provide assistance for the development of the project recipients' required environmental documents and permitting activities.

Santa Rosa Creek Prince Memorial Greenway - Phases I - III has restored critical steelhead habitat along 2/3 of a mile of Santa Rosa Creek. Phase IV of the project is anticipated to be constructed in 2003. This project enhances habitat by resloping the creek banks; removing grouted rip-rap; installing rock wing deflectors, redwood log habitat structures and boulder weirs to create pools, riffles and glides; creating a defined low flow channel; and revegetating the channel bottom and banks. Once completed, the Prince Memorial Greenway Project will include a bike path on the north side of the creek and walking paths on both sides. The project will be part of a greater trail plan that, when completed, will connect the recreation and open space areas of Annadel State Park and Spring Lake Regional Park to the Laguna de Santa Rosa.

Copeland Creek Restoration included restoring riparian and salmonid habitat along more than a mile of creek. A century of intensive cattle grazing had eliminated most native plants, resulting in degraded habitat. Restoration included constructing more than 8,000 feet of cattle exclosure fencing, recontouring heavily eroded creek banks, protecting banks with willow baffles (i.e. rows of living willow sprigs) and rock boulders, and revegetating the riparian habitat with more than 4,000 native plants. The project began in fall 2001 and was completed in fall 2002.

The **Healdsburg War Memorial Dam Fish Ladder** has aided upstream passage of threatened salmonid species and other migratory fish during periods of low flow on

the Russian River, when the dam's flashboards are not in operation. Easing the efforts of these fish during their migration periods provides the species the opportunity to conserve strength and may potentially allow species to swim further upstream and extend potential breeding habitat. The fish ladder, consisting of an "Ice Harbor" style pool and weir ladder, contains 13 steps and includes a 30-inch diameter water attraction pipe. This project, completed in 2001, was a cooperative effort between the California Department of Fish and Game (CDFG), Sonoma County Regional Parks Department, National Marine Fisheries Service (NMFS) and SCWA.

Construction of the **Mirabel Heights Water Pollution Control** project has corrected an existing health hazard in the Mirabel Heights community along the Russian River, and eliminated the potential for groundwater contamination resulting from failing septic systems. The project, consisting of a conventional gravity collection sewer system with a connection to the Forestville County Sanitation District Wastewater Treatment Facility, was a cooperative effort between the Forestville County Sanitation District, U.S. Department of Agriculture Rural Development Department, Sonoma County Community Development Commission, California State Water Resources Control Board and SCWA. The project was completed in 2000.

In July 2001, the Board of Directors of the Sonoma County Agricultural Preservation and Open Space District approved the acquisition of a conservation easement over the **Cooley Ranch**. In November 2001, the Board of Directors of the Sonoma County Water Agency approved funding to assist with the acquisition. The easement, of more than 19,064 acres of land in northern Sonoma County and southern Mendocino County, will protect the watersheds of five tributaries to Dry Creek, the main source of Lake Sonoma's water supply. The acquisition of the easement provides the county with an opportunity to protect the quality of the stored water in Lake Sonoma by restricting agrichemical use; providing a buffer between agriculture and creeks; restricting timber harvest in the area; encouraging restoration and enhancement efforts to provide bank and soil stabilization and reduce erosion; encouraging removal of non-native plants; restricting the off-road use of motorized vehicles; restricting dumping; and imposing other land use restrictions. This acquisition was a cooperative effort between the Sonoma County Agricultural Preservation and Open Space District and SCWA.

The **Mumford Dam Fish Passage and Riparian Restoration** project improves fish passage over the Mumford Dam on the upper Russian River. The streambed below the dam has down-cut 8 to 15 feet, restricting access to approximately 50 miles of salmonid spawning and rearing habitat above the dam. The project improves streambank stability and riparian habitat near the dam. A cooperative effort between SCWA, CDFG, and private landowners in the region, project funding was provided by CDFG from California's Proposition 13 and the Pacific Coastal Salmon Fund. Construction and revegetation will be completed by the end of 2003.

The objective of the **Crocker Creek Dam Removal** project is to restore anadromous fish, primarily steelhead, access to the Crocker Creek watershed while stabilizing streambanks in the vicinity of the dilapidated Crocker Creek dam on the Russian River near Asti. The project includes removal of the remaining dam

infrastructure, recontouring the streambanks to a more stabile profile, constructing a series of weirs to facilitate fish passage, and revegetating with native plants. The project is a cooperative effort between SCWA and CDFG, and was made possible by a grant through the Pacific Coastal Salmon Fund and California's Proposition 13. The project is under construction.

The **Big Austin Creek Restoration** project restored salmonid habitat degraded by historic mining upstream of the site. Activities included a basin hydrology study, streambank stabilization, construction of willow baffles and revegetation. This project was a cooperative effort between SCWA and the U.S. Fish and Wildlife Service and was completed in 2000.

In 1999, the Sonoma County Water Agency began developing the **Russian River Coho and Steelhead Population Monitoring** program to determine long-term trends in salmonid abundance. Coho salmon and steelhead populations in the Russian River basin have declined dramatically over the last 100 years. However, comprehensive surveys have never been conducted, making it difficult to document the decline or accurately track recent population trends. In cooperation with CDFG and NMFS, SCWA conducted electrofishing and/or snorkel surveys in the mainstem and three tributaries of the Russian River to evaluate sampling protocols and fish numbers. This is an ongoing project, with four years of sampling documented.

The completion of the **Forestville County Sanitation District's Advanced Wastewater Treatment Upgrade** project will improve the quality of effluent discharged from the treatment facility into Green Valley Creek, which provides habitat for federally listed coho salmon and steelhead. The project brings the treatment facility into compliance with the Russian River Basin Plan and state Regional Water Quality Control Board discharge requirements, and encourages the beneficial use of recycled water for irrigation and agricultural use. The project is expected to be completed in the fall of 2003, and is a cooperative effort between the Forestville County Sanitation District and SCWA.

The **Habitat Mapping** project being conducted by the California Department of Fish and Game (CDFG) is designed to provide an assessment and inventory of habitat within the Russian River watershed. Comprehensive stream surveys identify and plot such stream characteristics and habitat systems as pools, riffles and runs, riparian cover, stream temperatures and flow, vegetation, in-stream structures and culvert entries. Data collected from the stream surveys are compiled in a GIS mapping program and database. This project will identify limiting factors to salmonid abundance in the Russian River watershed and assist in prioritizing restoration efforts in the watershed.

In the fall of 2002, the Sonoma County Board of Supervisors approved the acquisition of a former gravel mining site from **Hanson Aggregates**. Comprised of 304 acres in northwest Sonoma County, this property includes a redwood grove, riparian habitat and marshland, and features three lakes. Hanson Aggregates has already begun implementing a plan to restore the riparian and wetland habitats. It is anticipated that, once restoration is completed, this property will provide passive public recreation along the Russian River, while being preserved as permanent open space. Management of the property will be a cooperative effort

between the Sonoma County Regional Parks Department, Sonoma County Agricultural Preservation and Open Space District and SCWA.

For each of the past three years, the Sonoma County Grape Growers Association has sponsored a meeting on **Integrated Pest Management (IPM)**. These meetings, held in the Dry Creek, Alexander and Russian River valleys, focus on teaching the IPM principle of monitoring to determine pest and predator presence. If pest pressures are an economic threat, growers are encouraged to use less-toxic pesticides or herbicides or to reduce the use of chemicals through spot treatments, reduced application rates or narrowing the treatment area. Such efforts to educate growers regarding pesticide and herbicide use have resulted in declining pesticide use, even as the number of "grape-growing" acres in the region has continued to increase. Reduced use of agricultural chemicals within the watershed is an important step in improving and protecting water quality.

Private landowners within the Russian River watershed have also demonstrated a commitment to the protection and restoration of the watershed. **Clos du Bois Winery**, located north of Healdsburg, has implemented riparian restoration efforts along both the main stem of the Russian River and Lytton Creek. Clos du Bois increased its required riparian setback by 25 feet in its vineyards along these waterways. The winery also revegetated these riparian areas with native plantings. Clos du Bois is continuing its efforts to restore the watershed by participating in Circuit Rider Productions' arundo donax removal project to eradicate this invasive species from its riparian corridors.

By establishing watershed protection as a guiding principle for projects within their jurisdiction, communities can establish a framework for combining economic growth and environmental stewardship. Local communities can also sometimes make their limited funding stretch further by incorporating restoration efforts into other projects, such as infrastructure improvements. The **City of Ukiah** completed and adopted a creek habitat enhancement and flood control study for Orrs Creek and a habitat enhancement and public access study for Gibson Creek. A habitat enhancement and public access study for Doolin Creek is expected to be completed and adopted shortly. These creeks flow though the City of Ukiah and are tributaries to the Russian River.

The **Town of Windsor Recycled Water Projects** will increase distribution of treated wastewater to reduce reliance on water from the Russian River watershed and local groundwater. These projects, the Windsor Golf Course, Windsor High School, Windsor Town Green and Vintage Greens Residential Subdivision, will save an estimated 113 million gallons of potable water per year. Through these projects, treated waterwater from regional wastewater treatment facilities is utilized for irrigation of recreation areas and commercial and residential landscaping, as well as flushing toilets at Windsor High School. These projects also improve water quality in the Russian River by reducing discharges of treated wastewater into local surface waters.

The **Brush Creek Restoration** project was completed in 1999 as a cooperative effort between the City of Santa Rosa and the Sonoma County Water Agency to restore fish and wildlife habitat along a 1,000-foot reach of Brush Creek. In the

1960's this reach of creek was channelized, enlarged, and straightened to prevent flooding. The loss of habitat diversity and riparian vegetation severely impacted steelhead and other wildlife species. The project's habitat enhancement features included recontouring creek banks; creating a defined low flow channel; improving instream habitat by installing boulder weirs, rootwads, and planting the riparian area with native plantings while maintaining the flood capacity of the channel.

ONGOING AND SUPPORTIVE EFFORTS

ONGOING AND SUPPORTIVE EFFORTS

Many projects within the Russian River watershed are ongoing and provide support for projects still in need of funding. These projects will assist in developing a scientific approach to restoration efforts within the watershed and are an essential component in the protection and recovery of threatened salmonid species.

RUSSIAN RIVER
SECTION 7 CONSULTATION - IMPLEMENTATION OF THE OUTCOME

DESCRIPTION:

• The consultation will facilitate ESA compliance for operation of water supply and flood control facilities and will lead to improved in-stream and riparian habitat for listed salmonids
• Outcome will help provide a secure water supply for approximately 800,000 people in Mendocino, Sonoma and Marin counties
• Consultation considers three listed salmonid species (steelhead, coho salmon and Chinook salmon)
• A Biological Assessment (BA) is being developed to assemble available information and evaluate the potential effects of facilities and operations on listed salmonids
• Using the BA, National Marine Fisheries Service will prepare a Biological Opinion (BO) evaluating the project that will direct how the USACE, SCWA, Mendocino County Russian River Flood Control and Water Conservation Improvement District, and City of Ukiah facilities may be operated
• Implementing the requirements of the BO is anticipated to require changes in infrastructure and operation of flood control, hatcheries, hydroelectric, water supply and diversion facilities, channel maintenance practices, restoration and conservation actions, as well as estuary management
• Alternatives contemplated in the Section 7 to address the effects on fisheries include: changes in flow regime; changes in channel maintenance practices and flood control operations; physical and operational modifications to the water supply system; and the consideration of a water transmission pipeline down Dry Creek

PROJECT GOAL

Implement operational strategies for the U.S. Army Corps of Engineers, Sonoma County Water Agency and Mendocino County Russian River Flood Control and Water Conservation Improvement District activities that ensure water supply, and accommodate flood control, hydropower generation, fish hatchery operation and estuary management, while being protective of listed salmonids and their critical habitat.

PARTNERSHIPS:

• California Department of Fish and Game
• California Regional Water Quality Control Board, North Coast Region
• City of Ukiah
• Mendocino County Russian River Flood Control and Water Conservation Improvement District
• National Marine Fisheries Service
• Sonoma County Water Agency
• State Water Resources Control Board
• U.S. Army Corps of Engineers

The Russian River Section 7 Consultation was initiated in December 1997, when the U.S. Army Corps of Engineers, National Marine Fisheries Service and the Sonoma County Water Agency entered into a Memorandum of Understanding (MOU) for developing the consultation.

Sonoma County Water Agency Mirabel infiltration ponds and water diversion facilities along the Russian River

Don Clausen Fish Hatchery at Lake Sonoma

The biological opinion developed by National Marine Fisheries Service as part of the Russian River Section 7 Consultation is anticipated to provide direction for conducting activities to minimize adverse effects to listed salmonids and critical habitat. The biological opinion will provide a source of valuable guidance for similar Agency and County activities both inside and outside the Russian River watershed.

Outcome of the Section 7 Consultation is anticipated to result in the need to construct new or modify existing facilities appurtenant to water supply and diversion, flood control, hatcheries, and hydroelectric power generation, as well as implementing new methods to manage flow-related habitat conditions, maintain channel capacity and operate the estuary.

Aerial view of Warm Springs Dam and Lake Sonoma

WATER TEMPERATURE AND WATER QUALITY MONITORING

DESCRIPTION:

- Develop temperature and/or water quality models for streams and creeks in the region
- Models will simulate responses to alternative conditions including flow, urban and agricultural development, and restoration efforts
- Models will be developed with the NCRWQCB
- Water quality constituents to be simulated include: temperature, ammonia, nitrate, phosphate, phytoplankton, dissolved oxygen, dissolved and particulate organic material, and turbidity

PARTNERSHIPS:

- California Regional Water Quality Control Board, North Coast and San Francisco Bay regions
- Sonoma County Water Agency

PROJECT GOAL

Help regional recovery planning efforts by prioritizing which streams would benefit the most from restoration projects, facilitate water quality analyses for the Russian River Section 7 Consultation, and assist the California Regional Water Quality Control Board, North Coast Region with amending the Russian River Basin Plan.

Russian River near Duncan's Mills

Water quality and temperature modeling will simulate water quality responses in stream reaches in the Russian River and San Pablo Bay watersheds, and selected coastal streams to evaluate potential water quality impacts under varying conditions.

The models will base daily average flows on reservoir operation data, stream gauge data and monthly consumptive use. Flows will be allocated to tributaries based on drainage area.

Russian River near Cloverdale

Russian River at Johnson's Beach

Specific model types that will be used for the project include the water quality simulation model (HEC-5Q), stream network temperature model (SNTEMP), stream segment temperature model (SSTEMP), Basin Temp or GIS-based modeling approaches.

SALMON GENETICS RESEARCH

DESCRIPTION:

• The Sonoma County Water Agency and University of California's Bodega Marine Laboratory entered into an agreement to document the genetic biodiversity of coastal salmon in northern California

• The research will evaluate the population genetics for coho and Chinook salmon and steelhead in the Russian River Basin

• Genetics research will identify which fish stocks are native to the watershed and which stocks represent introduced hatchery fish

• Further genetic evaluation is needed to identify which populations for several coho streams in the ESU should be propagated using a conservation hatchery strategy to restore fisheries in the basin

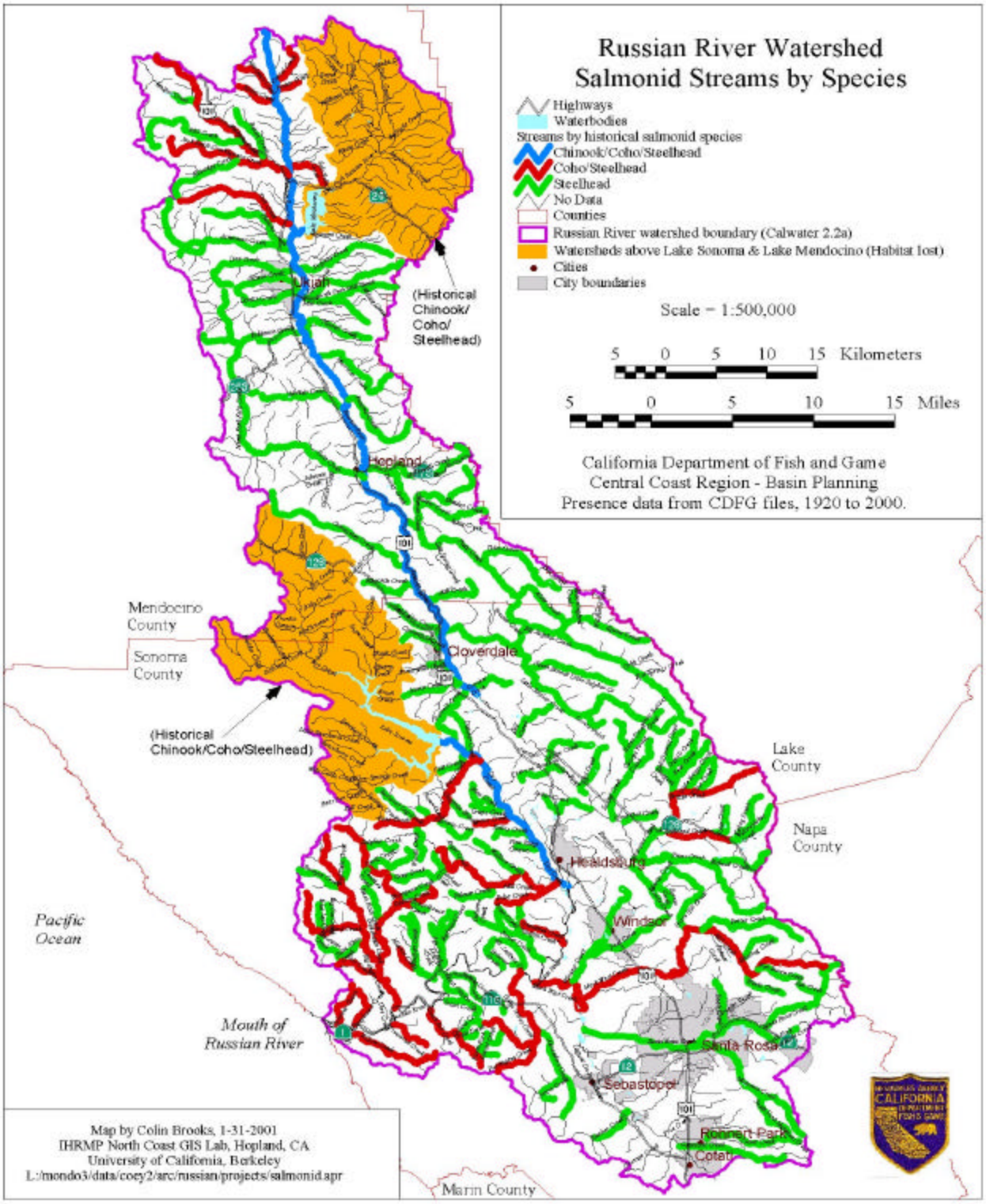
• This information will contribute to recovery planning efforts for listed salmonids within the Russian River

PROJECT GOAL

Provide a critical tool for the recovery planning process by identifying the appropriate regional populations of salmon and steelhead that can be used to recover fisheries in the Russian River Basin.

PARTNERSHIPS:

• California Department of Fish and Game
• National Marine Fisheries Service
• Sonoma County Water Agency
• University of California, Bodega Marine Laboratory



Salmonid distribution in the Russian River watershed

RUSSIAN RIVER BASIN PLAN AMENDMENTS

DESCRIPTION:

• SCWA and the NCRWQCB entered into an agreement to expedite the review of the Water Quality Control Plan for the North Coast Region (Basin Plan)

• NCRWQCB's reviews Basin Plan to determine if existing water quality standards and objectives for the Russian River watershed are adequate to protect the beneficial uses of cold water habitat for listed salmonids

• Requires extensive literature review, water quality monitoring, economic analysis, public review, and development and adoption of proposed Basin Plan Amendments

• Based on initial literature review, the NCRWQCB has proposed Basin Plan amendments for dissolved oxygen, temperature, sediment and aluminum

• Implemention of proposed Basin Plan Amendments will assist entities discharging to the Russian River watershed by ensuring that activities permitted in compliance with the Basin Plan are also in compliance with the Clean Water Act and the Federal Endangered Species Act.

• The Basin Plan Amendment project will greatly facilitate this process by augmenting the North Coast Regional Water Quality Control Board's budget and staffing to complete the revision

PROJECT GOAL

Help streamline permitting requirements while promoting the recovery of listed salmonids in the Russian River Watershed.

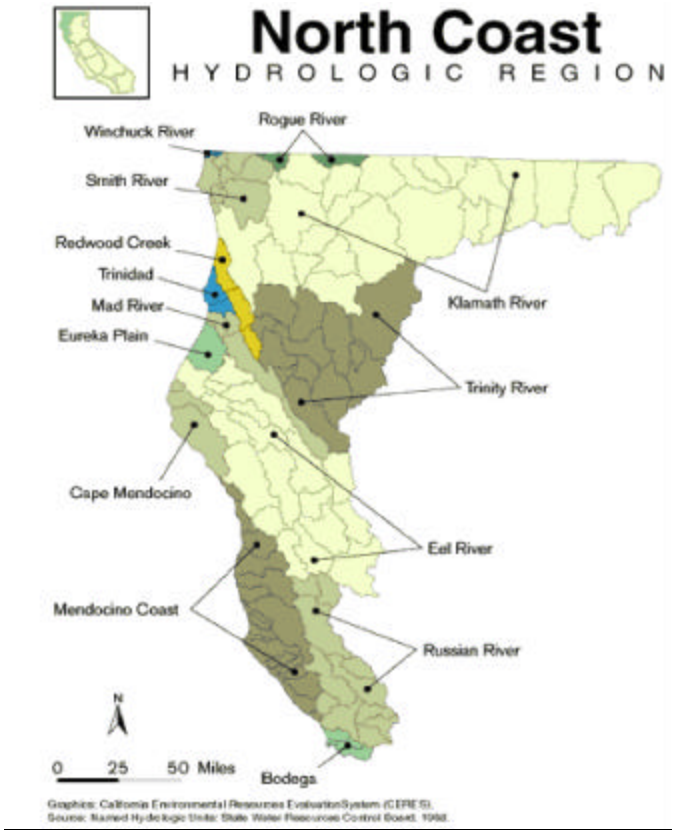
PARTNERSHIPS

• California Regional Water Quality Control Board, North Coast Region

• Sonoma County Water Agency

The State Water Resources Control Board and the nine Regional Water Quality Control Boards work together to protect California's water resources. With passage of the Porter-Cologne Water Quality Control Act in 1969, the Boards became the "principal state agencies with primary responsibility for the coordination and control of water quality."

The nine Regional Boards are each semi-autonomous and comprise nine part-time Board members appointed by the Governor. Regional boundaries are based on and consistent with major State watersheds. Each Regional Board makes water quality planning and regulatory decisions for its region. These decisions include issuing State waste discharge requirements or recommending Clean Water Act certification for activities affecting wetlands and other water bodies. The North Coast Regional Water Quality Control Board's jurisdictional responsibilities include watersheds in Sonoma, Mendocino, Humboldt, Del Norte, Siskiyou, and Trinity counties.



North Coast Regional Water Quality Control Board Jurisdictional Boundary

Aerial view of the Russian River at the confluence with Mark West Creek

Under the Clean Water Act and California's Porter-Colgne Act, the Regional Boards must prepare, review and update a water quality control plan that contains an inventory of the beneficial uses of water in the Russian River watershed. The plan must include an implementation plan, monitoring plan and timeline to achieve water quality objectives.

TECHNICAL SUPPORT TO DEVELOP CALIFORNIA COHO RECOVERY STRATEGY

DESCRIPTION:

• On Aug. 30, 2002, the California Fish and Game Commission designated coho salmon between the San Francisco Bay and Punta Gorda to be endangered under the California Endangered Species Act

• CDFG must prepare a recovery strategy for coho in the designated area and present it to the State Fish and Game Commission by Aug. 30, 2003

• CDFG has assembled a recovery team consisting of CDFG personnel, other state and federal agency personnel, representatives of various stakeholders, affected local governments, landowners, environmental groups, and persons with scientific expertise

• CDFG has indicated that SCWA could provide services useful to the recovery strategy effort, including the funding of facilitation, technical writing, and resource economic evaluation under the direction of the CDFG

• SCWA will also provide technical support to other stakeholders in the development of the strategy, including peer review; additional genetics analysis; evaluation of ocean conditions; and assisting in the development of the guidelines for the recovery strategy

• It is expected that the timely completion of the State Coho Recovery Strategy could speed and advance the development of the ongoing federal recovery planning process for the three federally listed species in the Russian River watershed: coho and Chinook salmon and steelhead

PROJECT GOAL

Provide assistance to the California Department of Fish and Game to facilitate development of the State Coho Recovery Strategy.

• SCWA involvement in supporting the State Coho Recovery Strategy will help integrate local concerns into the process; incorporate water supply, sanitation and flood control issues into recovery planning; and identify related impacts and costs to be shared by all the entities involved

PARTNERSHIPS:

• California Department of Fish and Game
• Sonoma County Water Agency

Historical Distribution of Coho Salmon in California
(Map from CDFG Status Review of California Coho Salmon April 2002).

STORM WATER MANAGEMENT

DESCRIPTION:

• Since 1997, SCWA, City of Santa Rosa and County of Sonoma cooperate under municipal storm water permit from the state of California

• In 2003, storm water permit requirements extended to include cities of Rohnert Park, Cotati, Sebastopol, Windsor and Healdsburg

• Pollution prevention programs include public outreach programs, spill response training and alternative maintenance programs for local flood control channels

• In 2001, SCWA removed more than 62 tons of trash from flood control channels and creeks

• K-12 Water Education Program (provided by SCWA and City of Santa Rosa) provides classroom and field study instruction in the hydrological cycle, physical properties of water, necessity of water for all living things, water supply issues, treatment of wastewater and pollution prevention methods

• Spill response kits kept on all trucks and heavy equipment operating in or near flood channels

• Staff receive ongoing training on spill response and pollution prevention

PROJECT GOAL

Reduce storm water pollution entering Mark West Creek and the Russian River watershed.

PARTNERSHIPS:

• California Regional Water Control Board, North Coast Region
• City of Cotati
• City of Healdsburg
• City of Rohnert Park
• City of Santa Rosa
• City of Sebastopol
• County of Sonoma
• Local schools
• Sonoma County Water Agency
• Town of Windsor

Staff receive ongoing training in spill response and pollution prevention

The Sonoma County Water Agency's Water Education program includes a field study component to teach local schoolchildren about the Russian River watershed

FISH-FRIENDLY FARMING

DESCRIPTION:

• Project managed by the Sotoyome Resource Conservation District
• Voluntary certification program begun in 1998
• More than 50 growers have participated since program's inception
• Program objectives include identification of beneficial land management practices for grape growers and implementation of restoration projects
• Restoration projects include gully and erosion repairs, road improvements, creek corridor revegetation, upland revegetation and invasive species removal

PARTNERSHIPS:

• California Department of Fish and Game
• California Regional Water Quality Control Board, North Coast Region
• Circuit Rider Productions
• Coastal Conservancy
• Grape growers within the Russian River watershed
• Laurel Marcus and Associates

PROJECT GOAL

Encourage grape growers to implement land management practices that restore and sustain fish habitat and improve water quality.

Restoration project on Morrison property included trenching of poles with a backhoe as well as revegetating with native species

Students from Windsor High Schoool revegetate areas of Windsor Oaks Vineyard

RUSSIAN RIVER CREEK STEWARDSHIP

DESCRIPTION:

• Program developed and implemented by the Sotoyome Resource Conservation District (SRCD)
• More than 95 percent of the Russian River watershed is privately owned, making collaboration with local landowners imperative for the success of restoration efforts within the watershed
• Community volunteers trained in monitoring techniques used to measure a variety of geomorphic, hydrologic, biological and chemical parameters
• Monitoring data collected allows for fulfillment of regulatory mandates, creation of a base of information to improve decision-making and project design, and can indicate where additional efforts are needed
• Volunteer monitoring also offers the community a way to learn about their watershed
• Once restoration priorities have been identified, SRCD works with landowners to identify, design and implement restoration projects, including invasive species removal and riparian revegetation; sediment reduction and erosion control; livestock exclusionary fencing with the development of off-creek water sources; and in-stream habitat improvements
• Physical, chemical and biological conditions of seven Russian River tributaries, a total of approximately 83 miles of blue line stream, are evaluated annually through the program
• Over the past four years, approximately 300 landowners and residents of the Russian River watershed have attended Creek Stewardship Program trainings, meetings and creek walks
• Other educational events and workshops have attracted an additional 200 participants

PROJECT GOAL

Collaborate with local landowners and residents to monitor and restore selected tributaries within the Russian River watershed.

PARTNERSHIPS:

• California Department of Fish and Game
• California Department of Forestry and Fire Protection
• California State Parks
• City of Santa Rosa
• County of Sonoma Permit and Resource Management Department
• Other Resource Conservation Districts (Gold Ridge and Mendocino County)
• Private landowners and community members
• Sonoma County Water Agency
• University of California Cooperative Extension

Volunteer monitors conducting a pebble count to analyze channel substrate sizes and fine sediment embeddedness levels

Macroinvertebrate sampling on Matanzas Creek

Volunteers measuring canopy coverage over the Hobson Creek channel

RUSSIAN RIVER INTERACTIVE INFORMATION SYSTEM

DESCRIPTION:

• Developed by the Russian River Watershed Council
• Will include an interactive, evolving website and spatial and non-spatial CD-ROMs
• Site for public education, communication and feedback
• A bibliography and database to assist scientists with long-term data storage and sharing
• An information resource for managers and decision makers

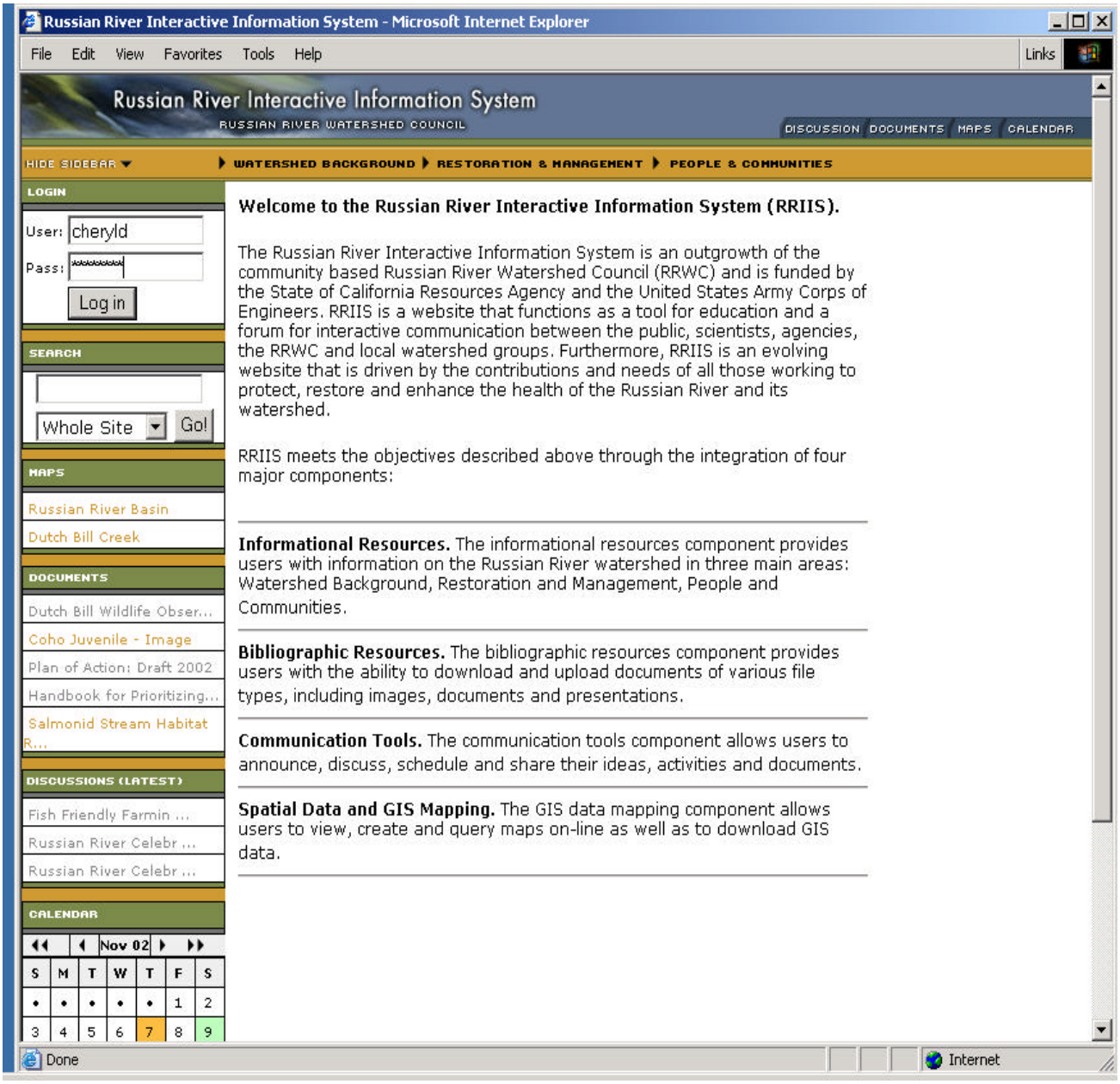
PARTNERSHIPS:

• California Department of Fish and Game
• California Department of Forestry
• California Resources Agency
• County of Mendocino
• County of Sonoma
• Gold Ridge Resource Conservation District
• Landowners within the Russian River watershed
• Mendocino County Resource Conservation District
• National Marine Fisheries Service

• Natural Resources Conservation Service
• Russian River Watershed Association
• Sotoyome Resource Conservation District
• U.S. Army Corps of Engineers

PROJECT GOAL

Develop an information resource to be used by community groups, natural resource managers, and decision makers to support the protection, restoration and enhancement of the Russian River watershed.



Russian River Interactive Information System website

PROJECTS
IN NEED
OF FUNDING

PROTECTING, RESTORING AND ENHANCING HABITAT

Salmonids require different habitat features for their different life stages. Requirements include deep, cool pools for resting, in-stream structures such as fallen tree limbs and native riparian plantings, unimpeded passage to the ocean and gravel runs for spawning. The following projects are designed to protect, restore and enhance salmonid habitats in an effort to reverse population declines of these species within the Russian River watershed.

ALEXANDER and DRY CREEK VALLEYS FLOOD PROTECTION and ECOSYSTEM RESTORATION

Estimated Project Cost:
$250,000

PROJECT GOAL

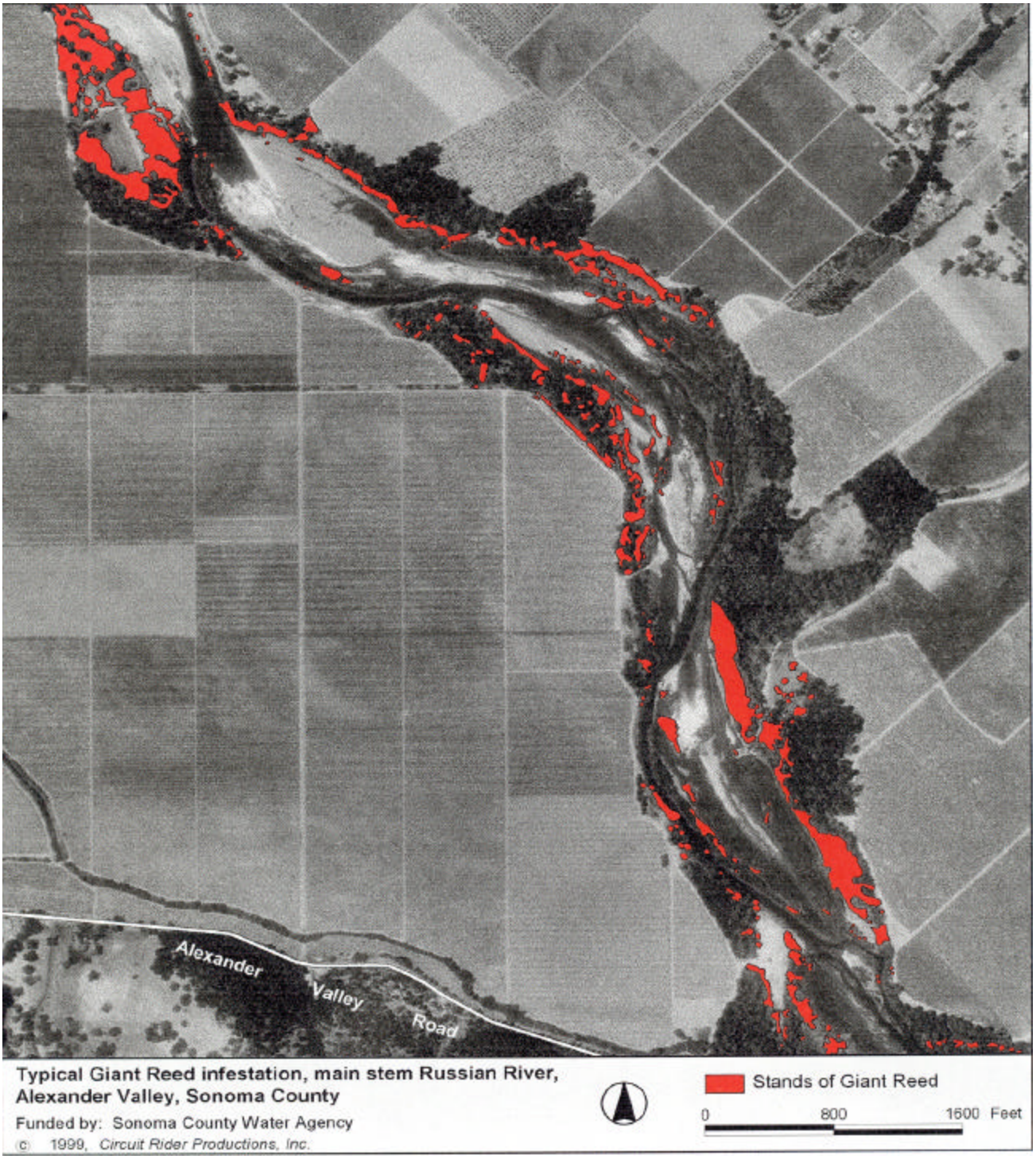
Modify flood control practices to remove non-native giant reed and restore and enhance 30 miles of riparian habitat along the Russian River and 14 miles along Dry Creek.

DESCRIPTION:

- Remove infestations of giant reed (Arundo donax) and restore riparian habitat
- Develop access and maintenance agreements with landowners
- Project authorization under Section 1135 of the Corps of Engineers' Continuing Authority Program
- SCWA and Sotoyome Resource Conservation District (RCD) would be the non-federal sponsors responsible for implementing and maintaining the project
- SCWA has local responsibility for maintaining flood control works along the Russian River and Dry Creek
- Modify U.S. Army Corps of Engineers' (USACE) Operations and Maintenance manuals for flood control works along the Russian River and Dry Creek

POTENTIAL PARTNERSHIPS:

- Circuit Rider Productions, Inc.
- Landowners along the Russian River and Dry Creek
- Russian River Watershed Council
- Sonoma County Water Agency
- Sotoyome Resource Conservation District
- U.S. Army Corps of Engineers



Aerial view of giant reed distribution in the Alexander Valley near Jimtown.

SANTA ROSA CREEK PRINCE MEMORIAL GREENWAY - PHASE IV

Estimated Project Cost:
$4 Million

PROJECT GOAL

Restore creek habitat to save threatened steelhead trout.

DESCRIPTION:

- Enhance channel bottom of Santa Rosa Creek, plant riparian vegetation, build pathways and park adjacent to the creek
- Reshape channel to maintain existing flood capacity and allow for instream habitat structures and revegetation
- Reslope creek banks, remove grouted rip-rap, install rock wing deflectors, redwood log habitat structures and boulder weirs
- Revegetate channel banks to provide habitat and decrease summer stream temperatures
- Install displays for public education

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- California Department of Transportation
- City of Santa Rosa
- CityVision
- Committee for Restoring Santa Rosa Creek
- Downtown Santa Rosa Association
- Historic Railroad Square Association
- National Marine Fisheries Service
- Santa Rosa Chamber of Commerce
- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Water Agency
- Sotoyome Resource Conservation District
- U.S. Army Corps of Engineers
- U.S. Department of Agriculture, Natural Resources Conservation Service
- West End Neighborhood

SANTA ROSA CREEK PRINCE MEMORIAL GREENWAY - PHASE IV

Santa Rosa Creek Prince Memorial Greenway - Phase IV prior to construction

Santa Rosa Creek Prince Memorial Greenway - Phase IV site map

MATANZAS CREEK FISHWAY

Estimated Project Cost:
$3.5 Million

PROJECT GOAL

Remove a migration barrier at the mouth of Matanzas Creek to allow steelhead access to spawning and rearing habitat.

DESCRIPTION:

- Fish passage through the 1,400 linear-foot Matanzas Creek flood control project (culvert) is prohibited by high winter velocities and shallow summer depths
- Install 8 – 10 inflatable bladders across the bottom of the culvert to create a small series of dams inside the culvert
- Bladders will raise water levels and decrease velocities throughout the structure
- During high flows, the bladders will deflate, retaining the flood control capacity within the culvert
- Fish will pass the inflated barriers by swimming or leaping over them and then continue upstream of the culvert and into Matanzas Creek

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- California Regional Water Quality Control Board, North Coast Region
- City of Santa Rosa
- Community Organizations
- National Marine Fisheries Service
- Sonoma County Water Agency

MATANZAS CREEK FISHWAY

Fish passage through this 1,400 foot culvert on Matanzas Creek is prohibited by high winter velocities and shallow summer depths.

GIANT REED (ARUNDO DONAX) ERADICATION

Estimated Project Cost:
$3 Million

DESCRIPTION:

- Intact riparian vegetation along the Russian River is increasingly invaded by non-native plant species
- Giant reed is one of the most serious impacts to remaining riparian habitat
- Clear understanding of the extent of the invasion by giant reed is critical for prioritizing control strategies and estimating costs associated with eradication and site restoration
- Conducted low-level aerial flights over main stem of the Russian River and major salmon-bearing tributaries, photographing riparian zone
- For the main stem, giant reed locations identified and acreages calculated, data developed into a watershed-wide GIS
- Total extent of giant reed in main stem is two hundred and thirty six acres, with majority (60%) occurring in the Alexander Valley
- Forty-three tributaries in watershed also identified as having Arundo infestations
- Mapped data indicates giant reed widespread in three elevational areas: active channel, banks and floodplain, thereby representing a serious threat to entire riparian corridor
- Experiments indicate tarping is most effective means of controlling and/or eliminating giant reed

PROJECT GOAL

Characterize the extent of giant reed in the Russian River riparian zone, evaluate effective control methods for giant reed, and evaluate its effects on a suite of biological features – including the riparian plant community, terrestrial and aquatic insects and other aquatic processes.

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- Circuit Rider Productions, Inc.
- Coastal Conservancy
- Sonoma County Water Agency
- Sonoma State University
- University Of California

GIANT REED (ARUNDO DONAX) ERADICATION

Giant reed infestation

Tarping giant reed - an effective alternative to herbicide

ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP)

Estimated Project Cost:
$2 Million

DESCRIPTION:

- Project has been active in Russian River Watershed since 1997
- Administered by the USDA Natural Resources Conservation Service (NCRS) in conjunction with the USDA Farm Service Agency
- Funded through the Farm Bill and provides up to 75% of the cost to install conservation projects
- Eligible projects must be included in site-specific conservation plan prepared by the property owner and approved by NCRS
- Projects planned or implemented in the Russian River watershed include treating non - point source pollution and improving riparian habitat on dairies, livestock ranches and vineyards
- Projects have included invasive species removal, riparian revegetation, installation of fish screens on irrigation pumps, and replacement of flashboard dams with offsite passive systems
- Water quality has been improved by erosion control projects to stabilize hillside gullies, improve access roads and establish permanent cover crops in vineyards

PROJECT GOAL

Encourage conservation projects within the Russian River watershed by providing incentives to agricultural producers.

POTENTIAL PARTNERSHIPS:

- Gold Ridge Resource Conservation District
- Mendocino Resource Conservation District
- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Water Agency
- Sotoyome Resource Conservation District
- University of California Cooperative Extension

ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP)

Livestock fencing

Willow wall on Forsythe Creek

Willow baffles on Feliz Creek

DUTCH BILL CREEK
FISH HABITAT IMPROVEMENTS

Estimated Project Cost:
$34,000

PROJECT GOAL

Improve salmonid habitat within Dutch Bill Creek to facilitate fish migration and juvenile rearing.

DESCRIPTION:

- Three projects along Dutch Bill Creek, sponsored by the Gold Ridge Resource Conservation District (GRRCD)
- Install 23 new in-stream habitat structures and 10 boulder clusters, and add cover logs to five existing in-stream structures
- Decrease the length of straight stream reaches and increase pools to assist in fish migration and rearing
- Increase streambank stability

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- National Marine Fisheries Service
- Private landowners along Dutch Bill Creek
- Sonoma County Water Agency

DUTCH BILL CREEK
FISH HABITAT IMPROVEMENTS

Log structures on Dutch Bill Creek

Vortex weir on Dutch Bill Creek

GREEN VALLEY CREEK FISH PASSAGE IMPROVEMENT

Estimated Project Cost:
$6,800

PROJECT GOAL

Improve fish migration and access to upstream habitat in Green Valley Creek.

DESCRIPTION:

- Sponsored by the Gold Ridge Resource Conservation District
- Green Valley Creek habitat for coho salmon and steelhead
- Installation of 5 in-stream habitat structures, construction of two concrete weirs and modification of two concrete sills

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- National Marine Fisheries Service
- Private landowners along Green Valley Creek
- Sonoma County Water Agency

GREEN VALLEY CREEK
FISH PASSAGE IMPROVEMENT

Fish ladder on Green Valley Creek

GREEN VALLEY CREEK HABITAT IMPROVEMENT

Estimated Project Cost:
$6,500

DESCRIPTION:
- Sponsored by the Gold Ridge Resource Conservation District
- Green Valley Creek habitat for coho salmon and steelhead
- Section of Green Valley Creek identified by CDFG as lacking in pool habitat
- Install three rock weirs in the straight stream reaches to create pools within the waterway

PROJECT GOAL

Improve juvenile rearing habitat in Green Valley Creek by increasing pool frequency.

POTENTIAL PARTNERSHIPS:
- California Department of Fish and Game
- National Marine Fisheries Service
- Private landowners along Green Valley Creek
- Sonoma County Water Agency

GREEN VALLEY CREEK HABITAT IMPROVEMENT

Rock weir with pool

FELIZ CREEK IMPLEMENTATION

Estimated Project Cost:
$100,000

PROJECT GOAL

Restore the entire lower stretch of Feliz Creek to aid fish migration and provide resting habitat.

DESCRIPTION:

- Install instream structures that enhance riparian tree growth and reduce streambank erosion
- Instream structures will create resting pools for migrating salmonid fish species
- Restoration will complement other restoration activities in the Feliz Creek watershed, such as sediment reduction from roads, native riparian revegetation and fish habitat improvement
- In 2002, the Mendocino County Resource Conservation District implemented a bioengineering restoration project at the Solar Living Center and Tali-Pak Mill in Hopland, CA
- The 2002 project restores the stream channel; reduces streambank erosion; enhances riparian vegetation, which prevents increased stream temperatures; and provides resting habitat for migrating salmonids
- This implementation project will further enhance the same criteria in the lower portions of Feliz Creek

POTENTIAL PARTNERSHIPS:

- California Conservation Corps
- California Department of Fish and Game
- California Department of Transportation (Caltrans)
- Local vineyard operations
- Mendocino County Resource Conservation District
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Solar Living Center

FELIZ CREEK IMPLEMENTATION

Installation of in-stream structures in Feliz Creek

FORSYTHE CREEK WATERSHED IMPLEMENTATION

Estimated Project Cost:
$250,000

PROJECT GOAL

Improve water quality and salmonid habitat by implementing the findings of the Forsythe Creek watershed assessment.

DESCRIPTION:

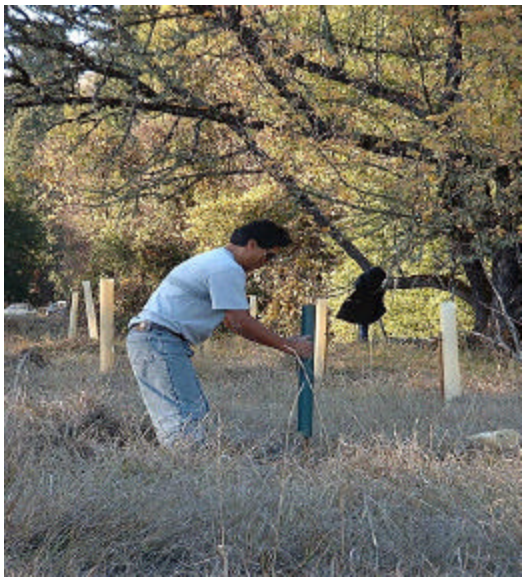
- Provide a watershed geomorphic analysis, rapid sediment evaluation, 66 days of in-stream and riparian field survey, and 58 miles of road assessment using the Star System protocol
- Projects will include: stream grade control to prevent downcutting, streambank stabilization, native riparian revegetation, upland restoration and conservation, road improvements and effectiveness monitoring
- Enhance fish habitat based on a holistic view of fish, wildlife and human needs, and implement the recommendations of the California Department of Fish and Game's 2002 Draft Russian River Basin Fisheries Restoration Plan
- Projects will be guided and implemented with landowners
- Projects will enhance stream geomorphic function
- Funded by CDFG and the U.S. Bureau of Indian Affairs

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- Coyote Valley Tribe
- Forsythe Creek Watershed Advisory Group
- Mendocino County Resource Conservation District
- Mendocino County Water Agency
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Russian River Watershed Council
- Sonoma County Water Agency
- U.S. Environmental Protection Agency
- Watershed residents

FORSYTHE CREEK WATERSHED IMPLEMENTATION

Native riparian plant revegetation in Forsythe Creek watershed



Forsythe Creek watershed assessment

SANTA ROSA CREEK - PIERSON REACH RESTORATION

Estimated Project Cost:
$20 Million

PROJECT GOAL

Restore creek habitat to save threatened steelhead trout.

DESCRIPTION:

- Enhance channel bottom of Santa Rosa Creek, plant native riparian vegetation, and build pathways along northern bank
- Reshape channel to maintain existing flood capacity and allow for instream habitat structures and revegetation
- Reslope creek banks, remove grouted rip-rap, install rock wing deflectors, redwood log structures and boulder weirs
- Revegetate channel banks to provide habitat and decrease summer stream temperatures

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- California Department of Transportation
- City of Santa Rosa
- CityVision
- Committee for Restoring Santa Rosa Creek
- Downtown Santa Rosa Association
- Historic Railroad Square Association
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Santa Rosa Chamber of Commerce
- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Water Agency
- Sotoyome Resource Conservation District
- U.S. Army Corps of Engineers
- U.S. Department of Agriculture,
- West End Neighborhood

SANTA ROSA CREEK - PIERSON REACH RESTORATION

Santa Rosa Creek - Pierson Reach

Phase I of the Santa Rosa Creek Prince Memorial Greenway Project. This is what the Pierson Reach channel could look like once restored.

WILDLIFE HABITAT INCENTIVES PROGRAM (WHIP)

Estimated Project Cost:
$200,000

PROJECT GOAL

Encourage the establishment of high quality wildlife habitat on private lands in the Russian River watershed.

DESCRIPTION:

- Program has been active in the Russian River watershed since 1998
- Administered by the USDA Natural Resources Conservation Service (NCRS)
- Funded through the Farm Bill
- Provides up to 75% of the cost to install conservation projects to improve wildlife habitat
- Eligible projects must be included in site-specific conservation plan prepared by the property owner and approved by NCRS
- Local projects planned or implemented have included cost-share incentive payments to restore and stabilize riparian corridors and establish upland perennial grass and tree plantings
- Projects have included drip irrigation systems for restoration; bioremediation; stream bank restoration; re-establishment of native grasses, trees and shrubs; and riparian protection fencing
- Water quality has been improved by providing off-site benefits with reduced soil erosion and reduced transport of sediments and other pollutants into surface waters

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- California Department of Forestry and Fire Protection
- Goldridge Resource Conservation District
- Mendocino County Resource Conservation District
- Partners for Fish and Wildlife Program
- Sonoma County Water Agency
- Sotoyome Resource Conservation District
- University of California Cooperative Extension
- U.S. Fish and Wildlife Service

WILDLIFE HABITAT INCENTIVES PROGRAM (WHIP)

WHIP projects have included riparian protection fencing and re-establishment of native trees

IMPROVING WATER QUALITY

Water quality is an important factor affecting any fishery. Within the Russian River watershed, efforts are under way to protect and improve water quality as a means of increasing the population of native salmonids. The following projects are designed to both monitor and measure water quality within the watershed, while moving ahead with efforts to reduce or eliminate activities that have the potential to impair the river or its tributaries.

CAMP MEEKER WASTEWATER RECLAMATION

Estimated Project Cost:
$5 Million

PROJECT GOAL

Eliminate a current public health hazard in the community of Camp Meeker and decrease water quality violations of the Occidental County Sanitation District.

DESCRIPTION:

- Camp Meeker is located in western Sonoma County
- Comprised of approximately 360 parcels with no sewer collection system or wastewater treatment system
- Failing septic systems resulted a declaration of a health hazard in 1989
- Nearby community of Occidental has sewer collection system and wastewater treatment plant operated by the Occidental County Sanitation District (OCSD)
- Occidental system in violation of current permitting requirements and water quality violations; given a time schedule to come into compliance
- Project would include: construction of sewer collection system in Camp Meeker; replacement of failing sewer collection system in Occidental; upgrading of OCSD treatment facility to process inflows from Camp Meeker and Occidental; construction of artifical wetland; and development of recycled water distribution facilities
- Environmental Impact Report has been completed for this project
- Pending funding, project could begin in 2003 and be completed by 2005

POTENTIAL PARTNERSHIPS:

- California Regional Water Quality Control Board, North Coast Region
- Camp Meeker Park and Recreation District
- County of Sonoma Department of Health Services
- Occidental County Sanitation District

CAMP MEEKER WASTEWATER RECLAMATION

Houses in the Camp Meeker community are served by individual septic systems that typically were constructed prior to the enactment of modern septic systems, and are unsuitable for the area

CANON MANOR INFRASTRUCTURE IMPROVEMENTS

Estimated Project Cost:
$10 Million

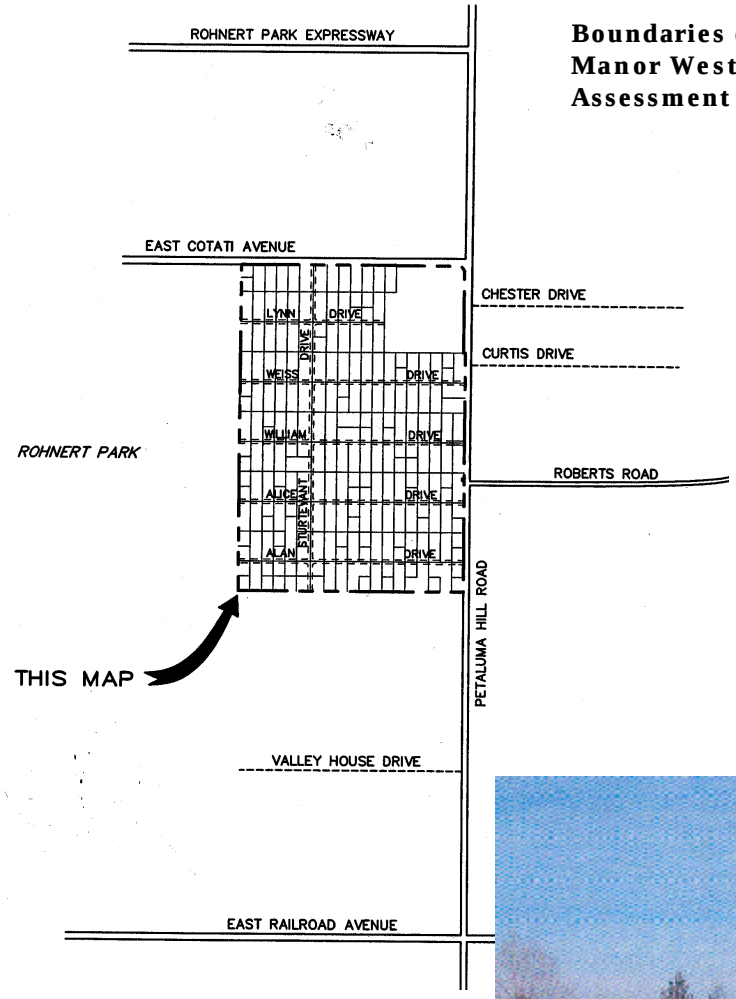
PROJECT GOAL

Improve water quality in the area by replacing failing septic systems and contaminated wells, and addressing flooding of unpaved roads.

DESCRIPTION:
- Canon Manor is subdivision located near Rohnert Park, in southeastern Sonoma County
- Subdivision approved for construction in1950's without paved roads or water and sewer utilities
- 110 homes have been built, and 120 undeveloped lots remain
- Failing septic systems, contaminated wells and flooding of unpaved roads
- Petition process has begun to develop a district to address infrastructure needs

POTENTIAL PARTNERSHIPS:
- City of Rohnert Park
- County of Sonoma Department of Health
- County of Sonoma Department of Transportation and Public Works
- County of Sonoma Permit and Resource Management Department
- Sonoma County Water Agency

CANON MANOR INFRASTRUCTURE IMPROVEMENTS



Boundaries of Canon Manor West Assessment District

The Canon Manor subdivision was approved for construction in the 1950's without paved roads or water and sewer facilities

MONTE RIO WASTEWATER POLLUTION CONTROL

Estimated Project Cost:
$11 Million

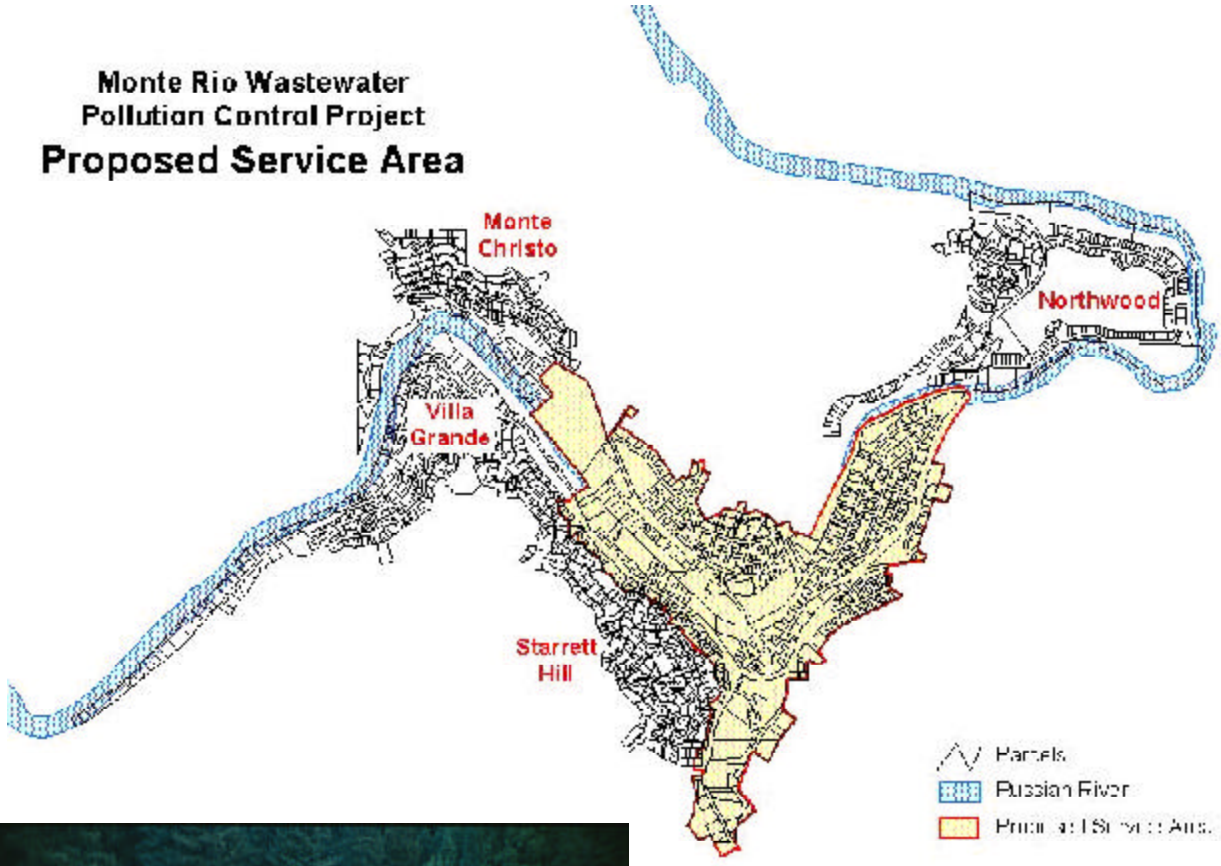
PROJECT GOAL

Improve water quality in the Russian River by constructing a public sewer collection, treatment and disposal system to replace failing septic systems.

DESCRIPTION:
• Monte Rio is largest community within Sonoma County without a public sewer system
• High density of development and inadequate septic systems have affected water quality in the Russian River
• In 1997 Sonoma County Board of Supervisors established severe restrictions on new construction in Monte Rio
• Project includes building system to collect wastewater and transport it for treatment to a community leachfield
• Pending funding, construction could commence in 2003

POTENTIAL PARTNERSHIPS:
• California Regional Water Quality Control Board, North Coast Region
• Coastal Conservancy
• Sonoma County Permit and Resource Management Department
• Sonoma County Water Agency

MONTE RIO WASTEWATER POLLUTION CONTROL



Monte Rio comprises more than a thousand homes and a variety of commercial establishments on 1,900 small lots. High density of development and inadequate septic systems in the community have affected water quality in the Russian River.

MCNAB CREEK ROAD IMPLEMENTATION

Estimated Project Cost:
$300,000

PROJECT GOAL

Improve water quality in the McNab Creek watershed by reducing sediment loading from unpaved roads.

DESCRIPTION:

- Reconstruct unpaved roads in the McNab Creek watershed to reduce significant sediment loading in the McNab Creek watershed
- Road reconstruction includes: replacing culverts, road reshaping, installing rolling dips and road rocking
- Sediment loading due to roads is the greatest limiting factor to salmonid habitat in McNab Creek, according to California Department of Fish and Game habitat surveys
- Implement the findings of the McNab Creek Road Assessment, completed in Spring 2003
- The McNab Creek Road Assessment analyzes the McNab Road Association's unpaved road network to reduce sediment loading in the McNab Creek drainage
- The road assessment was performed by the USDA – NRCS and Pacific Watershed Associates

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- California Regional Water Quality Control Board, North Coast Region
- McNab Road Association
- Mendocino County Resource Conservation District
- Pacific Watershed Associates
- Watershed residents

MCNAB CREEK ROAD IMPLEMENTATION

Road assessment workshop for local residents

LEDDY PARK AREA INFRASTRUCTURE IMPROVEMENTS

Estimated Project Cost:
$5 Million

PROJECT GOAL

Improve water quality by replacing failing septic systems and contaminated wells in the Leddy Park area of Santa Rosa.

DESCRIPTION:
- Leddy Park area located in southwest Santa Rosa
- Over 100 homes constructed in rural area without water or sewer utilities
- High ground water prevents septic systems from functioning in winter
- Coliform bacteria detected in wells

POTENTIAL PARTNERSHIPS:
- California Water Resources Control Board
- City of Santa Rosa
- County of Sonoma Department of Health
- County of Sonoma Permit and Resource Management Department
- Southwest Development Project Area Committee

LEDDY PARK AREA INFRASTRUCTURE IMPROVEMENTS

Aerial view of the Leddy Park area of Santa Rosa

RUSSIAN RIVER COUNTY SANITATION DISTRICT THIRD UNIT PROCESSES

Estimated Project Cost:
$5 Million

DESCRIPTION:

- The Russian River County Sanitation District's (RRCSD) wastewater treatment facility is located in the unincorporated area of Guerneville
- The RRCSD provides wastewater treatment for the communities of Guerneville, Guernewood Park, Rio Nido and Vacation Beach, and some areas surrounding these communities
- During significant flood events on the lower Russian River, the amount of sewage received by the treatment facility (influent) exceeds the facility's treatment capacity
- This has caused the RRCSD to discharge partially treated wastewater (effluent) into the Russian River
- This type of occurrence is in violation of the RRCSD's National Pollutant Discharge Elimination System (NPDES) permit administered by the NCRWQCB, and has resulted in significant fines for the District
- The proposed project, the Third Unit Processes, will provide treatment for influent during high winter flows by constructing an aeration basin, a secondary clarifier, and a replacement tertiary filtration system.

PROJECT GOAL

Improve water quality in the Russian River by improving wastewater treatment at the Russian River County Sanitation District's treatment facility during high winter flows.

POTENTIAL PARTNERSHIPS:

- California Regional Water Quality Control Board, North Coast Region
- California Water Resources Control Board
- Russian River County Sanitation District
- Sonoma County Water Agency
- U.S. Environmental Protection Agency

RUSSIAN RIVER COUNTY SANITATION DISTRICT THIRD UNIT PROCESSES

Aerial view of the Russian River County Sanitation District's wastewater treatment facility.

A third clarifier, similar to this one shown, will settle solids out of the liquid stream , allowing clarified effluent to move on to the tertiary filtration process.

RESTORING FISHERIES

Any effort to restore salmonid populations within the Russian River watershed must be scientifically grounded if it is to be successful. The following projects will provide the foundation for restoration efforts within the watershed by providing important data regarding the fisheries' genetics, and spawning, rearing and migratory needs. This information, coupled with adequately funded "on-the ground" restoration efforts, will contribute greatly to the survival of these imperiled species.

CONSERVATION/SUPPLEMENTATION HATCHERY PROGRAM

Total Project Cost:
$40 Million - $50 Million

DESCRIPTION:
• Develop conceptual and design alternatives to modify existing facilities and assess conservation hatchery techniques as an alternative method to increase native fish in the Russian River watershed
• The existing facilities, Coyote Valley Fish Facility at Lake Mendocino and the Don Clausen Fish Hatchery at Lake Sonoma, are primarily production-oriented, but could function as conservation hatcheries by incorporating new conservation management strategies
• Facilities are owned by the U.S. Army Corps of Engineers and operated by California Department of Fish and Game

POTENTIAL PARTNERSHIPS:
• California Department of Fish and Game
• National Marine Fisheries Service
• Sonoma County Water Agency
• University of California, Bodega Marine Laboratory
• U.S. Army Corps of Engineers

PROJECT GOAL

Evaluate the feasibility of developing a conservation hatchery program for the Russian River, which would be used to facilitate recovery of fisheries by augmenting the numbers of native fish in the Russian River watershed.

CONSERVATION/SUPPLEMENTATION HATCHERY PROGRAM

Existing hatchery goals in the Russian River Basin are based on production to mitigate for spawning habitat that was lost following the construction of Warm Springs and Coyote Valley Dams.

Conventional fish-rearing practices have often been thought to reduce the survival of hatchery fish relative to wild fish. This issue has led to the consideration of developing physical and operational modifications to lessen the impacts of traditional hatchery practices.

The basic tenets of a conservation hatchery strategy is to raise fish under conditions similar to those found in the wild and to release these fish with a genetic background and in numbers that reduce impacts to wild stocks. Raising the fish under conditions that simulate wild rearing habitat will better prepare them to survive after they are released.

Several techniques for modifying rearing tanks have shown special promise for conservation hatchery strategies including cryptic coloration, in-water structures, natural substrate, low fish densities, predator avoidance training, underwater feeding techniques, and cover.

Don Clausen Fish Hatchery Facility at Warm Springs Dam, Sonoma County, California

Cle Ellum Supplementation and Research Facility, Yakima, Washington

COHO BROODSTOCK PROGRAM

Estimated Project Cost:
$10 Million - $15 Million

PROJECT GOAL

Provide a source of native fish to replenish the wild population of coho salmon and prevent local extinction in the Russian River Basin.

DESCRIPTION:

- The Coho Broodstock Program will collect juvenile coho salmon, rear them in captivity, and generate offspring to be released in suitable tributaries of the Russian River and adjacent watersheds
- The goal is to have these planted fish return to spawn naturally, eventually eliminating the population's dependence on hatchery supplementation
- The Program involves capturing approximately 300 juvenile fish annually from creeks and tributaries in Sonoma and Marin counties and then raising them to maturity at the Don Clausen Fish Hatchery at Lake Sonoma and the Coyote Valley Fish Facility at Lake Mendocino
- Analysis will be conducted to evaluate the genetic variation and relationships among the juvenile fish
- The program will determine which stocks are utilized, how the fish would be spawned, and determine production targets
- The offspring of the captured and hatchery-raised coho salmon will be planted in suitable tributaries and, when grown, return to spawn
- A work group composed of federal, state, and local government agencies along with watershed protection groups was established to identify technical requirements and address regulatory concerns

POTENTIAL PARTNERSHIPS:

- Americorps Watersheds Stewards Project
- California Department of Fish and Game
- County of Marin
- Institute for Fisheries Resources
- Marin Municipal Water District
- National Marine Fisheries Service
- North Bay Watershed Association
- North Marin Water District
- Pacific Coast Federation of Fisherman's Associations
- Sonoma County Water Agency
- Trout Unlimited
- University of California, Bodega Marine Laboratory
- University of California, Cooperative Extension
- U.S. Army Corps of Engineers
- Various watershed councils/associations

COHO BROODSTOCK PROGRAM

Over the past decade, coho salmon have been declining throughout the Pacific Northwest and California, reaching particularly precarious levels in central California. These low numbers prompted federal protection under the Endangered Species Act in 1996 when coho salmon were listed as threatened. On Aug. 30, 2002, the California Fish and Game Commission listed coho salmon as an endangered species under the California Endangered Species Act, and tasked CDFG with preparing a recovery strategy by August 2003.

Male coho salmon returning to spawn in Lagunitas Creek in Marin County

Juvenile coho salmon

In central California, with the exception of a few coastal creeks where coho salmon populations are small but stable, only remnant populations remain in isolated tributaries in the Russian River. These remaining coho populations may be too small to rebound on their own.

Unlike conventional hatchery operations, the Coho Broodstock Program would rear fish to maturity in captivity, and utilize their offspring to restock previously occupied coho streams in the Russian River basin and Marin County creeks.

Salmon eggs, alevin, and fry raised under hatchery conditons

SALMON FISHERIES OCEAN MONITORING

Estimated Project Cost:
$15 Million
for monitoring from Point Sur to the Oregon border

PROJECT GOAL

Provide information on how oceanic conditions affect salmonid survival, which is essential for the long-term assessment of coastal salmon recovery.

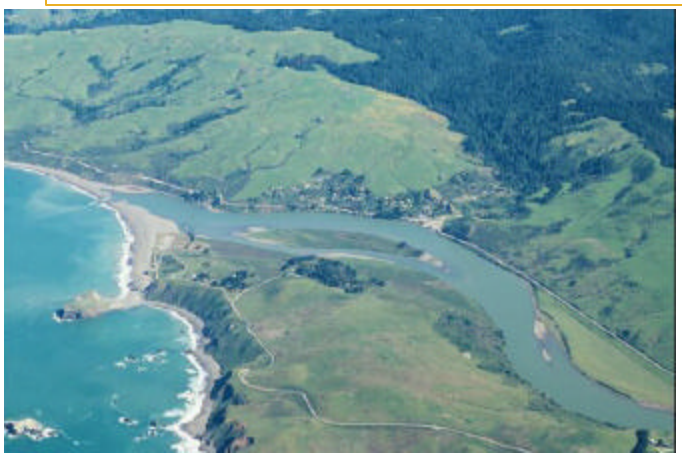
DESCRIPTION:

- Better describe and monitor circulation and upwelling in the plume areas of the Russian River and other northern California streams
- Monitor various ocean water quality parameters to characterize variations influencing salmon abundance
- Deployment of high-frequency coastal radar (CODAR) units and moorings for data collection
- Equipment will be deployed between Point Reyes and Stewart's Point, where the CODAR will measure surface water currents
- Mooring will collect data on subsurface currents as well as water quality parameters that provide indices of ocean productivity (e.g. the quantity of food available for salmon)
- Data will be used to develop preliminary circulation and productivity models
- Ocean monitoring will be conducted in conjunction with similar efforts being undertaken along the Pacific Coast by the Scripps Institute of Oceanography under the Wind Events in Shelf Transport (WEST) project

POTENTIAL PARTNERSHIPS:

- California Coastal Conservancy
- Scripps Institute of Oceanography
- Oregon State University
- Sonoma County Water Agency
- University of California, Bodega Marine Laboratory
- University of Washington

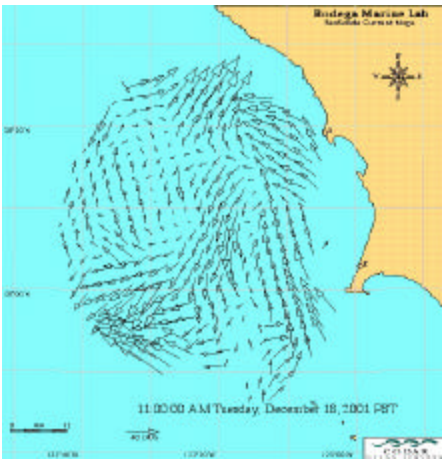
SALMON FISHERIES OCEAN MONITORING



Russian River Estuary
Salmon spend approximately 75 percent of their life in the ocean, but little is known about how ocean conditions influence salmonid survival and abundance.

To effectively evaluate future changes in management practices within the Russian River watershed, it is imperative to differentiate between impacts to salmon populations due to changes in ocean conditions or due to changes in watershed management practices.

CODAR units will be deployed in areas not currently addressed by existing monitoring equipment



Surface water currents measurements from CODAR units

Additional information that will be collected for this ocean monitoring project has been specifically designed to integrate with other projects being conducted or coordinated by Bodega Marine Laboratory. One of these projects is the development of a model to predict salmon survival under various ocean conditions. The model will be based on data collected from this project and other ocean monitoring studies.

FISHERIES ENHANCEMENT PROGRAM (FEP)

Estimated Project Cost:
$750,000

PROJECT GOAL

Improve the native fish resources of the Russian River and its tributaries, with the focus on enhancing habitat for steelhead, and coho and Chinook salmon.

DESCRIPTION:

- To accomplish the objectives of the Fisheries Enhancement Program (FEP), SCWA conducts and coordinates fishery projects and provides grants to private and public organizations as an incentive to implement enhancement projects
- Typical FEP projects include stream restoration, fish surveys, habitat assessments and other fish enhancement activities
- Priorities for specific projects are established by the Agency in collaboration with the California Department of Fish and Game and other agencies
- The FEP began in 1996, and since its inception, more than 63 projects have been approved and funded

POTENTIAL PARTNERS:

- California Department of Fish and Game
- California Regional Water Quality Control Board, North Coast Region
- City of Rohnert Park
- City of Santa Rosa
- Local resource conservation districts
- Local schools
- National Marine Fisheries Service
- Sonoma County Water Agency
- U.S. Fish and Wildlife Service

FISHERIES ENHANCEMENT PROGRAM (FEP)

The FEP program provides funding and coordinates restoration projects such as fish surveys and creek clean-ups

ENDANGERED SPECIES ACT PROGRAMS

The listing of coho and Chinook salmon and steelhead as “threatened” under the federal Endangered Species Act has introduced a new regulatory environment within the watershed. Virtually all activities within the watershed are affected, including agriculture, water supply, hydroelectric generation, recreation, forestry and waste management. The Russian River Section 7 Consultation, and its resulting Biological Assessment and Biological Opinion, will facilitate compliance with new regulatory requirements, ultimately resulting in improved in-stream and riparian habitat for the listed species. The following projects are designed to support compliance with the Endangered Species Act.

NORTH BAY KRIS PROGRAM

Estimated Project Cost:
$500,000

PROJECT GOAL

Provide a database of existing information relevant to fisheries, water quality and watershed management for Sonoma, Marin and portions of Mendocino counties. The database will be used by resource managers to focus restoration efforts and define factors affecting salmonid abundance.

DESCRIPTION:

• Create KRIS database coverage for the Bay Area and South Coast portions of the North-central California Coast Recovery Planning Domain left out of the North Coast Watershed Assesssment Program
• The North Bay KRIS (Klamath Resource Information System) Program will provide the National Marine Fisheries Service and California Department of Fish and Game with a valuable tool for use in Recovery Planning for the North-central California Coast Recovery Planning Domain
• Windows-based computer program that integrates and allows easy access to maps, data tables, charts, photographs and research materials relevant to fisheries, water quality and watershed management
• Assembles data in an easy-to-use format and permits users to analyze and evaluate changes and trends in watershed conditions over time
• Currently being used as an information management tool by state agencies for a number of other north coast watersheds and will provide a unified platform for data review and analysis for watersheds from the Oregon border to the Golden Gate
• Information contained in the North Bay KRIS program will be available via the internet
• The internet site will provide custom mapping capabilities using ARCIMS or similar software

POTENTIAL PARTNERSHIPS:

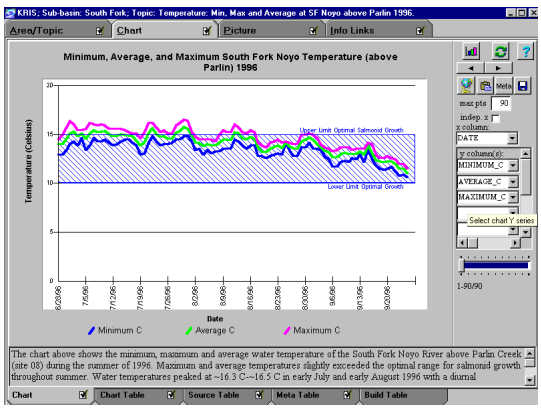
• California Coastal Conservancy
• California Department of Fish and Game
• California Regional Water Quality Control Board, North Coast Region
• California Regional Water Quality Control Board, San Francisco Bay Region
• Institute for Fisheries Resources
• National Marine Fisheries Service
• Sonoma County Water Agency
• University of California, Bodega Marine Laboratory

NORTH BAY KRIS PROGRAM

The North Bay KRIS database will include information on separate watersheds in the northern portion of the Planning Domain: the Navarro and Garcia Rivers and immediately adjacent minor streams; the San Pablo Bay excluding the Napa River; the Russian River; as well as coastal watersheds of Marin and Sonoma counties including Salmon Creek, Bodega Bay, and Tomales and Drakes bays.

North Bay KRIS Program Coverage

The Program content is being developed in consultation with the National Marine Fisheries Service and California Department of Fish and Game staff responsible for developing recovery plans for the North-central California Recovery Planning Domain. It will augment similar efforts being conducted by the State of California Resources Agency, and has the support of the National Marine Fisheries Service, California Department of Fish and Game, and the Regional Water Quality Control Board, North Coast Region. The State of California Resources Agency is using the KRIS system to create a salmon watershed restoration information base for all the coastal watersheds north of southern Mendocino County.



KRIS Software Interface

SUPPLEMENTAL GEOGRAPHIC INFORMATION SYSTEM DEVELOPMENT

Estimated Project Cost:
$350,000

PROJECT GOAL

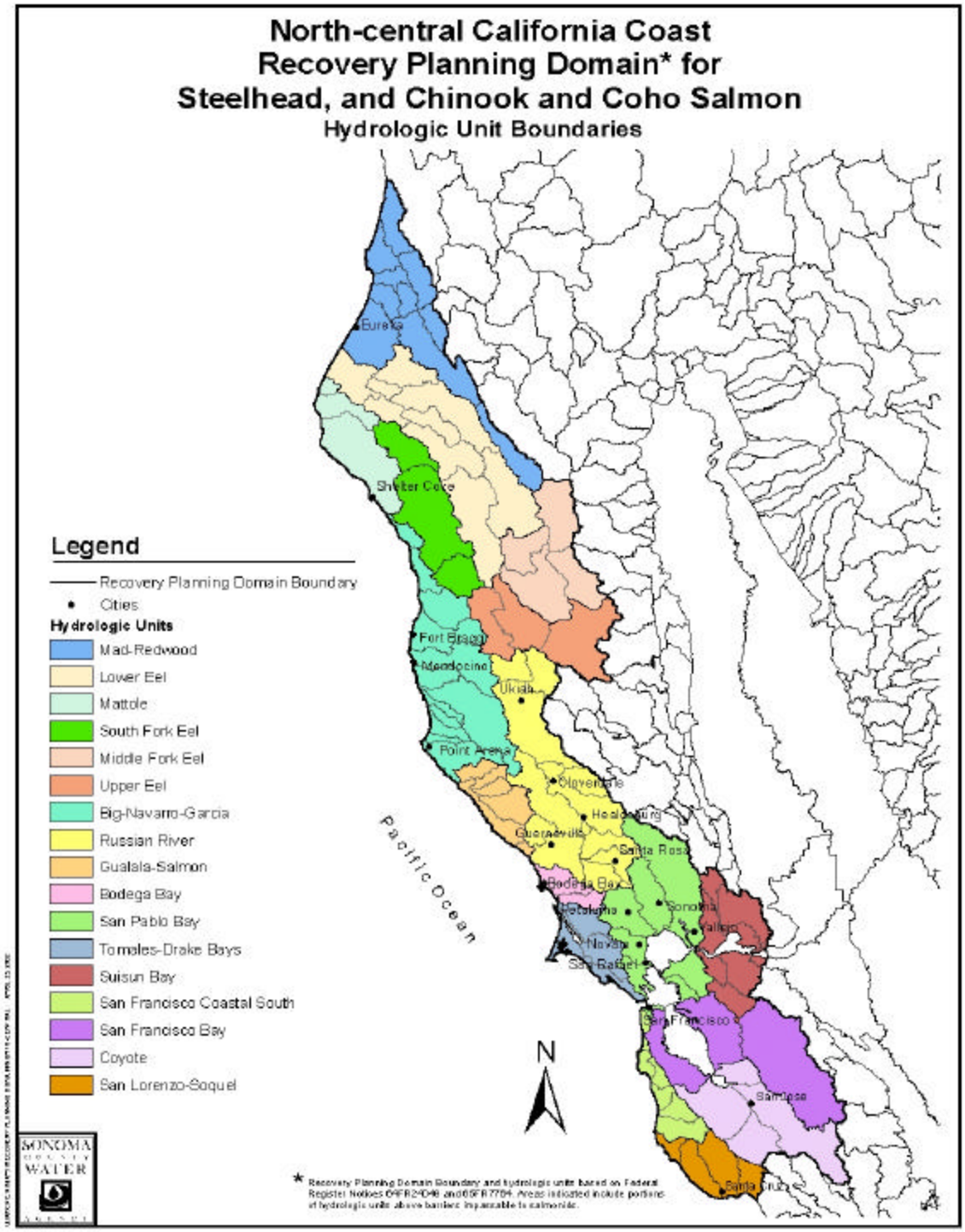
Research, evaluate and develop GIS data layers that support conservation and recovery planning for California coastal salmon and steelhead.

DESCRIPTION:

- The project will develop specific data layers in close coordination with the National Marine Fisheries Service and California Department of Fish and Game as well as with other ongoing local and statewide watershed projects
- The project is intended to complete spatial coverages for Sonoma and Marin counties in the National Marine Fisheries Service's North-central California Coast Recovery Planning Domain
- The project will complement spatial coverages being developed by National Marine Fisheries Service, California Department of Fish and Game, California Resources Agency's North Coast Watershed Assessment Program, and the Russian River Watershed Council's Russian River Interactive Information System
- Data layer development will be integrated with the North Bay Klamath River Information System (KRIS) Program software

POTENTIAL PARTNERSHIPS:

- Bay Conservation and Development Commission
- California Department of Conservation
- California Department of Fish and Game
- California Department of Forestry
- California Department of Water Resources
- California Environmental Protection Agency
- California Regional Water Quality Control Board
- Circuit Rider Productions
- Coastal Conservancy
- County of Marin
- County of Sonoma Permit and Resource Management Department
- Gold Ridge Resource Conservation District
- Marin Resource Conservation District
- Mendocino County Russian River Flood Control and Water Conservation Improvement District
- National Marine Fisheries Service
- North Bay Watershed Association
- Russian River Watershed Council
- San Francisco Estuary Institute
- Sonoma County Water Agency
- Sonoma Ecology Center
- Sotoyome Resource Conservation District
- Southern Sonoma County Resource Conservation District
- Tomales Bay Watershed Council
- U.S. Army Corps of Engineers



GIS map displaying the boundary of the North-central California Recovery Planning Domain

MANAGING WATER RESOURCES

To protect and restore the watershed, it is essential to effectively manage its water resources. Increasing the use of recycled water for irrigation reduces reliance on local groundwater and the Russian River watershed, keeping water in the river and its tributaries. These projects are focused on making the most of the water resources available in the region - for everyone.

NORTH SONOMA COUNTY AGRICULTURAL REUSE FEASIBILITY STUDY

Estimated Project Cost:
$1 Million - $2 Million for Feasibility Study
$50 Million - $70 Million for Construction

DESCRIPTION:
• Recycled water currently utilized by several agricultural users in the area
• Additional recycled water could be provided from various regional wastewater treatment facilities
• Recycled water could potentially be transported north to agricultural users in the Alexander, Dry Creek and Russian River valleys via the City of Santa Rosa's Geysers Pipeline
• Use of recycled water would offset use of water from the Russian River and its tributaries, and local groundwater
• Reduce discharges of treated wastewater to the Russian River and other waterways by local treatment facilities

POTENTIAL PARTNERSHIPS:
• City of Cloverdale
• City of Santa Rosa
• City of Healdsburg
• Coalition for Sustainable Agriculture
• County of Sonoma
• Dry Creek Agricultural Water Users, Inc.
• Sonoma County Water Agency

PROJECT GOAL

Promote the use of recycled water, reducing reliance on the Russian River for agricultural water use, and improving fish and wildlife habitat by reducing discharge of treated wastewater into the Russian River and its tributaries.

NORTH SONOMA COUNTY AGRICULTURAL REUSE FEASIBILITY STUDY

Recycled water could be provided to agricultural users in the Alexander, Dry Creek and Russian River valleys

SANTA ROSA URBAN RECYCLED WATER DISTRIBUTION SYSTEM

Estimated Project Cost:
$123 Million

PROJECT GOAL

Provide recycled water to urban irrigated areas, reducing reliance on potable water for irrigation, and improving fish and wildlife habitat by reducing discharge of treated wastewater into the Russian River and its tributaries.

DESCRIPTION:

- Design and installation of distribution pipeline to provide recycled water for urban irrigation in the Santa Rosa area
- Recycled water to be provided from the City of Santa Rosa's Subregional Wastewater Reclamation System
- The project is anticipated to offset approximately 2 billion gallons of irrigation annually
- Pending funding, the project could be designed in 2003 with construction beginning in 2004

POTENTIAL PARTNERSHIPS:

- City of Santa Rosa
- Sonoma County Water Agency

SANTA ROSA URBAN RECYCLED WATER DISTRIBUTION SYSTEM

Recycled water could be provided for urban irrigation in the Santa Rosa area

SONOMA COUNTY AREA RECYCLED WATER IRRIGATION

Estimated Project Cost:
$3.3 Million

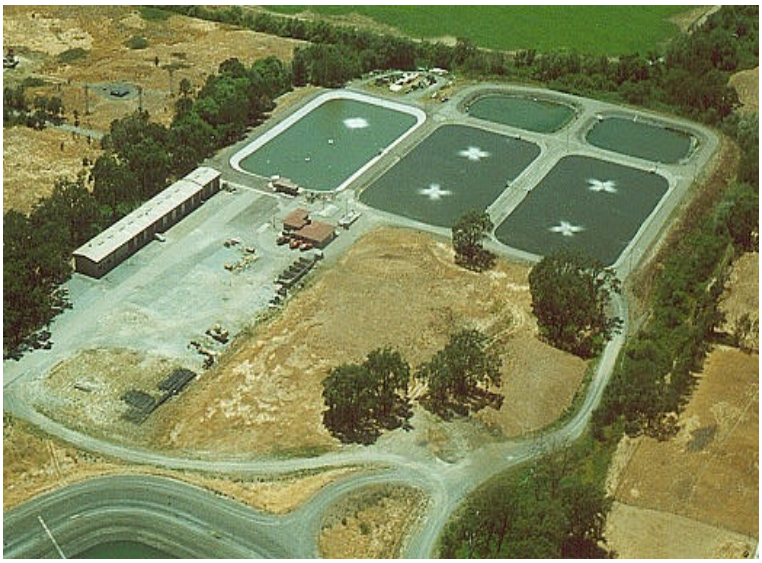
DESCRIPTION:
- Installation of a recycled water distribution system in the industrial area around the Sonoma County Airport
- Once installed, all non-residential irrigation switched to recycled water
- Expected to save up to 120 million gallons of potable water per year
- Due to costs, project likely to be constructed in phases

POTENTIAL PARTNERSHIPS:
- Airport-Larkfield-Wikiup County Sanitation Zone
- California Department of Water Resources
- NCRWQCB
- Sonoma County Department of Health Services
- Sonoma County Water Agency
- Town of Windsor

PROJECT GOAL

Increase distribution and use of recycled water to reduce reliance on water from the Russian River watershed and local groundwater, while improving water quality by reducing discharges of treated wastewater into local surface waters.

SONOMA COUNTY AREA RECYCLED WATER IRRIGATION



Recycled water from local wastewater treatment facilities could be provided to irrigate non-residential landscaping near the Sonoma County Airport

COYOTE VALLEY DAM RECONNAISSANCE STUDY

Estimated Project Cost:
$4 Million

DESCRIPTION:
- Subject of reconnaissance study by the U.S. Army Corps of Engineers
- Increased storage capacity in Lake Mendocino could be used to increase flows in the Russian River
- Additional environmental restoration opportunities
- Potential for increased hydroelectric power generation and recreation
- Mendocino County Inland Water and Power Commission is potential local sponsor

POTENTIAL PARTNERSHIPS:
- Mendocino County Inland Water and Power Commission
- Sonoma County Water Agency
- U.S. Army Corps of Engineers

PROJECT GOAL

Evaluate possibility of raising Coyote Valley Dam to increase storage capacity in Lake Mendocino.

COYOTE VALLEY DAM RECONNAISSANCE STUDY

Lake Mendocino, impounded by Coyote Valley Dam, has been storing water since 1959 and has a capacity of 118,900 acre-feet

PROTECTING THE WATERSHED

An important effort for salmonid recovery is protection of remaining habitat within the Russian River watershed. For some private and public landowners, this simply involves becoming more aware of the effect of human activity on the watershed and limiting or mitigating the impact of their activities as much as possible. In other cases, it is most beneficial to protect the watershed by removing or managing human activity within the riparian zone as much as possible, such as through conservation easements or designated park areas. The following projects will protect the watershed by fostering stakeholder involvement in restoration efforts, encouraging dissemination of critical watershed information, planning for large-scale watershed restoration efforts and protecting riparian zones.

LAGUNA DE SANTA ROSA

Estimated Project Cost:
$3.5 Million
for Feasibility Study

PROJECT GOAL

Help provide for the protection and restoration of the natural flood retention capability and historic wetland attributes of the Laguna de Santa Rosa, a tributary to the Russian River.

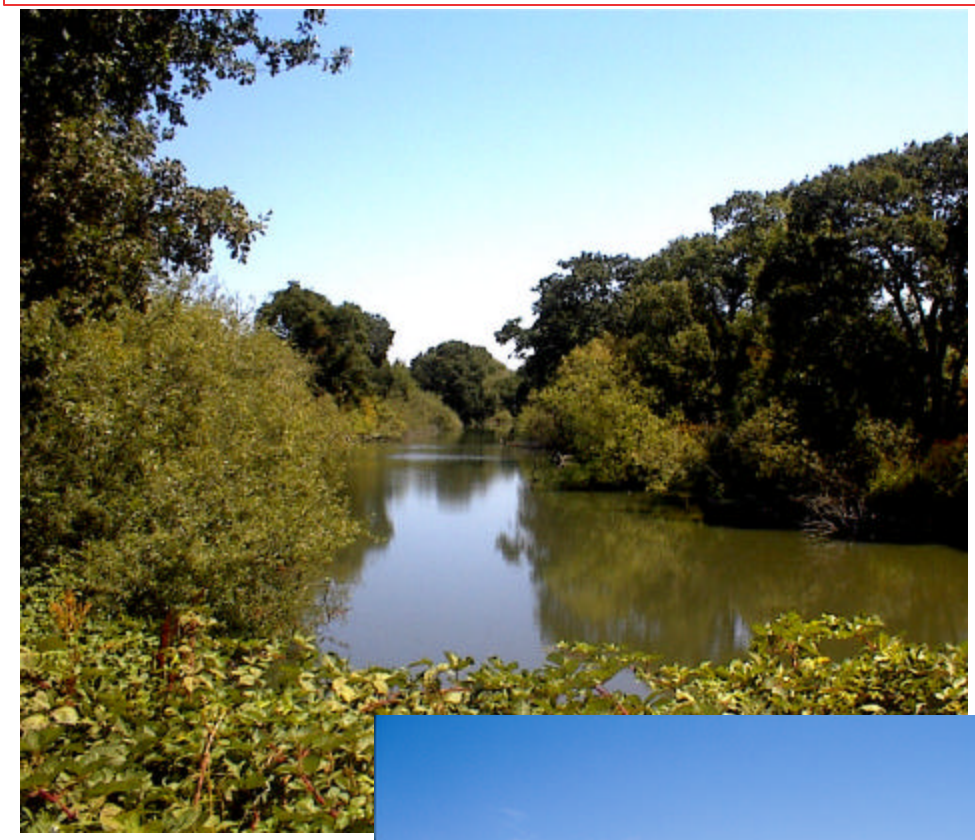
DESCRIPTION:

- Laguna de Santa Rosa drains a basin of 250 square miles that includes the adjacent cities of Cotati, Rohnert Park, Santa Rosa and Sebastopol
- The Laguna is considered to be an important factor in lowering the water surface elevation in the lower Russian River Flood Plain during flood events
- Increased sedimentation in the Laguna has decreased its flood control capabilities and possibly the extent of wetlands
- The County of Sonoma determined the Laguna to be a priority resource by enacting the Laguna de Santa Rosa Conservation Program in the 1989 Sonoma County General Plan
- The Laguna de Santa Rosa is currently the subject of a Feasibility Study by the U.S. Army Corps of Engineers in partnership with SCWA, and the cities of Cotati, Rohnert Park, Sebastopol and Santa Rosa

POTENTIAL PARTNERSHIPS:

- City of Cotati
- City of Rohnert Park
- City of Sebastopol
- City of Santa Rosa
- Laguna Foundation
- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Water Agency
- U.S. Army Corps of Engineers

LAGUNA DE SANTA ROSA



Once very effective at reducing flooding the in the lower Russian River, over time, silt, debris and encroaching development have reduced the Laguna de Santa Rosa's flood control capacity and adversely affected fish and wildlife species within the basin

SOURCE WATER PROTECTION

Estimated Project Cost:
$2 Million - $3 Million

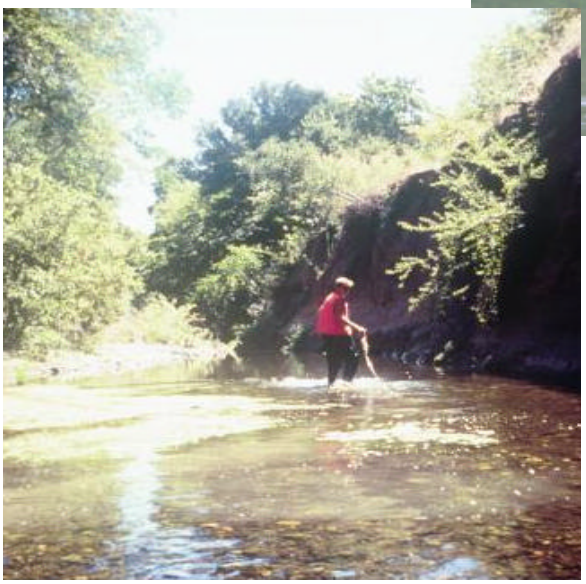
PROJECT GOAL

Protect lands adjacent to the Russian River as permanent open space and provide for public access and passive recreation, while protecting riparian habitat for threatened steelhead and coho and Chinook salmon.

DESCRIPTION:
- Acquisition of lands adjacent to the Russian River would protect riparian and wetland habitat crucial to salmonid recovery efforts
- Designating acquired lands as permanent irrigation sites for treated wastewater would reduce discharges in the Russian River watershed
- Protection of drinking water source for over 800,000 residents in Mendocino, Sonoma and Marin counties
- Acquisitions could result from conservation easements and/or purchase of lands as they come up for sale

POTENTIAL PARTNERSHIPS:
- California Department of Parks and Recreation
- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Regional Parks Department
- Sonoma County Water Agency

SOURCE WATER PROTECTION



Preserving lands adjacent to the Russian River as open space could provide for public access and passive recreation while protecting valuable salmonid habitat

RUSSIAN RIVER ECOSYSTEM RESTORATION

Estimated Project Cost:
$200,000

PROJECT GOAL

Support the Russian River Watershed Council, whose mission is to "protect and restore the Russian River's wild anadromous fishery to a healthy and sustainable level, develop a strong, healthy and diverse economy, and promote stewardship of the Russian River and its watershed by informing and engaging the citizenry."

DESCRIPTION:

- The Russian River Watershed Council comprises of representatives of the various environmental and economic interests within the Russian River basin
- In 1999, a Russian River Watershed Management and Protection Study was approved as a Project Study Plan by the U.S. Army Corps of Engineers for implementation
- The Council has met regularly since 1998 to develop an infrastructure for the Council, including a steering committee and working groups

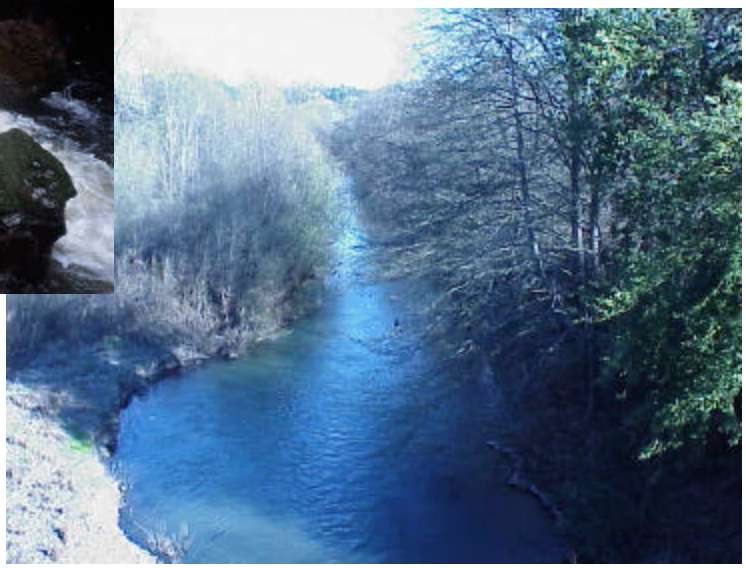
POTENTIAL PARTNERSHIPS:

- California Regional Water Quality Control Board, North Coast Region
- California Resources Agency
- County of Mendocino
- County of Sonoma
- Russian River Watershed Association
- U.S. Army Corps of Engineers

RUSSIAN RIVER ECOSYSTEM RESTORATION

Russian River at Jenner

Santa Rosa Creek, a tributary to the Russian River



Dry Creek, part of the Russian River watershed

SANTA ROSA CREEK WATERSHED

Estimated Project Cost:
$10 Million for Feasibility Study

DESCRIPTION:
• The project is based on the Santa Rosa Creek Master Plan, a program to balance the flood control needs of the local community with habitat restoration needs of native species
• The Plan was adopted unanimously by local agencies
• Restoration of Santa Rosa Creek is subject of feasibility study by U.S. Army Corps of Engineers
• Santa Rosa Creek is 22-mile long tributary to the Russian River; provides critical habitat for steelhead

POTENTIAL PARTNERSHIPS:
• California Department of Fish and Game
• City of Santa Rosa
• National Marine Fisheries Service
• Sonoma County Agriculutral Preservation and open Space District
• Sonoma County Water Agency
• U.S. Army Corps of Engineers

PROJECT GOAL

Provide spawning habitat for salmonid species in newly installed gravel runs, resting habitat in deep, cool pools, and a summer rearing habitat for fingerlings and smolt through the preservation of more than seven miles of Santa Rosa Creek.

SANTA ROSA CREEK WATERSHED

Restoration of seven miles of Santa Rosa creek would provide critical habitat for threatened steelhead

RUSSIAN RIVER TRIBUTARY RESTORATION AND LANDOWNER OUTREACH

Estimated Project Cost:
$92,000

PROJECT GOAL

Develop a group of knowledgeable and motivated riparian landowners from priority fish-bearing streams in the Russian River watershed, and design and implement several salmonid habitat restoration and stream enhancement projects on priority streams.

DESCRIPTION:

- Program began in 1998
- Developed as joint project between the University of California Sea Grant Extension Program and California Department of Fish and Game
- Series of landowner workshops provides more than 40 hours of training, including field tours and classroom study
- Training topics include salmonid habitat requirements and life cycle, bioengineering, drainage and roads, erosion management, project planning, permitting and funding, habitat restoration techniques and watershed stewardship

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- Mendocino Resource Conservation District
- National Fish and Wildlife Foundation
- Sonoma County Water Agency
- University of California Sea Grant Extension Program

RUSSIAN RIVER TRIBUTARY RESTORATION AND LANDOWNER OUTREACH

Landowner workshops provide training in topics such as salmonid habitat requirements, erosion management, and habitat restoration techniques

CLOVERDALE RIVER PARK

Estimated Project Cost:
$1.56 Million

DESCRIPTION:
• Joint project between the Sonoma County Regional Parks Department and the City of Cloverdale
• Project consists of 72 acres of parkland adjacent to the Russian River
• Project includes riparian habitat restoration and open space preservation
• Funding has been requested from the Riparian and Riverine Habitat Grant Program, sponsored by the California Department of Parks and Recreation

PROJECT GOAL

Provide the only public, multi-use river front trail along the Russian River, while preserving the site as permanent open space.

POTENTIAL PARTNERSHIPS:
• California Conservation Corps
• California Department of Parks and Recreation
• Circuit Rider Productions
• City of Cloverdale
• Cloverdale Rotary Club
• Sonoma County Agricultural Preservation and Open Space District
• Sonoma County Regional Parks Department

CLOVERDALE RIVER PARK

Crocker Bridge

Proposed trail location

RIVERFRONT PARK

Estimated Project Cost:
$400,000 for Phase I

PROJECT GOAL

Protect riparian habitat in the Russian River watershed by preserving river-front property as permanent open space.

DESCRIPTION:

- Approximately 305-acre property owned by the Sonoma County Water Agency could be used as a county regional park
- Located on Eastside Road, southwest of the Town of Windsor and south of the City of Healdsburg
- Property features a variety of habitats, including 132 acres of reclaimed gravel-mining pits, 32 acres of marshland, 15 acres of redwood forest, and 5,500 linear feet of frontage along the Russian River
- Development would occur in four phases, including picnic areas, trails, portage for non-motorized boats, and marsh enhancement
- Accessory improvements such as parking areas, restrooms, and garbage cans would also be included
- An entry kiosk and interpretive signage installed along the trails would provide opportunities for public education

POTENTIAL PARTNERSHIPS:

- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Regional Parks
- Sonoma County Water Agency

RIVERFRONT PARK

Lake Benoit, a former gravel mining pit

Picnic area in a redwood grove

STEELHEAD BEACH REGIONAL PARK AND FISHING ACCESS

Estimated Project Cost:
$815,000

PROJECT GOAL

Protect riparian habitat in the Russian River watershed by preserving river-front property as permanent open space.

DESCRIPTION:

- Approximately 27-acre property located in Forestville, which is owned by the State of California and operated by the Sonoma County Regional Parks Department
- Property features a variety of habitats including riparian scrub, riparian forest, redwood forest, and approximately 3,500 linear feet of frontage along the Russian River
- Phase I was completed in 1999, and included development of picnic areas, a river trail, pathways, tree restoration planing, and appurtenant features such as parking, traffic improvements, boat launch, drinking fountains, portable restroom, and garbage cans
- Phase I also modified cultural practices, such as illegal camping and other activities, by provided managed access through the property and the Russian River
- Interpretive signage provides opportunities for public education
- Additional phases would include entrance kiosk, trails, campground development, permanent restroom facility, concession stand, interpretive center and habitat restoration. Habitat restoration would include an ongoing program to remove invasive species and re-vegetate with native plants

POTENTIAL PARTNERSHIPS:

- Sonoma County Regional Parks Department
- State of California
- Wildlife Conservation Board

STEELHEAD BEACH REGIONAL PARK AND FISHING ACCESS

Russian River through the trees

Boat launch to the Russian River

Access management

SUNSET BEACH RIVER ACCESS

Estimated Project Cost:
$260,000

PROJECT GOAL

Protect riparian habitat in the Russian River watershed by preserving river-front property as permanent open space.

DESCRIPTION:

• Project area is approximately 28 acres located between the unincorporated communities of Forestville and Guerneville
• Approximately 25-acres purchased by the Sonoma County Agricultural Preservation and Open Space District
• Purchase of the remainder of the project area is currently under negotiation
• Approximately 500 feet of new trail section and trailhead would be developed, and approximately 1,500 feet of existing trail section would be renovated, providing 2,000 feet of trail through riparian forest to the Russian River
• Managed access throughout the project area would modify the historic unmanaged use of the project area
• Interpretive signage would be placed at the trailhead and along the trail to provide educational opportunities for all park users
• A riparian and riverine habitat enhancement element would remove invasive, non-native plant species and utilize a palette of trees, shrubs, grasses, and other plants native to the project area to enhance the existing habitats
• Parking areas, a left-turn lane into the park, portable restroom, and garbage cans would also be provided

POTENTIAL PARTNER-SHIPS:

• Sonoma County Agricultural Preservation and Open Space District
• Sonoma County Regional Parks

SUNSET BEACH RIVER ACCESS

The park would provide 2,000 feet of trail through riparian forest to the Russian River

DOOLEY CREEK WATERSHED IMPLEMENTATION

Estimated Project Cost:
$100,000

PROJECT GOAL

Improve water quality in the Russian River watershed by reducing soil erosion and sediment loading of Dooley Creek and its tributaries.

DESCRIPTION:

- Implement the findings of the *Survey of Channel and Streambank Conditions with Prescriptions to Restore the Dooley Creek Watershed, Mendocino County* and the *Partial Sediment Budget for the Dooley Creek Watershed, Mendocino County*
- Develop and fund restoration based on the site-specific recommendations of the Dooley Creek watershed assessment
- Restoration will draw heavily upon the bioengineering discipline to achieve the assessment's findings
- Fine sediments in this watershed embed gravel, which reduces spawning habitat and macro invertebrate habitat
- Projects will enhance the riparian cover over the stream, which will stabilize water temperatures in favor of salmonid fish species
- Projects will enhance stream geomorphic function

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- Fetzer Vineyards
- Hopland Band of Pomo Indians
- Mendocino County Resource Conservation District
- Natural Resources Conservation Service
- Watershed Residents

DOOLEY CREEK WATERSHED IMPLEMENTATION

Dooley Creek, a tributary to the Russian River

LOWER FORSYTHE CREEK IMPLEMENTATION

Estimated Project Cost:
$150,000

PROJECT GOAL

Restore habitat for coho and Chinook salmon and steelhead by reducing sedimentation and enhancing the riparian corridor in Forsythe Creek.

DESCRIPTION:

- Remove existing in-stream structures that impede Forsythe Creek's use of its floodplain
- Restore native riparian vegetation to maintain salmonid beneficial stream temperatures
- Reduce erosion from vertical streambanks
- Provide migration and spawning habitat for chinook salmon and steelhead

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- Coyote Valley Tribal EPA
- Forsythe Creek Watershed Advisory Group
- Mendocino County Resources Conservation District
- National Marine Fisheries Service
- Natural Resource Conservation Service
- Redwood Valley Outdoor Education Project
- Watershed residents

LOWER FORSYTHE CREEK IMPLEMENTATION

Reducing erosion from Forsythe Creek's 35-foot vertical streambanks will improve water quality in the Russian River watershed

CENTRAL SONOMA WATERSHED

Estimated Project Cost:
$2 Million

PROJECT GOAL

Improve salmonid habitat in the Russian River watershed by providing guidelines for the protection, care, management, restoration and enhancement of waterways in central Sonoma County

DESCRIPTION:

- Project was originally adopted in Sonoma County in 1958 for flood control but has been amended for fish and wildlife habitat improvement
- Administered by the Natural Resource Conservation Service in partnership with the Sotoyome Resource Conservation District and the Sonoma County Water Agency
- Funded through the USDA Small Watersheds Program, PL566
- Project planned is for improved flood management and environmental restoration, riparian area development for fisheries and wildlife enhancements
- Project planned supports the Santa Rosa Creek Master Plan including the Prince Memorial Greenway, a City of Santa Rosa project designed for steelhead and rainbow trout habitat restoration, revegetating the edges of the channel to cool the creek water, creation of open space linkages, maintaining flood capacity and creating a multi-use urban park

POTENTIAL PARTNERSHIPS:

- California Department of Fish and Game
- California Department of Transportation
- California Department of Water Resources
- City of Santa Rosa
- Sonoma County Agricultural Preservation and Open Space District
- Sonoma County Water Agency

CENTRAL SONOMA WATERSHED

The Central Sonoma Watershed project provides for improved fisheries and wildlife habitat in central Sonoma County

UKIAH RIVERSIDE PARK

Estimated Project Cost:
$120,000 for Phase I

DESCRIPTION:
• 40 acres of parkland along the Russian River in Mendocino County
• Project includes wetlands restoration, riparian habitat restoration, river access, hiking trails, picnic areas, baseball fields, soccer field, BMX racetrack, dog park, native plant garden, wading pool and open meadows
• Funding has been requested from the California State Coastal Conservancy and Riparian and Riverine Habitat Grant Program, sponsored by the California Department of Parks and Recreation

PROJECT GOAL

Protect riparian habitat in the Russian River watershed by preserving river-front property as permanent open space.

POTENTIAL PARTNERSHIPS:
• California Native Plant Society
• California State Coastal Conservancy
• City of Ukiah
• County of Mendocino
• Mendocino Fisheries Program
• Mendocino Rod and Gun Club
• Russian River Unlimited
• Rusty Bowl BMX
• South Ukiah Little League
• Surrounding agricultural property owners
• Ukiah Valley Youth Valley Soccer League

UKIAH RIVERSIDE PARK

Conceptual Site Plan for the Ukiah Riverside Park

REGIONAL COOPERATIVE OPPORTUNITIES

Regional Partnership Opportunities

The scope of restoration activities required within the Russian River watershed demands a comprehensive, cooperative approach to identify and share limited resources. Public and private entities within the Russian River watershed, and throughout California, are working together to coordinate efforts to identify, fund and complete restoration projects within a timely manner, thereby maximizing restoration efforts throughout the region. The efforts described below provide examples of such ongoing cooperation.

Water Bond Coalition of Northern and Coastal California

The Water Bond Coalition of North and Coastal California (Coalition) is an effort by local governments in 33 California counties to organize a program of water-related projects that have the technical merit and wide support necessary to compete for funding from future statewide water bond initiatives. The Coalition is being organized by the North Bay Watershed Association with support from staff members of the Sonoma County Water Agency.

Coalition participants have prepared and submitted descriptions of more than 500 specific funding needs totaling some $3.7 billion for the coastal and northern California region. The funding needs include projects in water supply, sanitation, fisheries, water reuse, flood control, non-point source pollution prevention and wetlands.

Efforts are now under way to support these funding needs in the preparation of implementation legislation for the water bond initiative, Proposition 50. The goal will be to advocate for the northern and coastal California region in the development of legislation that implements the water bond programs and provides an equitable distribution of monies statewide. It is anticipated that there will be future water bond initiatives and that the Coalition would continue to organize support for the region's funding needs and work to secure a seat at the table as other, future, water bond initiatives are being crafted.

Federal Recovery Planning Memorandum of Understanding

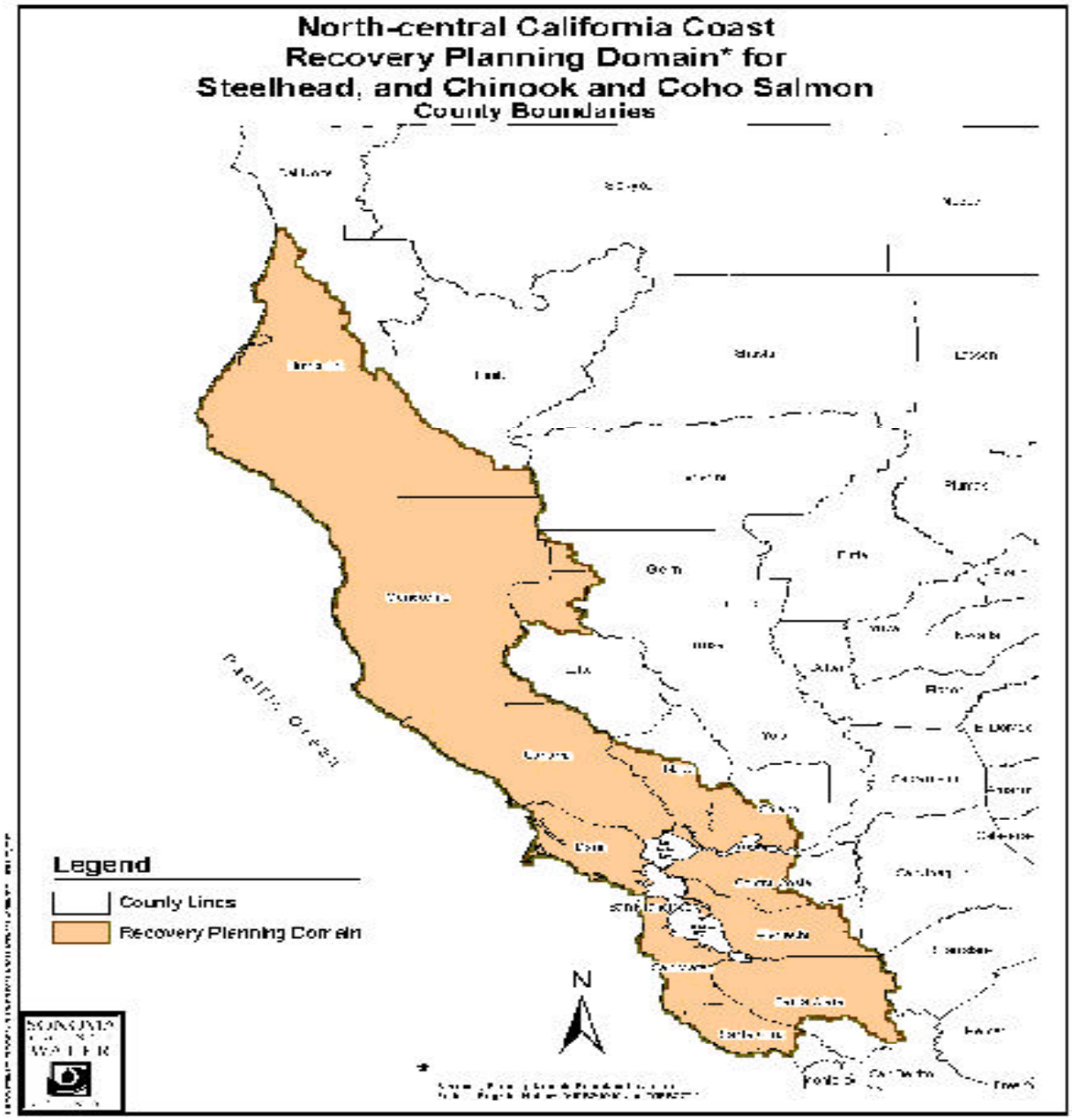
A comprehensive approach to recovery planning is needed to address issues across the North-central California Recovery Planning Domain (planning Domain)in order to consider and prioritize all the activities that limit salmon productivity and to achieve successful recovery. The cooperation of numerous federal, state, regional and local agencies, organizations and private institutions that are currently involved in restoration, recovery and research activities related to salmonids will be critical to achieve recovery objectives.

To coordinate this effort, a Memorandum of Understanding (MOU) was developed between six counties in the Planning Domain, U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the National Marine Fisheries Service (NMFS).

This type of collaborative, interagency approach offers local governments the opportunity to incorporate their own operational constraints into the development of recovery strategies and helps ensure that recovery goals and strategies are scientifically supportable and regionally specific. Local government can

substantially augment knowledge specific for the region on fish populations, habitat conditions and impacts of current management studies. In areas with large proportions of private land, local government agencies provide essential linkages between elected officials, local landowners, NMFS and CDFG. Local involvement is crucial as the success or failure of recovery efforts will depend on effective relationships between NMFS and CDFG and local entities.

The MOU is a milestone in the development of a cooperative effort to address recovery efforts in the Russian River watershed and presents a unique opportunity to move forward with coordinated and innovative recovery efforts in the watershed.



California counties in the North-central California Recovery Planning Domain

Pacific Coastal Salmonid Conservation and Recovery Initiative

There are many tributaries and water bodies affected by the federal listing of anadromous fish species native to the Pacific Northwest and California. While state and local government and businesses have pledged significant financial resources to assist with local fisheries recovery efforts, the cost of a solution far exceeds local resources. Experience gained in developing the Pacific Coastal Salmonid Conservation and Recovery Initiative has shown that developing a regional coalition has been an effective means to obtain legislative appropriations for local programs. The initiative involved facilitating support for a legislative appropriation for watershed restoration projects in Alaska, Washington, Oregon and California, including a portfolio of habitat restoration projects in 13 coastal counties in California. By working cooperatively with other agencies and other states, the program contributed to approval of federal appropriations totaling more than $325 million, with $41 million designated for California alone. This type of coordinated effort is ongoing and crucial to the success of restoration efforts within the region.

Russian River Watershed Association

The Sonoma County Water Agency is working with local cities, towns and special districts to consider participating in the development of an association of regulated public agencies with jurisdiction in the Russian River watershed. The proposed association is needed to address a trend in state and federal agencies toward a watershed approach to regulatory requirements.

Participation in the association would provide local government agencies an opportunity to work cooperatively with other agencies in the Russian River watershed on issues of common interest such as Total Maximum Daily Load (TMDL) regulations, Endangered Species Act compliance, habitat restoration, water reuse, National Pollutant Discharge Elimination System (NPDES) permits and studies, pollution prevention, source water protection, public education and other required activities.

The association would allow local governments to:

- Work cooperatively and effectively with other agencies on watershed-based regulations and issues;
- Explore coordinated efforts on projects in order to leverage limited funding and resources; thus decreasing costs and increasing the impact of projects;
- Maximize success in securing state and federal grant funding for new watershed programs; and
- Efficiently share information about projects, regulations and technical issues.

The association of public agencies in the Russian River watershed would supplement existing local government programs, allow local governments to respond to regulatory requirements collectively at reduced cost, increase eligibility for grant funding and provide a stronger voice to speak for regional priorities with federal and state agencies and legislative bodies.

Dry Creek Valley Agreement

The Dry Creek Valley Agreement provides a partnership between agricultural water users within the Dry Creek Valley and the Sonoma County Water Agency. The agreement coordinates Agency activities with the Dry Creek Agricultural Water Users, Inc. to better manage existing water diversions along Dry Creek. The benefits of the Agreement include protecting critical habitat for threatened coho and Chinook salmon and steelhead in Dry Creek, ensuring a consistent water supply conveyance system, protecting regional water supplies and providing a reliable source of water for agricultural users in the Dry Creek Valley.

FishNet 4C

The Fish Net 4C program is a county-based salmonid protection and restoration program that brings together the six Central California Coastal Counties (4C) of Mendocino, Sonoma, Marin, San Mateo, Santa Cruz and Monterey. These counties lies geographically within the Central California Coastal Evolutionary Significant Unit (CCCESU), as delineated by the National Marine Fisheries Service. Within the CCCESU, coho salmon and steelhead are listed as threatened under the federal Endangered Species Act, with coho listed as endangered under the California Endangered Species Act. In light of the listings, and recognizing the need to address County land management regulations and practices which affect salmonid populations, supervisors from the six counties formed FishNet 4C. FishNet teams in each county are comprised of supervisors and staff from public works, planning, parks, open space and special districts.

The goal of the FishNet 4C teams is to facilitate effective local actions that will maintain and improve the region's water quality and riparian habitat, provide increased assistance and education for local government and the private sector, and encourage cooperation and coordination between all levels of regulatory responsibility for fishery restoration. The FishNet program laid the groundwork for achieving these goals by hiring staff from the University of California at Berkeley to conduct an "environmental audit" of land use policies and management practices in the counties. The results of the audits were then translated into implementation goals that serve as a checklist of priorities for planning and restoration projects within the counties.

The FishNet program serves as a useful resource for the counties in many areas, including: developing collaboration on regional training programs; providing technical support for program development and project-specific assessments; collaboration with watershed councils and regional watershed coordinators; helping to bring funding to Coastal California for fishery restoration; and reviewing local, state and federal permitting procedures to identify streamlining opportunities.

LETTERS OF SUPPORT

SONOMA
COUNTY
WATER
AGENCY

Sonoma Coun
2150 West