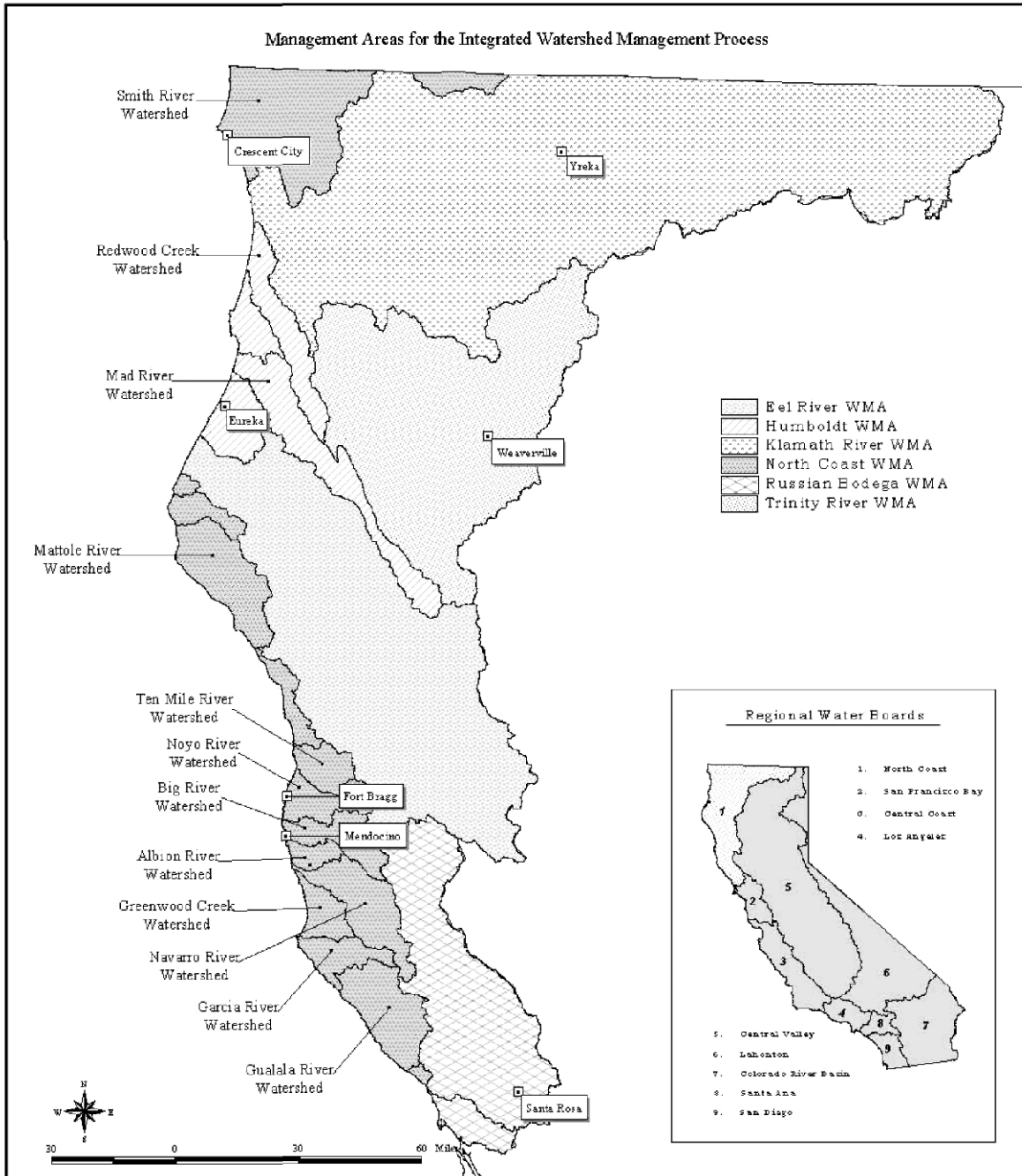


# North Coast Regional Water Quality Control Board Watershed Planning Chapter



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## TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
<b>Executive Summary</b> .....	i
 <b>Section 1 - Introduction</b>	
Brief description of the Chapter and the integrated approach for addressing water quality management in the Region .....	1
 <b>Section 2 - Watershed Activities</b>	
2.0 <u>Background</u> - explanation of the integrated watershed management approach for the six Watershed Management Areas (WMAs) in the Region. Each WMA plan includes statements of concerns and issues, water quality goals and an implementation strategy .....	11
2.1 <u>Russian/Bodega Watershed Management Area</u> .....	13
Appendix 2.1-A - Partial list of agencies and groups in the Russian/Bodega WMA .....	36
Appendix 2.1-B - Monitoring and assessment priorities and needs for the Russian/Bodega WMA .....	39
2.2 <u>Klamath Watershed Management Area</u> .....	41
Appendix 2.2-A - Partial list of agencies and groups in the Klamath WMA .....	58
Appendix 2.2-B - Monitoring and assessment priorities and needs for the Klamath WMA .....	60
2.3 <u>North Coast Rivers Watershed Management Area</u> .....	63
2.3.3 <u>Mattole River Watershed</u> .....	65
Appendix 2.3.3-A – Partial list of agencies and groups in the Mattole River watershed .....	72
2.3.4 <u>Ten Mile River Watershed</u> .....	75
Appendix 2.3.4-A – Partial list of agencies and groups in the Ten Mile River watershed .....	83
2.3.5 <u>Noyo River Watershed</u> .....	85
Appendix 2.3.5-A - Partial list of agencies and groups in the Noyo River watershed .....	92
Appendix 2.3.5-B - Monitoring and assessment priorities and needs in the Noyo River watershed .....	93
2.3.6 <u>Big River Watershed</u> .....	95
Appendix 2.3.6-A – Partial list of agencies and groups in the Big River watershed .....	102
2.3.7 <u>Albion River Watershed</u> .....	103
Appendix 2.3.7-A – Partial list of agencies and groups in the Albion River watershed .....	110
2.3.8 <u>Navarro River Watershed</u> .....	111
Appendix 2.3.8-A - Partial list of agencies and groups in the Navarro River watershed .....	117

	Appendix 2.3.8-B - Monitoring and assessment priorities and needs in the Navarro River watershed .....	118
2.3.9	Greenwood Creek Watershed .....	119
2.3.11	Garcia River Watershed .....	121
	Appendix 2.3.11-A - Partial list of agencies and groups in the Garcia River watershed .....	130
	Appendix 2.3.11-B - Monitoring and assessment priorities and needs in the Garcia River watershed .....	131
2.3.12	Gualala River Watershed .....	133
	Appendix 2.3.12-A –Partial list of agencies and groups in the Gualala River watershed .....	141
	Appendix 2.3.12-B- Monitoring and assessment needs in the Gualala River watershed.....	142
2.4	<u>Humboldt Bay Watershed Management Area</u> .....	145
	Appendix 2.4-A - Partial list of agencies and groups in the Humboldt WMA .....	162
	Appendix 2.4-B - Monitoring and assessment priorities and needs for the Humboldt WMA .....	164
2.5	<u>Eel River Watershed Management Area</u> .....	171
	Appendix 2.5-A - Partial list of agencies and groups in the Eel WMA .....	185
	Appendix 2.5-B - Monitoring and assessment priorities and needs for the Eel WMA .....	187
2.6	<u>Trinity River Watershed Management Area</u> .....	193
	Appendix 2.6-A – Partial list of agencies and groups in the Trinity River WMA .....	205
2.7	<u>Clean Water Action section 303(d) (TMDLs)- This section of the Clean Water Act requires listing of waterbodies not meeting water quality standards and prioritization of those waterbodies for waste reduction activities.....</u>	207
	Table 2.7-1. Summary schedule for Total Daily Maximum Load Development .....	208
	Table 2.7-2. Detailed Schedule of TMDL Activities (2002 - 2006) .....	211
<b>Section 3 – Regional Activities (Non-watershed Based Activities)</b>		
	Activities not prioritized on a watershed basis or not included in a targeted watershed are explained .....	223
<b>Appendix A - Partial Inventory of Work Activities</b>		
	This table contains listings of NPDES and waste discharge requirement reissuance dates, and compliance inspection scheduling .....	239
<b>Appendix B - Beneficial Use Definitions</b>		
	The beneficial uses from the Water Quality Control Plan for the North Coast Region are included .....	257

<b>Appendix C - Geographic Information Systems Discussion .....</b>	<b>259</b>
<b>Appendix D – Nonpoint Source Tables and Program Perspective .....</b>	<b>261</b>
<b>Appendix E – SWAMP Monitoring Stations .....</b>	<b>301</b>
<b>Appendix F – Funding Sources and Target Projects for the North Coast Region .....</b>	<b>305</b>



**NORTH COAST REGION  
WATERSHED PLANNING CHAPTER  
JANUARY, 2002**

**EXECUTIVE SUMMARY**

The water resource protection efforts of the State Water Resources Control Board and the Regional Water Quality Control Boards are guided by a five year Strategic Plan (updated in 2001). A key component of the Strategic Plan is a watershed management approach for water resources protection.

To protect water resources within a watershed context, a mix of point and nonpoint source discharges, ground and surface water interactions, and water quality/water quantity relationships must be considered. These complex relationships present considerable challenges to water resource protection programs. The State and Regional Boards are responding to these challenges with the Watershed Management Initiative (WMI). The WMI is designed to integrate various surface and ground water regulatory programs while promoting cooperative and collaborative efforts within watersheds. It is also designed to focus limited resources on key issues.

Past State and Regional Board programs tended to be directed at site-specific problems. This approach was reasonably effective for controlling pollution from point sources. However, with diffuse nonpoint sources of pollutants, a new regulatory strategy was needed. The WMI uses a strategy to draw solutions from all interested parties within a watershed, and to more effectively coordinate and implement measures to control both point and nonpoint sources.

During initial implementation of the WMI, each Regional Board identified the watersheds in their Region, prioritized water quality issues, and developed watershed management strategies. These strategies and the State Board's overall coordinating approach to the WMI are contained in the Integrated Plan for Implementation of the WMI of which this Watershed Planning Chapter is a part.

The Watershed Management Initiative is intended to support the goals in the Strategic Plan:

1. The Board's organizations are effective, innovative and responsive
2. Surface waters are safe for drinking, fishing, swimming, and support healthy ecosystems and other beneficial uses
3. Ground water is safe for drinking and other beneficial uses
4. Water resources are fairly and equitably used and allocated consistent with public trust
5. Individuals and other stakeholders support our efforts and understand their role in contributing to water quality
6. Water quality is comprehensively measured to evaluate protection and restoration efforts.

Most State and regional board programs are funding driven and directed at categories of problems. Traditional program management can be near-sighted, focused only on the program goals and outputs without obvious relationships to other problems. Added to the mix are "unfunded mandates," those tasks that are required or requested, but without attendant funding.

Addressing water resource issues on a watershed basis is founded in determining the problems and needs independently of funding sources. In this way the analysis of problems and needs and their prioritization is unencumbered by program constraints. The melding of the pure analysis of needs and relationships in a watershed with programs presents an administrative challenge. But in these lean times, priorities by watershed provide a good framework for ensuring that staff and contract resources are applied to the most important issues first.

Addressing problems on a more holistic basis with a collaborative approach involving landowners and other agencies in a watershed represents a new and challenging role for government. The WMI seeks to facilitate solutions from all interested parties in a watershed, and coordinate measures to improve watershed health, and ultimately the beneficial uses of water.

Each regional board has identified watersheds in their region, prioritized water quality issues, and developed their own watershed management strategies. Each region's strategy is then a "chapter" in the statewide plan. This document constitutes the North Coast Region's WMI Chapter for that integrated statewide plan.

The North Coast region, which comprises all basins draining into the Pacific Ocean from the California-Oregon state line (including Lower Klamath Lake and Lost River Basins) south to the southerly boundary of the watershed of the Estero de San Antonio and Stemple Creek in Marin and Sonoma Counties. The North Coast Region covers all of Del Norte, Humboldt, Trinity, and Mendocino Counties, major portions of Siskiyou and Sonoma Counties, and small portions of Glenn, Lake, and Marin Counties. The North Coast Region encompasses a total area of approximately 19,390 square miles, including 340 miles of scenic coastline and remote wilderness areas, as well as urbanized and agricultural areas.

Distinct temperature zones characterize the North Coast Region. Along the coast, the climate is moderate and foggy and the temperature variation is not great. For example, at Eureka, the seasonal variation in temperature has not exceeded an average of 63 F for the period of record. Inland, however, seasonal temperature ranges in excess of 100 F have been recorded.

Precipitation over the North Coast Region is higher than for any other part of California, and damaging floods are a fairly frequent hazard. Particularly devastating floods occurred in the North Coast area in December of 1955, in December of 1964, and in February of 1986. Ample precipitation in combination with the mild climate found over most of the North Coast Region has provided a wealth of fish, wildlife, and scenic resources. The mountainous nature of the Region, with its dense coniferous forests interspersed with grassy or chaparral covered slopes, provides shelter and food for deer, elk, bear, mountain lion, furbearers and many upland bird and mammal species. The numerous streams and rivers of the Region contain anadromous fish, and the reservoirs, although few in number, support both coldwater and warmwater fish.

Tidelands, and marshes too, are extremely important to many species of waterfowl and shore birds, both for feeding and nesting. Cultivated land and pasturelands also provide supplemental food for many birds. Tideland areas along the north coast provide important habitat for marine invertebrates and nursery areas for forage fish, game fish, and crustaceans. Offshore coastal rocks are used by many species of seabirds as nesting areas.

Major components of the economy are tourism and recreation, telecom and other high technology businesses, logging and timber milling, aggregate mining, commercial and sport fisheries, and agricultural activities including vineyards, wineries, and sheep, beef and dairy production.

### **Watershed Management Initiative Process**

To assist in the WMI process, six watershed management areas (WMAs) were designated in the Region: Klamath River, Trinity River, Humboldt, Eel River, Russian/Bodega, and North Coast Rivers. The Region began with a rotating basin approach, applying a sequential planning process to each WMA on a rotating basis. They would first be assessed and problems, issues and concerns identified using an in-house watershed team and public meetings in the WMA. Goals and actions to address the



goals would be strategized and an implementation phase would follow. The end of the cycle would be an evaluation step that would feed into the next assessment.

It soon became clear that staff resources were not sufficient to perform all the steps within the original time frame. While we are still maintaining a schedule for rotations, the level to which each element is developed is dependent on funding. As a result, the individual WMA sections within the Chapter vary in depth and timing.

In general, the process has improved communication within the office and in some watersheds has improved communication among agencies and the public. Documented in this Chapter are numerous issues and problems as well as ideas to address them. There are assignments of relative importance (priority) for those actions and budget information to assist in redirecting resources or requesting new resources.

### **Water Quality Issues**

The North Coast Region faces several water quality issues. The highest priority water quality problems include contamination of surface water due to nonpoint source pollution from storm water runoff, erosion and sedimentation (roads, vineyards, and timber harvest), channel modification, gravel mining and dairies, and MTBE, PCE, and dioxin contamination. Ground water contamination from leaking underground tanks and health and safety issues from contaminated areas that are open to the public are also priority issues. High priority water quality problems due to point sources include chronic violations by POTWs and lack of permit compliance. Lack of funding for water quality monitoring and watershed assessment compounds the difficulty of addressing these issues.

The highest priority activities to address those problems include:

- protect and restore water quality and beneficial uses
- maintaining the core regulatory program for regulated dischargers
- developing and implementing Total Maximum Daily Load strategies (mostly sediment and temperature associated with salmonid resource declines)
- increasing emphasis on storm water runoff issues
- increasing monitoring and assessment activities
- increasing emphasis on nonpoint source issues (including forestry and agriculture), especially as they affect salmonid resources
- improving outreach and community involvement in decisions
- fostering watershed groups and volunteer monitoring
- ensuring prompt and appropriate enforcement

### **Organization for WMI**

To advance implementation of the WMI the North Coast Region has reorganized along watershed lines. At the beginning of FY 99 – 00 three new office divisions were formed: 1) the Timber Harvest Division, 2) the Cleanup and Special Investigation Division and 3) the Watershed Protection Division. The Timber Harvest Division, Watershed Protection Division, and Cleanup and Special Investigation Division include several technical units, arranged by watershed. With the realization that certain region-wide issues were not being addressed, in the fall of 2000 a second wave of reorganization took place. A fourth division was created: the Regional Watershed Management Division which houses three units: assessment and monitoring, planning, and Total Maximum Daily Loads (TMDLs).

To help implement our intended transition to a watershed organization, we have integrated, to the extent possible, all of our programs along watershed lines. The budget process, planning for permits, inspections and enforcement are largely driven by watershed needs. The creation of our new

watershed divisions was influenced by needs within watersheds and the division of program resources to address those needs.

The North Coast Regional Water Quality Control Board (RWQCB or Regional Water Board or NCR) sets staff priorities each fiscal year (FY). Those priorities are generally organized in relation to watershed needs; however, the Regional Water Board will take all factors into account in setting final priorities. Most legislative mandates do not take watershed needs into account. However, the Regional Water Board usually exercises appropriate discretion within programs to assure that resources are applied where needs are the greatest.

### **Funded versus Unfunded Actions**

Where unfunded activities are necessary to protect water quality, the Regional Water Board may use discretionary resources, in a limited fashion, to address those needs. When needs are established the Regional Water Board seeks new resources to address water quality issues. An example is the Regional Water Board's hillside vineyard program. Vineyard activities on hillsides can adversely affected water quality due to sedimentation. In previous years, no program existed to address the issue short of after-the-fact enforcement. Nonpoint source funds were sought and received to address the issue. Now the Regional Water Board has an outreach program to help prevent problems before they happen and enforcement is still available where required.

As the Regional Water Board continues the transition to a watershed-oriented region, the budgeting process will be driven by watershed needs and priorities. Currently, establishing Total Maximum Daily Loads (TMDLs) and other nonpoint source issues are at the forefront. Point source needs also need additional resources, especially in relation to recent legislation that is expected to increase monitoring, inspections and enforcement.

### **Russian/Bodega WMA**

In the Russian/Bodega WMA (pages 13-40) the primary water quality goals focus on protecting beneficial uses of surface and ground water such as salmonid fishery values, recreation, and domestic, municipal and agricultural water supply. Maintaining the core regulatory activities associated with point source waste discharges to surface and ground water from municipal and industrial sites is a high priority and is mandatory. Permitting, compliance inspections, enforcement and cleanup activities are performed on those facilities with the highest threat and/or actual impact on water quality. The program of investigation and follow-up of spills and complaints regarding water quality problems will continue. Discharges of PCE, petroleum hydrocarbons, pesticides, nutrients, bacteria and sediment are the primary pollutants of concern.

Nonpoint source discharges are addressed by the core regulatory program storm water permits and inspections, and by the nonpoint source program through timber harvest inspections, outreach, grants, and promoting land management measures that are protective of beneficial uses. The nonpoint source issues are more difficult to address due to their diffuse nature. Emphasis on animal facility waste control, erosion control, riparian improvements, and fishery habitat enhancement has increased. The primary concerns include sedimentation, nutrients, and riparian destruction. Ground water protection activities are focused on protecting drinking water wells in areas of high ground water use. Prompt investigation, cleanup, and abatement activities are used to protect the beneficial uses.

### **Klamath WMA**

In the Klamath WMA (pages 41-62) the following broad goals provide a focus for water quality control activities: 1) protect and enhance the salmonid fishery (Mainstem and tributaries below Iron Gate Dam), 2) protect and enhance coldwater, warmwater and endangered aquatic species, 3) maintain

the viability of agriculture and timber uses, 4) maintain recreational opportunities, and 5) protect groundwater uses.

#### **North Coast Rivers WMA**

In the North Coast River WMA (pages 63-144) the overall emphasis is the inspection of timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. Through recent budget actions the timber harvest program activities on private land in concert with California Department of Forestry and Fire Protection have been expanded. The future development of a Basin Plan amendment for TMDL waste reduction strategies for sediment is another primary activity by Regional Board staff. This WMA is the focus of the first phase of the multi-agency North Coast Watershed Assessment Program effort.

#### **Humboldt Bay WMA**

In the Humboldt Bay WMA (pages 145-170) the following broad goals provide a perspective from which to view the specific goals and actions presented Section 2.4: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect surface and ground water uses for municipal supply, recreation, and industrial shellfish harvest, and 3) protect and enhance the anadromous salmonid resources.

#### **Eel River WMA**

In general, the primary issues associated with water quality in the Eel River WMA (pages 171-192) are focused on the beneficial uses for drinking water supply, recreation, and the salmonid fishery. Since the watershed is located in steep forested terrain with highly erosive soils and high rainfall, erosion and sediment production and transport are high. For most of the watershed the issues of temperature and sedimentation and their impacts on the salmonid fishery are of high concern, involving the timber and rangeland industries. Other issues include ground water contamination, dairies in the delta area near the ocean, and localized contamination of surface and ground waters.

#### **Trinity River WMA**

The broad goals for this WMA (pages 193-206) include improving the anadromous fishery through sediment reductions and habitat enhancements and maintaining the other high beneficial uses of both surface and ground water.

For more information or copies of the Chapter, contact Janet Blake at 707-576-2805 or [blakj@rb1.swrcb.ca.gov](mailto:blakj@rb1.swrcb.ca.gov).



## SECTION 1

### INTRODUCTION

This document comprises the North Coast Region Water Quality Control Board's chapter for the Integrated Plan for Implementation of the Watershed Management Initiative (WMI). It covers a 5-year planning horizon. Fiscal year 2001-02 funding levels plus adjustments for known allocation changes were used as the baseline for resources.

The process for the North Coast Region (NCR) is responsive to the Watershed Management Initiative called for in the State Water Resources Control Board *Strategic Plan* (June 22, 1995). It essentially involves designating Watershed Management Areas (WMAs) and performing steps as described below:

- assessing water quality related issues on a watershed basis,
- developing prioritized water quality goals for watersheds from the issues,
- addressing the issues with various programs through a multi-year implementation strategy, and
- evaluating progress at the end of a specified time period.

This chapter is dynamic, and as such, represents the best information and strategy at the time of this writing and for the resources made available to develop it. Also recognize that this document is an administrative management tool, and by its very nature, must be flexible and responsive to the adaptive management required in addressing issues with changing priorities and new information.

Following is a description of each of the sections:

#### **Section 1 - Introduction**

This section briefly describes the Region's Chapter, and the integrated approach we propose for addressing water quality management in the Region.

#### **Section 2 - Watershed Activities**

- 2.0 Background - explanation of the integrated watershed management approach for the six Watershed Management Areas (WMA) in the Region. Each WMA plan includes statements of concerns and issues, water quality goals, and an implementation strategy.
- 2.1 Russian/Bodega Watershed Management Area
- 2.2 Klamath Watershed Management Area
- 2.3 North Coast Rivers Watershed Management Area
  - 2.3.3 Mattole River
  - 2.3.4 Ten Mile River
  - 2.3.5 Noyo River
  - 2.3.6 Big River
  - 2.3.7 Albion River
  - 2.3.8 Navarro River
  - 2.3.9 Greenwood Creek
  - 2.3.11 Garcia River
  - 2.3.12 Gualala River
- 2.4 Humboldt Bay Watershed Management Area
- 2.5 Eel River Watershed Management Area
- 2.6 Trinity River Watershed Management Area

- 2.7 Clean Water Act section 303(d) (TMDLs)- This section of the Clean Water Act requires listing of waterbodies not meeting water quality standards and prioritization of those waterbodies for waste reduction activities. Schedules for addressing section 303(d) are included in two tables.

### **Section 3 - Regional Activities**

Activities not prioritized on a watershed basis or not included in a targeted watershed are explained and prioritized here.

#### **Appendix A - Partial Inventory of Work Activities**

This table contains listings of NPDES and waste discharge requirements re-issuance dates, and compliance inspection scheduling.

#### **Appendix B - Beneficial Use Definitions**

#### **Appendix C - Geographic Information System**

#### **Appendix D – Nonpoint Sources Tables**

#### **Appendix E – SWAMP Monitoring Stations**

#### **Appendix F – Funding Sources and Target Grant Projects**

### **The North Coast Region's Process**

The NCR proposes to rotate through WMAs, dealing with three areas initially and rotating other areas into the process on a planned basis as resources allow. The NCR believes that this is the best use of resources at this time: to focus on a few WMAs at a time, cycling back through them every five to seven years. Having the cycle identified and the goals prioritized will make resource needs more apparent. The management areas are prioritized based on a number of factors, including the known water quality impairment, adequacy of existing data, the extent of development and/or land use change, likelihood for problems to increase, and the availability of management tools for the problems.

It is important to recognize that non-discretionary activities, such as issuing federal permits, will continue in the non-targeted watershed areas. Targeting of a watershed area is for the purpose of identifying issues and problems and developing an implementation strategy with public involvement. In addition, some programs may not lend themselves to targeting or prioritization on a watershed basis and will be dealt with on their own prioritization scheme.

One such issue is ground water. Even though ground water related activities are included in the management plans, the full integration of ground water activities with surface water activities in the delineation by watershed is a developing process. The advantage of addressing ground water issues on a geographic basis is recognized, but that concept has yet to be fully integrated into this process.

The vision on a statewide basis of the watershed-based process, is a yearly evaluation of the state board units' and regional boards' multi-year plans by a management team representing State Board, regional boards, and US EPA. The intent is to provide a multi-year perspective to all participants at the same time, thus avoiding multiple negotiations among the various participants at separate times. This will streamline the process in addition to providing the integration of programs on a watershed basis and in a multi-year perspective.

The focus of the watershed-based effort is to assure all NCR activities are coordinated throughout a watershed in an efficient, integrated manner. Related land use issues will be addressed through self-determined compliance with appropriate enforcement if pollution events occur, per current practices. Water resources issues will be coordinated with appropriate state and federal agencies, such as the Division of Water Rights and Department of Water Resources.

For the purposes of this process, "management area" is the basic planning unit and may contain one or more drainage "basins" or "watersheds." The NCR Watershed Management Areas (WMAs) and their watersheds are depicted in Figure 1-1. They are:

- 2.1 Russian/Bodega WMA
- 2.2 Klamath WMA
- 2.3 North Coast Rivers WMA
  - 2.3.3 Mattole River
  - 2.3.4 Ten Mile River
  - 2.3.5 Noyo River
  - 2.3.6 Big River
  - 2.3.7 Albion River
  - 2.3.8 Navarro River
  - 2.3.9 Greenwood Creek
  - 2.3.11 Garcia River
  - 2.3.12 Gualala River
- 2.4 Humboldt Bay WMA
- 2.5 Eel River WMA
- 2.6 Trinity River WMA

Note that the "management areas" are on a different scale than the basins and hydrologic units specified in the *Water Quality Control Plan for the North Coast Region* (Basin Plan). This is a conscious effort to reduce the number of units within this process for reasonable assessment and budgeting. The individual watersheds and hydrologic units are not ignored and may be assessed at that finer level of resolution in the process.

The Regional Water Board activities to address issues and problems are prioritized in recognition of the reality that resource allocations change. As such, this process does not promise to address all issues within a specified time period, rather to assess and plan for each basin and deal with the issues on a priority basis.

The overall process involves first identifying and assessing the water quality problems in the basin, and second, developing a strategy to implement specific activities to address the identified problems. This process will be employed on a rotating basis, ensuring that each management area is assessed and a plan developed once within the cycle. Implementation of the resultant strategy is then scheduled according to the complexity of the issues and the tools and resources available to address the issues. Water quality goals to be addressed are prioritized and will be budgeted within the area's schedule. An evaluation step ends the cycle, providing feedback to the next cycle for a particular management area. It is important to recognize that one cycle can begin an activity that may carry into the next cycle. When the short-term goals are reached, the activities to address long-term goals are left in place, and another management area is addressed on a priority list. The planning document resulting from the process is a multi-year watershed management document for water quality activities.

Prioritizing management areas (and the basins or watersheds within them) may result in shifts in resources, which are identified within the management document. For instance, the decision may be

made to divert part of the core regulatory activities from one area to another to address the short-term goal of reviewing all waste dischargers within the area once in a cycle.

It is important to recognize that presently specific mandated regulatory activities will not allow shifts in resources, and that some programs' priorities cannot be set on a geographic basis. Those activities will also be described in the document and listed for the priority areas. For example, the West College Avenue at Clover Drive area in Santa Rosa is contaminated with the solvent, PCE. It merits considerable staff effort in a coordinated multi-agency approach to describe the contamination, threats to public health, identification of responsible parties, and options for remediation while ensuring safe, secure water supplies are available. This activity will proceed as a high priority for Regional Board resolution, regardless of the level of priority for the Russian/Bodega Management Area as a whole.

Additionally, addressing the ocean and near shore areas not included in harbors or bays in individual WMAs is a necessary part of the process. At this point we recognize that near shore areas may be affected by land-based activities in specific watersheds. We will attempt to determine the extent to which land-based activities are affecting ocean resources when data indicate ocean impacts. The watershed approach would be used to address the freshwater and land-based problems. Also, some form of regional or statewide ocean and near shore monitoring program should be supported.

### **The Rotating Approach**

The Basin Plan identifies thirteen specific hydrologic units in the North Coast Region. However, we consciously have combined hydrologic units into a more manageable number of management areas (Figure 1-1).

Each management area will be addressed through the process as described below, and on a cycle that proposes particular steps in areas sequentially through the cycle. The original NCR plan was to sequence through the major steps for all areas on a seven-year cycle, individual areas taking five to seven years. While a targeted WMA is receiving specific attention, the routine regulatory and monitoring activities continue to occur in non-targeted WMAs. For the NCR, the first areas in the process were the Russian/Bodega, Klamath, and Garcia rivers. Staffing levels and new priorities dictated by a TMDL lawsuit have shifted the rotation and varied the level of involvement or focus in some WMAs.

### **Problem Identification and Assessment**

This process involves public meetings to identify concerns, review of existing water quality and land use data (including discharger self-monitoring, environmental documents, etc.) to describe existing and potential pollutants, and a comprehensive outline of the current institutional framework. A prioritized set of water quality goals should arise from this process.

### **Development of an Implementation Strategy**

This process involves the assignment of work tasks or activities and any additional institutional framework to achieve the goals for the management area. It may include a significant water quality sampling effort aimed at answering questions raised in the problem identification and assessment phase, logically focused on the identified needs and phased into the cycle for each particular watershed. Routine compliance monitoring would be included in the strategy, but independent of the individual watershed cycle. This section also contains significant narrative to describe the manner in which goals will be achieved. Narrative from this section could be transferred to a grant workplan for funding. We expect public participation to play a significant role in the development of the strategy, especially considering the level of inter-agency and public interest group participation. The first phase of the watershed process is satisfied when tables summarizing prioritized activities and the resource needs for achieving the goals are prepared as the final products.



NCR staff has performed a preliminary assessment and strategy development. The products of those efforts will be refined through the public participation process, concurrent with existing regulatory and planning activities in the basins.

### **Implementation**

Implementing the strategy begins the second phase of the process. The work efforts described in the strategy development phase are implemented on a time schedule. Any of the work efforts may be implemented, for instance a water quality assessment program that would provide information to the next cycle's assessment step. Another example: the TMDL process for the Laguna de Santa Rosa requires work efforts within the assessment, monitoring, core regulatory (permitting and compliance/enforcement), nonpoint source, and local agency contract areas [CWA sections 205(j) and 319(h) grants and Water Bond (Proposition 13) grants].

### **Evaluation of the Implementation and a Feedback Loop**

This will feed into the next cycle for the management area and is essential to achieving short-term goals, maintaining adequate controls to ensure long-term goals are met, and providing a mechanism for addressing emerging issues. Evaluation occurs through waterbody monitoring and inspections, both on-the-ground activities with direct assessments of waterbody condition. It is here that true ambient monitoring is applied apart from the watershed cycle to provide information on long-term trends. Periodic review of the strategy and its effectiveness combined with public participation also provides guidance for the future. The results of the periodic evaluation should be used to keep the activities on track; end-of-cycle evaluation feeds into future problem identification and assessment, providing a model for similar watersheds.

It is not expected that all issues within a WMA will be addressed in a single cycle. For that reason, the feedback loop is especially important in identifying issues that require work after the first cycle. It will form the basis for the prioritization of issues in the subsequent cycle. It identifies discrepancies between goals and actual accomplishments, allowing for redirection of resources to address needed tasks where possible. Although the product of developing a strategy is the assignment of resources to address problems and achieve goals, resource shifts may be limited by emergencies, other commitments, funding constraints and specific mandates.

The North Coast Region faces several water quality issues. The highest priority water quality problems include contamination of surface water due to nonpoint source pollution from storm water runoff, erosion and sedimentation (roads, vineyards, and timber harvest), failing septic tanks, channel modification, gravel mining and dairies, and MTBE and dioxin contamination. Ground water contamination from PCE and leaking underground tanks and health and safety issues from contaminated areas that are open to the public are also priority issues. High priority water quality problems due to point sources include chronic violations by POTWs and lack of permit compliance. Lack of funding for water quality monitoring and watershed assessment compounds the difficulty of addressing these issues. See Appendix D - *Nonpoint Source Tables*, Table 1 for Regional NPS problems by watershed.

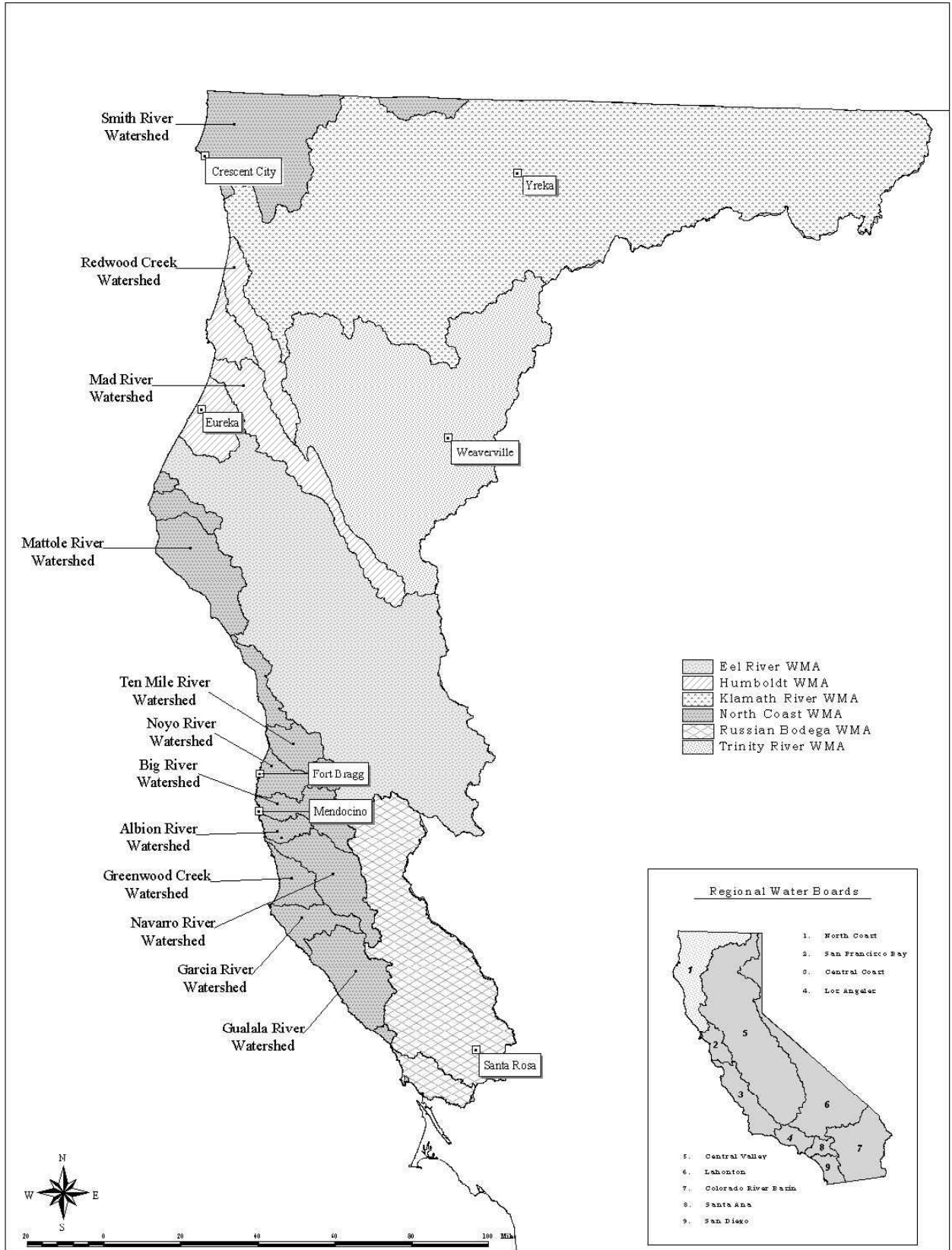


Figure 1. Watershed Management Areas for the North Coast Regional Water Quality Control Board

The highest priority activities that have come from this process include:

- developing and implementing Total Maximum Daily Load strategies (mostly sediment and temperature associated with salmonid resource declines)
- maintaining the core regulatory program for regulated dischargers
- increasing emphasis on storm water runoff issues
- increasing monitoring and assessment activities
- increasing emphasis on nonpoint source issues (including forestry, rural roads, and hillside vineyard development), especially as they affect salmonid resources
- maintain the ground water cleanup programs for high priority sites
- improving outreach and community involvement in decisions
- fostering watershed groups and citizen monitoring

The highest priority issues that need more funding if they are to be properly addressed are: TMDL implementation, responses to contaminated drinking water wells, inspection and enforcement of nonpoint source pollution issues, monitoring and assessment, outreach and education, basin planning efforts to update water quality objectives in the Basin Plan to protect threatened species and beneficial uses, and improvement of state and local government interactions.

In the **Russian/Bodega WMA** (see pg. 13-40) the primary water quality goals focus on protecting beneficial uses of surface and ground water such as salmonid fishery values, recreation, and domestic, municipal and agricultural water supply. Maintaining the core regulatory activities associated with point source waste discharges to surface and ground water from municipal and industrial sites is a high priority. Permitting, compliance inspections, enforcement and cleanup activities are performed on those facilities with the highest threat and/or actual impact on water quality. Discharges of PCE, petroleum hydrocarbons, pesticides, nutrients, bacteria and sediment will be the primary pollutants of concern.

Nonpoint source discharges are addressed by the core regulatory program storm water permits and inspections, and by the nonpoint source program through timber harvest inspections, outreach, grants, and promoting land management measures that are protective of beneficial uses. We have increased our emphasis on animal facility waste control, erosion control, riparian improvements, and fishery habitat enhancement. The primary concerns include sedimentation, elevated stream temperatures, nutrients, and riparian destruction.

In the **Klamath WMA** (see pg. 41-62) the following broad goals provide a focus for water quality control activities: 1) protect and enhance the salmonid fishery (mainstem and tributaries below Iron Gate Dam), 2) protect and enhance warm water and endangered aquatic species, 3) maintain the viability of agriculture and timber uses, 4) maintain recreational opportunities, and 5) protect ground water uses.

In the **North Coast River WMA** (see pg. 63-144) the overall emphasis is the inspection of timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. The NCR is expanding timber harvest program activities on private land in concert with California Department of Forestry and Fire Protection. The future development of TMDL waste reduction strategies for sediment will be another primary activity by Regional Board staff.

In the **Humboldt Bay WMA** (see pg. 145-170) the following broad goals provide a perspective from which to view the specific goals and actions presented Section 2.4: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect surface and ground water uses for

municipal supply, recreation, and industrial shellfish harvest, and 3) protect and enhance the anadromous salmonid resources.

In general, the primary issues associated with water quality in the **Eel River WMA** (see pg. 171-192) are focused on the beneficial uses for drinking water supply, recreation, and the salmonid fishery. Since the watershed is located in steep forested terrain with highly erosive soils and high rainfall, erosion and sediment production and transport are high. For most of the watershed the issues of temperature and sedimentation and their impacts on the salmonid fishery are of high concern, involving the timber and rangeland industries. Other issues include ground water contamination, dairies in the delta area near the ocean, and localized contamination of surface and ground waters.

In the **Trinity River WMA** (see pg. 193-206) broad goals include improving the anadromous fishery through sediment reductions and temperature controls, and habitat enhancements and maintaining the other high beneficial uses of both surface and ground water.

### **Existing Regional Board Programs**

The major programs or work efforts that will be used to address problems and achieve goals in a specific management area are consolidated into ten groups. Each is briefly described below, and will be used in the *Implementation Strategy* sections of individual watershed plans.

Assessment: Assessing waterbody condition and specific relationships of land use or waterbody system dynamics is essential to identifying issues and assigning activities for correcting problems. Additional components of assessment include gathering public perspectives on water quality related issues and assessing the adequacy of existing institutional frameworks in correcting problems. (Note: the outcome is not intended to be additional framework, rather coordination and efficiency to improve upon the existing framework.) Focused water quality studies, TMDL approaches, ground water pollution identification, nonpoint source assessments, and full watershed assessments under the new North Coast Watershed Assessment Program (NCWAP) spearheaded by the California Resources Agency are included in this program category. The new NCWAP is described in more detail in Section 3: Regional Activities.

Monitoring: Trends in water quality and habitat, and the effectiveness of control strategies and TMDLs will be monitored through the new Surface Water Ambient Monitoring Program (SWAMP established photo points, aerial observation, and other observations relevant to the problems being addressed and the activities being used). Activities include discharger compliance and self-monitoring under the Core Regulatory and ground water programs. The new SWAMP is described in more detail in Section 3: Regional Activities.

Core Regulatory: The Regional Water Board issues federal NPDES permits for discharges of waste to waterbodies in the region, and state Waste Discharge Requirements (WDRs) for wastes contained on site or discharged to land. Both prescribe the quantity, quality, and conditions under which waste can be discharged and require self-monitoring. Activities include issuance of new permits/WDRs, updating existing permits/WDRs, compliance inspections, review of self-monitoring reports, response to spills and complaints, storm water runoff, and associated enforcement. In addition, SB 390 will require the Regional Water Board to update its waivers of waste discharge requirements by January 1, 2003.

Ground water: Activities to protect and clean up ground water are associated with Spills, Leaks, Investigations, and Cleanup (SLIC), wellhead protection, the above ground and underground tank programs (including local oversight programs), as well as site mitigation activities under the Department of Defense and Superfund programs.

Water Quality Certification: Activities are associated with the Clean Water Act (CWA) section 401 certification that relates to protection of wetlands and stream channel work and activities.

Nonpoint source: The long term goals are aimed at enhancing the overall recognition and understanding of nonpoint sources, especially sediment and nutrients, and elimination of the those sources as limiting factors in the maintenance and enhancement of salmonid populations and other aquatic organisms. Our program follows the statewide Nonpoint Source Pollution Control Program, using three tiers to accomplish the goals: Tier 1 - self-determined compliance with water quality regulations, Tier 2 - regulatory encouragement, such as performing management practices in lieu of obtaining a waste discharge permit, and Tier 3 - regulation through permit activities and enforcement actions. Timber harvest on state, federal, and private lands, and the development of TMDL waste reduction strategies are high priority throughout the region. Localized agricultural problems are being addressed in the upper Klamath/Lost River area, Shasta and Scott river watersheds, Eel River delta area, and the Russian River WMA. Outreach and specific nonpoint source activities are taking place in the WMAs.

Timber Harvest: The NCR has an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. This program is being expanded to activities on private land in concert with California Department of Forestry and Fire Protection. Review and inspection of timber sales as well as other projects on U.S. Forest Service lands are also being increased.

Wetlands: The NCR has wetlands in lagoon areas along the coast and in the Santa Rosa Plain. Many of these areas are threatened by development activities such as new housing projects and vineyards. Long-term goals are directed toward wetlands protection and management. Most activities to protect wetlands take the form of CWA section 404 review and CWA section 401 Water Quality Certification. At this time, other agencies are taking the lead on wetlands in the region such as the Army Corps of Engineers, the Department of Fish and Game, and the Division of Water Rights. The NCR intends, in the near future, to develop a policy concerning wetland conservation in the region starting with an inventory and mapping of the resource, assessing the current conditions, and forming a strategy for conservation. See Section 3: Regional Activities for more information on the NCR wetland activities.

Local Contracts: The Clean Water Act sections 319(h), 205(j), and 104 grant programs, and Water Bond (Proposition 13) grants result in contracts with local agencies or entities to plan, monitor, and improve water quality.

Water Quality Planning: Regional Water Board planning activities include the basin plan triennial review process, development of water quality objectives, development of action plans (including TMDLs), participation in watershed planning activities (including local watershed groups), basin plan amendments, and review of environmental documents. The Triennial Review process was started again in April of 1998. Some planning tasks are watershed based; others are regional in nature. A reimbursable contract with the Sonoma County Water Agency for review and revision of water quality standards to comply with a "no take" provision of salmonids listed in the Russian/Bodega WMA under the federal Endangered Species Act was signed in April of 1998. The Basin Plan objectives have been reviewed, and changes to temperature, dissolved oxygen and sediment objectives are being proposed. See Section 3: Regional Activities for more information on Basin Plan revisions currently planned or underway.

**Regional (Non-Watershed Based) Activities**

As previously discussed, activities not prioritized or targeted on a watershed basis are addressed differently. For those activities occurring in a targeted WMA, we have attempted to describe the activities within the WMA section. Examples of these are: underground tank program, Department of Defense cleanup sites, and core regulatory activities like permit adoption and inspections.

For activities of a regional nature, such as Triennial Review of the Water Quality Control Plan for the North Coast Region and the Water Quality Assessment (305(b) report), there are descriptions in Section 3: Regional Activities, as well as descriptions within the individual watershed sections appropriate to those activities that are specific to a particular WMA.

To the extent possible all activities within a targeted WMA are incorporated in its section of this chapter irrespective of whether the activities are targeted or prioritized on a watershed basis. For those WMAs that are not yet targeted, descriptions of all activities that are not regional in nature will be phased into individual WMA sections as progress is made through the rotating process.

## SECTION 2

### WATERSHED ACTIVITIES

The following watershed plans draw upon knowledge and information obtained through public input, agency contacts, and the personal experience of Regional Water Board staff up to the time of this writing. Significant strategy development and implementation may be occurring in a WMA at the present time. However, staff recognize that the problem identification, watershed assessment, and strategy development are not complete, and that further public and agency involvement will improve the effort. What is presented in this document is a preliminary summary of existing and planned actions based on current knowledge of the Regional Water Board staff.

Fourteen WMA plans are presented in this section:

- 2.1 Russian/Bodega Watershed Management Area
- 2.2 Klamath Watershed Management Area
- 2.3 North Coast Rivers Watershed Management Area
  - 2.3.3 Mattole River
  - 2.3.4 Ten Mile River
  - 2.3.5 Noyo River
  - 2.3.6 Big River
  - 2.3.7 Albion River
  - 2.3.8 Navarro River
  - 2.3.9 Greenwood Creek
  - 2.3.11 Garcia River
  - 2.3.12 Gualala River
- 2.4 Humboldt Bay Watershed Management Area
- 2.5 Eel River Watershed Management Area
- 2.6 Trinity River Watershed Management Area

Since this is a dynamic process, the document presents each WMA plan as of the time of this printing. As the process is in different phases depending on the WMA, some sections are more complete than others.

In addition, Section 2.7, *Clean Water Action section 303(d) (TMDLs)*, presents a prioritized list of waterbodies not meeting water quality standards, as well as some additional background and implementation information. That additional information will be integrated into the individual WMA plans as the process continues.

Appendix D, *Nonpoint Source Tables*, contains tables of short-term objectives drawn from each WMA section. Appendix F contains a table of *Potential Funding Sources and Targeted Projects*. This table is a summary of grant priorities distilled from input from the public and concerns expressed in the individual WMA sections.

#### Regional (non-watershed based) Activities

To the extent possible all activities within a targeted WMA have been incorporated irrespective of whether the activities are targeted or prioritized on a watershed basis. For those WMAs that are not yet targeted we will phase descriptions into individual WMA sections as we progress through the rotating process.

Regional activities, such as the Basin Plan Triennial Review and the Water Quality Assessment (305(b) report) wetland activities, are described in Section 3: *Regional Activities*.



## **SECTION 2.1**

### **RUSSIAN/BODEGA WATERSHED MANAGEMENT AREA**

The following draws upon knowledge obtained through public involvement, agency contacts, and the personal experience of Regional Water Board staff. Significant strategy development and implementation are occurring in the management area at the present time. We recognize that the problem identification and watershed assessment and the strategy development are not complete, and that further involvement will improve the effort. This document contains a summary of existing and planned actions based on current knowledge of the Regional Water Board staff.

#### **MANAGEMENT AREA DESCRIPTION**

This management area includes the Russian River and Bodega hydrologic units numbers 114.00 and 115.00, respectively. Within those units are the entire Russian River watershed (114.00), and Salmon Creek, Bodega Bay (including Bodega Harbor), Americano Creek, and Stemple Creek watersheds (115.00) (Figure 2.1-1).

#### **Russian River Hydrologic Unit**

The Russian River hydrologic unit encompasses 1485 square miles in Mendocino and Sonoma counties, bounded by the Coast Ranges on both the east and west. The mainstem is about 110 miles long, flowing southward from Redwood and Potter valleys (north of Ukiah) to its confluence with Mark West Creek, where it turns west to cut through the coast range and empties into the Pacific Ocean at Jenner (Figure 2.1-1.) The principal tributaries from the headwaters down are the East Fork Russian River, Feliz, Pieta, Big Sulfur Creek, Dry Creek, Mark West Creek (including the Laguna de Santa Rosa), Green Valley Creek, and Austin Creek. Elevations range from sea level at the estuary near Jenner to 4,343 feet at the summit of Mt. St. Helena in the Mayacama Mountains.

Two reservoirs provide flood protection and water supply storage: 1) Coyote Dam and Lake Mendocino on the East Fork Russian River near Ukiah, and 2) Warm Springs Dam and Lake Sonoma on Dry Creek west of Healdsburg. A diversion from the Eel River through the Potter Valley powerhouse flows into the East Fork and Lake Mendocino. The Russian River hydrologic unit supplies drinking water, including ground water supply to over 500,000 people and a varying amount of water for agricultural purposes. The State Division of Water Rights has declared the Russian River tributaries fully appropriated from April 1 through December 14. The Water Rights Division is in the process of developing a strategy to deal with additional diversions in the mainstem and tributaries outside of the fully appropriated period. The majority of flow in the Russian River is during the winter season, when average rainfall ranges from 30-80 inches, depending on locale. The summer climate is moist and cool near the coast with temperatures increasing in the upper valley areas that are more isolated from the coastal influence.

#### **Bodega Hydrologic Unit**

The Bodega unit is typified by cooler temperatures and relatively high rainfall due to coastal influences. The terrain in this unit is relatively steep, with the streams carving through the Coast Range and entering the Pacific Ocean south of the Russian River. Salmon Creek, Americano Creek, and Stemple Creek and their associated estuaries are the main waterbodies. These streams are located in erosive topography and are sensitive to land disturbance. Summertime flows are often non-existent in Americano Creek and Stemple Creek, while Salmon Creek flow is low but sustained.

The three major watersheds in the Bodega unit each have estuary areas. However, the most notable are the Estero Americano (Americano Creek) and the Estero de San Antonio (Stemple Creek). Those

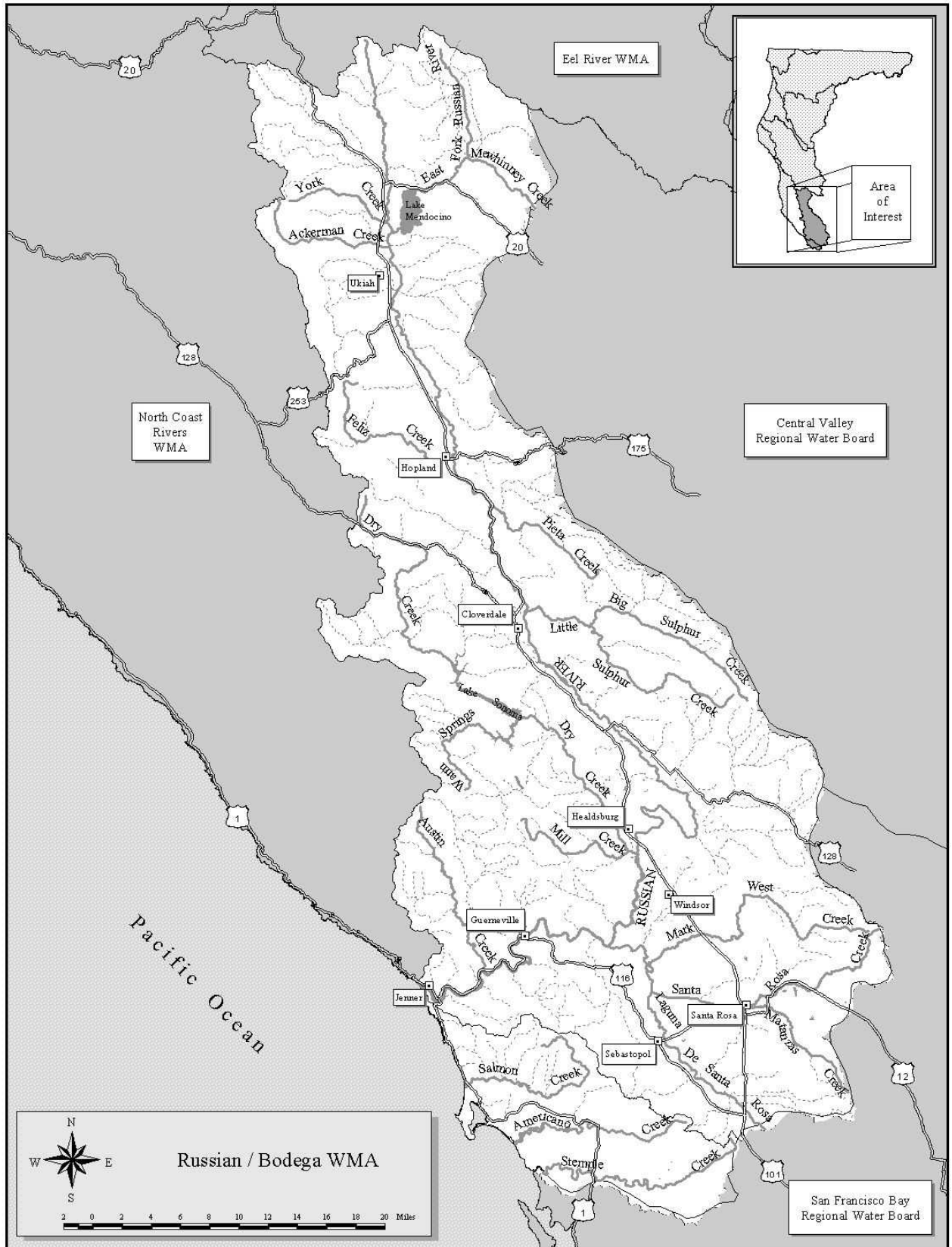


Figure 2.1.1. Russian / Bodega WMA

two estuaries are prized for their resemblance to fjords and the resource values associated with isolated estuarine areas.

### **IMPLEMENTATION STRATEGY**

Significant strategy development and activities for water quality protection and improvement are occurring in the WMA at this time. A California Resources Agency effort, coupled with a US Army Corps restoration effort, brought together a large group of stakeholders in the watershed. The Russian River Watershed Council (RRWC) has formed to address watershed management issues. The vision is to make decisions on land use and water management by recognizing the effects of such decisions on all facets of the watershed. Additionally, the Sonoma County Water Agency contracted with the Regional Water Board for a three-year project to review water quality standards and regulatory mechanisms for compliance with a “no take” provision for salmonids under the federal Endangered Species Act (FESA). That project involves public workshops, meetings, and hearings.

A Regional Water Board staff watershed team is coordinating activities in the WMA to better address issues and problems, taking into account the level and timing of other agency’s watershed activities. The Regional Water Board watershed team also helped develop the watershed assessment and problem identification section presented later in this document. This effort included both the public and special interest groups. Continued coordination and assessment will fine-tune the planning and management activities in the future. The Regional Water Board team will develop focus groups, such as the Russian River Water Quality Monitoring Committee (explained below), to address specific issues and problems as they arise.

Public participation provides the added perspective of the resource users, helps identify any other issues not currently apparent, and thus refines the prioritization process. Public participation also serves as a forum to disseminate information obtained during the assessment and implementation process.

#### **Institutional Framework**

The following is a brief description of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined through the public participation process. The Sotoyome Resource Conservation District prepared a matrix of agency’s abilities and jurisdictions in December, 1996. That matrix needs to be updated, however a partial list of agencies and groups is provided in Appendix 2.1-A.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. Over-arching regulatory provisions are contained in the discharge prohibitions section of the Basin Plan. Point source waste discharges to all freshwater surface waters in this management area are prohibited by the Basin Plan with the exception of the Russian River and its tributaries. Criteria for evaluating individual wastewater treatment and disposal systems are also contained in the Basin Plan. The Russian River watershed is a large portion of the Russian/Bodega WMA.

For the Russian River and its tributaries point source, direct discharges of treated municipal wastewater are allowed (by NPDES permits) during the period of October 1 through May 14 and at 1% of the flow of the receiving water. In addition, these municipal dischargers must meet, or be on a time schedule to meet, advanced waste treatment levels (essentially tertiary treatment without full nutrient removal). The Basin Plan allows exceptions to that provision as specified in individual action plans in the Basin Plan. The City of Santa Rosa has an exception, specified in Resolution No. 89-111 that allows discharge rates as high as 5% of the flow rate of the Russian River when approved by the Regional Board's Executive Officer. Several industrial wastewater discharges are allowed under provisions of NPDES permits that require compliance with applicable water quality standards.

Likewise, discharges from the cleanup of contaminated ground water, discharges from leaky underground petroleum storage tanks sites are permitted in low volumes and at nondetectable contaminant levels. The City of Santa Rosa, Sonoma County and the Sonoma County Water Agency are co-permittees under a NPDES municipal storm water permit for storm water point source discharges in the Santa Rosa area.

The Regional Water Board has entered into a contract agreement with the Sonoma County Water Agency (SCWA) to review water quality standards and regulations of the SCWA in the Russian/Bodega WMA for compliance with a “no take” provision for salmonids under the federal Endangered Species Act (FESA). Waterbodies in the WMA will be assessed against existing and proposed new standards and permits under the contract, and opportunities to improve water quality and salmonid resources will be identified. Other activities conducted by the SCWA and by Sonoma County are also being reviewed for compliance with the FESA. Subsequent modification of the Basin Plan standards and SCWA permits may be necessary.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Many pending actions are available for public review on our Regional Board website. In addition, staff formed a Russian River Water Quality Monitoring Committee in May of 1994 to enhance communication, identify and prioritize water quality issues, identify water quality monitoring needs, and improve coordination among agencies and public interest groups. The Committee was composed of agencies and public as listed in Appendix 2.1-A, and met about every month until late 1995. They prioritized a list of issues and provided direction on monitoring and assessment activities by the Regional Board staff, as well as assisting in some of those activities through a volunteer program.

#### **Summary of Regional Water Board Activities**

The general emphasis in the watershed is to enhance interagency and public coordination, protect existing uses, continue to implement and improve existing permitting programs, clean up contaminated ground water, implement preventative point and nonpoint source programs to protect surface and ground water, assess, monitor, and improve the biotic health of the system, reduce nutrient and sediment loading in selected sub-watersheds, and support efforts to improve the channel and riparian areas. We plan to accomplish these goals through increased efforts at assessing and evaluating compliance with water quality objectives through reviewing self monitoring reports, conducting compliance inspections and updating permits on a regular cycle. Staff will continue to respond to complaints regarding unpermitted discharges and violations of permit conditions. We have established Regional Water Board programs that address traditional point source pollution sources that primarily consist of municipal and industrial wastewater treatment and disposal.

We are implementing federal storm water permitting programs that address the control of pollutants contained in storm water runoff from industrial, municipal and construction sites. Industrial facilities are required to design and implement appropriate “best management practices” (BMPs) to limit pollutants in storm water runoff. Construction projects involving total ground disturbance of five acres or more (reduced to one acre or more in 2003 pursuant to recent Phase II storm water amendments to the Clean Water Act) are required to implement appropriate BMPs to control pollutant discharges during construction. In addition, provisions of this construction permit require implementation of controls to reduce post development impacts from potential increases in pollutant and runoff loads. A municipal NPDES storm water permit has been issued to the City of Santa Rosa/SCWA and the County of Sonoma requiring them to conduct activities aimed at reducing pollution due to the City’s storm water discharges. Phase II of the storm water program will require that several smaller municipalities as well as state and federal facilities obtain municipal storm water permits. In addition, the State Water Resources Control Board has issued a statewide municipal NPDES storm water permit

to the California Department of Transportation (CalTrans) requiring the agency to control storm water runoff from their transportation system. Regional Board staff are responsible for enforcing this permit for CalTrans discharges within this Region.

Nonpoint source waste discharges from the dairy industry and other agricultural operations are being addressed by education and outreach efforts for the agricultural community. The significant contribution of sediment from the increasing installation of vineyards on hillsides and other areas is not well controlled. Regional Water Board involvement has increased with recent funding to develop a comprehensive outreach program. Enforcement capabilities are retained for specific cases. Sonoma County requires a grading permit for some vineyard development and has passed a local vineyard ordinance that places certain restrictions on new vineyard development.

Regional Board staff continue to regulate activities involving “dredge and fill” within surface waters, including wetlands. Staff is responsible for ensuring that these projects comply with all applicable state standards, including the State’s “no net loss” policy for wetland impacts. State certification (401 Certification) is required by provisions of the Clean Water Act (CWA) in order for federal CWA 404 permits to be issued.

Assessment:

We intend to focus assessment efforts on identified concerns regarding objectives attainment (e.g., dissolved oxygen, bacterial quality, sedimentation), biological health (e.g., presence of xenobiotic estrogen responses in fish, benthic macroinvertebrate populations), evaluation of Basin Plan water quality objectives regarding federal Endangered Species Act (FESA) compliance (e.g., dissolved oxygen, temperature), ground water quality, and water quality and watershed modeling to assess the relative importance of various factors to changes in water quality. The biennial Water Quality Assessment under Clean Water Act section 305(b) will be supported by the assessment and monitoring activities, including listings for section 303(d).

A proposed project by the Sonoma County Water Agency to gather existing data into a common format for use in watershed assessment and FESA-listed fish recovery planning will be coordinated with two other similar efforts: 1) the National Marine Fisheries Service is developing GIS coverage of the Russian River watershed in support of salmonid recovery planning and general watershed protection and restoration, and 2) the Russian River Watershed Council is developing a contract for an interactive information system, that will include GIS and other information. The intent is to enhance these two projects through close coordination.

Monitoring:

Water quality monitoring efforts will be focused on maintaining four long-term monitoring stations in the Russian River watershed TMDL confirmation monitoring in the Laguna de Santa Rosa, and expanding the temperature monitoring consortium for the watershed to include other water quality parameters. Those activities will be funded through the SWAMP (Appendix E). Activities also include ground water quality assessment, and public participation. Specific monitoring for pathogens will continue in the Russian River and Santa Rosa Creek as a result of the identification of bacteria problems in these watersheds. Additional needs in the smaller watersheds in the Bodega Unit including monitoring in the Stemple Creek watershed, and monitoring and assessment in the Americano Creek, Cheney Gulch, and Salmon Creek watersheds will be addressed in the SWAMP rotation in FY 2004-05. Additional options we will consider for improved and enhanced monitoring include the establishment of long-term photo records, fostering voluntary monitoring by individuals and watershed groups; reviewing the USEPA Rapid Bioassessment Protocol, providing spatial analysis of surface and ground water data, and increased coordination with local universities and the UC

Extension Service for education and outreach. Additional monitoring and assessment needs are provided in Appendix 2.1-B.

Core Regulatory:

We will continue to support the core regulatory program to the extent feasible based on available resources, and program and water quality priorities. Priorities and expected workloads are contained in annual program workplans developed each year by State and regional Board staffs.

Ground water:

Cleanups related to the leaky petroleum underground storage tank program, Superfund program, and other ground water remediation programs will continue for any new and all existing ground water contamination sites. The highest priority cleanup activity is related to PCE contamination at West College Avenue and Clover Drive in Santa Rosa. Continued public outreach and education regarding hazardous waste handling and the potential for ground water contamination is a priority in preventing future problems. The Source Water Assessment Program administered by the California Department of Health Services may provide additional water quality protections for both ground water and surface water supplies.

Water Quality Certification:

The watershed is seeing a considerable increase in projects involving dredge/fill within waters of the US. Most of these projects are a result of development related impacts in the Santa Rosa plains. Adequate staff funding is needed to completely implement the 404/401 program. Staff continues to pursue innovative approaches to assure appropriate review and certification of all projects. High priority projects (those with a potential for adverse impacts) will continue to receive a complete review.

Nonpoint Source Program:

The long-term goals of this program are described in the Introduction section of this document. However, specifics regarding this WMA include:

- continue promoting self-determined implementation of best management practices in the dairy industry and other agricultural operations thorough coordinated outreach and education with local agencies and watershed groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self directed implementation of controls to reduce nonpoint source pollution
- assisting the local Resource Conservation Districts (RCDs) and other agencies with CWA section 205(j), 319(h), and Water Bond (Proposition 13) projects to address riparian issues, sedimentation, and nutrient discharges
- addressing forestry issues under the Management Agency Agreement with the California Department of Forestry. When appropriate, monitoring and reporting programs may be issued to achieve compliance with the Basin Plan.
- assisting in the continuing implementation of the *Total Maximum Daily Load and Attainment Strategy for the Stemple Creek Watershed*, and for the *Laguna de Santa Rosa Watershed*.
- expanding the outreach program to educate hillside vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water, and conducting enforcement activities as needed to address erosion from hillside vineyards. Continuing outreach activities intended to assist in project development, water quality improvement and continued monitoring and assessment.

Additional nonpoint source program detail is provided in Appendix D.

Local Contracts:

Our active outreach program will continue, as well as the CWA sections 319(h) and 205(j) and Water Bond grant programs.

Water Quality Planning:

The Basin Plan review process assists in identifying issues that may affect the Russian/Bodega WMA, including the following:

- evaluate numeric and narrative dissolved oxygen, and temperature objectives,
- consider numeric and narrative objectives for nutrients and aluminum,
- establish fish habitat criteria,
- review nonpoint source control measures,
- develop a comprehensive action plan for the Russian River,
- review water quality impacts from gravel mining, and
- evaluate cumulative impacts
- evaluate wetland and stream system protection measures

**Evaluation and Feedback**

Implementation progress will be reviewed annually, and adjustments made to the next year's work based on that review. Additionally, an evaluation of the progress and process will occur at the end of the five-year cycle. The evaluation may result in changes to the overall program, and the Regional Water Board may be able to apply discretionary funding to priority work efforts on a watershed basis. A summary of activities identified and completed by this process will be included in an appendix at a later date.

**ASSESSMENT AND PROBLEM IDENTIFICATION**

The following analysis is based on existing knowledge of issues and problems in the Russian River basin from long-term water quality monitoring, discharger regulation, water quality planning, nonpoint source program efforts, and public involvement. However, the following analysis may not constitute a full assessment, and will be updated annually.

The watershed planning process in the North Coast Region is intended to provide an administrative tool to facilitate budgeting decisions on the basis of issues, concerns, and problems and completed watershed analyses. As such, numerous new activities were identified and prioritized by the Russian/Bodega Watershed Team. However, inadequate funding for existing programs makes it difficult to address new issues. If additional funding becomes available, we will strive to address those issues in a priority order. To the extent Regional Water Board staff can, they will be sensitive to and address the additional actions identified within the goals and priorities.

**Russian River Hydrologic Unit**

The watershed is agriculturally based, with urban and industrial uses concentrated around the incorporated municipalities. The most notable are Ukiah, Cloverdale, Healdsburg, Windsor, Rohnert Park, Cotati, Sebastopol, and Santa Rosa. The largest concentration of urban and industrial use is in the Santa Rosa Plain, with Ukiah and Windsor second and third. Industrial uses include electronics manufacturing industries, petroleum distribution plants, light manufacturing, wrecking and salvage yards, wineries, wood products, and industries related to the construction industry, with Santa Rosa as the commercial distribution center for the North Coast.

In the Potter Valley area north of Ukiah, irrigated agriculture and pasturing are common. Rangeland and mixed coniferous forests (with minimal timber harvesting) are prevalent in the hills away from the farmed alluvial plains. Around Ukiah, irrigated orchard and vineyard are common land uses with light industry, several large wood products facilities associated with the timber industry, and gravel mining. Water quality issues in this part of the watershed are primarily associated with industrial areas, wastewater treatment plants, water use, erosion and sedimentation in the tributaries, destruction of riparian areas, and agricultural chemical uses in the alluvial areas.

Moving down the watershed, the Hopland area is predominantly vineyard with rangeland grazing in the areas away from the mainstem. The river then cuts through a small canyon with rangeland grazing as the primary land use before reaching Cloverdale and more vineyards. Vineyards dominate the valley areas down to the Santa Rosa Plains. Vineyard development in the hillside areas adjacent to the alluvial terrace is an increasing concern from the standpoint of erosion and sedimentation. Gravel terrace pits are another feature interspersed in the alluvial plain. In addition to the water quality issues upstream, bank erosion, health of riparian areas, construction activities, and more industrial, commercial, household, and agricultural chemical uses rank high as concerns for this area.

The Santa Rosa Plain and Healdsburg hydrogeologic areas contain large ground water basins, supplying water for municipal, domestic, industrial and agricultural uses. The Santa Rosa Plain and tributary uplands include a number of animal facility operations. There are currently 24 active dairies in the Mark West Creek (Laguna de Santa Rosa) watershed. Conversion of timberland, rangeland, pasture, and orchards to vineyard has increased in the last decade. The availability of reclaimed wastewater produced by the City of Santa Rosa operated sub-regional municipal wastewater treatment facility has resulted in conversion of about 6,500 acres of rangeland to irrigated pasture, cultivated fodder crops, and other uses. The Santa Rosa Plain is the most populated area in the North Coast Region with six incorporated communities and over 200,000 residents (1990 US Census). A number of large river terrace pit-type gravel mines are located downstream of Healdsburg.

The trend appears to be towards continued conversion of range, pasture and forest lands to vineyards, and continued growth of the urban areas of Ukiah, Cloverdale, Healdsburg, Windsor, Santa Rosa, and Rohnert Park. Associated with that growth are active construction sites and an increase in light industrial operations. A concerted effort is being made in the Santa Rosa Plains to retain the reclaimed wastewater irrigated crop and pastureland type of agriculture and maintain the viability of the dairy industry. However, significant conversion of rangeland and pasture to vineyards continues to occur. The market for premium North Coast wine grapes far outstrips supply. Therefore, the pressure for land conversion to vineyards probably will not diminish.

The Laguna de Santa Rosa watershed drains the southern two-thirds of the Santa Rosa Plain. The Laguna de Santa Rosa, that is a major tributary of Mark West Creek, is listed for nutrient and dissolved oxygen impairment on the Clean Water Act section 303(d) list. Nutrient and dissolved oxygen impairments result from both point and nonpoint source discharges and the hydrology of the watershed. An active waste reduction strategy is underway per section 303(d) requirements, including the development of waste loading limitations.

The Russian River turns to the west and cuts through the Coastal Range downstream from the confluence of the Laguna de Santa Rosa and Mark West Creek tributary area. This downstream physical structure of the river has a lower gradient and the summer base flow occupies most of the low flow channel. The lower Russian River hillsides are steep and forested with mixed conifers, redwoods being the major component. Residential areas are periodically along the river with a number of them located on the narrow flood plain. Land uses are consistent with the semi-rural setting with vineyards and pastures located on the flood plain benches. Industrial activity is associated primarily with timber



(harvesting and lumber) and the construction trade. Tourism associated with summer recreational use of the river is a major economic base. Growth has been sporadic. The 1990 census lists five unincorporated communities with less than 10,000 residents. Water quality concerns include effects from upstream land use activities in both urban and rural areas and include individual on-site septic system problems and erosion and sedimentation problems from tributary streams.

As the river flood plain flattens to meet the ocean, the river widens into a relatively narrow estuary in the Jenner area. Land use is predominantly rangeland grazing and timber production.

#### Current Water Quality Conditions

Russian River sampling programs conducted over the last 20 years indicate substantial improvements in water quality. Pollution control efforts with respect to point sources (municipal and industrial waste treatment and discharge) and nonpoint sources (agricultural runoff, urban and industrial runoff, and septic tank practices) are largely responsible for improvements in water quality (*Interim Staff Report Regarding Russian River Water Quality Monitoring*, January 27, 1993, currently being revised).

Toxic substances have rarely been detected in the water column. Sediment sampling in 1985-86 and again in 1995 detected no pesticides in sediments. Monitoring of heavy metals exhibited no trends, with the exception of higher zinc concentrations downstream from the more urbanized areas.

Toxic substance sampling in resident fishes and in transplanted freshwater clams does occasionally detect pesticides and/or heavy metals. However, the only significant trend is the presence of mercury in fish flesh from lakes (Pillsbury, Mendocino, and Sonoma) (Toxic Substance Monitoring Program data reports, 1976-1995; *Sediment Sample Results for Organic Chemicals, Metals, and Nutrients in the Laguna de Santa Rosa/Mark West Creek System and the Russian River*, 1985-86 and 1995, in draft form). The issue of mercury in fish flesh was referred to the California Office of Health and Hazard Assessment for their analysis and action and a health advisory issued for Lake Pillsbury.

The major water quality issues associated with the Healdsburg and Santa Rosa Plain areas are concentrated downstream from the urbanized areas (storm water runoff, chemical usage, wastewater), and where animal facility operations (primarily dairies), cultivated agriculture, and industrial sites are located. Toxic discharges (primarily petroleum products and solvents from leaky underground storage tanks and other industrial sites) have affected ground water resources, with municipal supply wells for the City of Sebastopol and City of Santa Rosa being shut down due to toxic chemical contamination. Toxic chemicals also contaminate many individual wells in the area, most notably threatening 140 wells in the West College Avenue at Clover Drive area in Santa Rosa.

Less than 5% of the timber harvested in the Region comes from this watershed area. However, there is a close interface between the urban community and small landowners that conduct timber harvesting. The primary issues deal with stormwater runoff impacts on domestic water supplies and fisheries. Forest herbicides are also a great concern to small landowners. Nuisance that can result from the discharge of sediment, organic debris, but increase stream temperature is a greater concern in the urban/forestry interface.

Sedimentation, riparian area destruction, low stream flows, bacteria, stream modification practices and high water temperatures have been identified as concerns in the tributaries. The Russian River watershed was added to the section 303(d) list for sedimentation issues in December of 1997. Further assessment of conditions and actions to reduce impacts to the anadromous fishery from excessive erosion and sedimentation will be a priority for the future. The streambed of the mainstem of the Russian River through this area has downcut considerably due to a variety of factors. Obvious

problems associated with that downcutting include bank erosion, downcutting of tributaries and the threat of barriers to fish migration due to excessive elevation changes between the tributaries and the mainstem, and lowering ground water elevations in the alluvial terraces. Exacerbating these problems is the large-scale invasion of exotic giant reed, *Arundo donax*, along the riparian areas of streams in the Russian River watershed. Concern is high and actions to address this problem are being discussed, including eradication by a variety of methods.

The Laguna de Santa Rosa is seasonally eutrophic. A TMDL has been developed and implementation is underway to reduce and/or eliminate nutrient sources necessary to improve water quality. Clean Water Act grant funding has been utilized for upgraded publicly owned treatment facilities in the watershed since 1972. A watershed task force developed recommendations for managing resources in the watershed, and the Laguna Foundation promotes restoration of wetland and other wildlife and water quality resources in the watershed. A Waste Reduction Strategy (TMDL) is being implemented and tracked with attainment of dissolved oxygen objectives and the USEPA ammonia criterion as the goal (*Waste Reduction Strategy for the Laguna de Santa Rosa*, North Coast Water Quality Control Board, March 1, 1995; *Laguna de Santa Rosa Water Quality Objective Attainment Plan*, CH2M Hill Consulting, June 1994 *Investigation for Nonpoint Source Pollutants in the Laguna de Santa Rosa, Sonoma County*, North Coast Water Quality Control Board, September 24, 1992). Ammonia goals were met ahead of schedule, but dissolved oxygen continues to be a problem due to enriched bottom deposits in the Laguna.

#### **Bodega Hydrologic Unit**

This Bodega Hydrologic management unit is typified by rangeland grazing and animal facility operations, including dairies and some timber production in the Salmon Creek watershed. Although the community of Bodega Bay (in the Bodega Harbor watershed) has experienced some development in the last decade, the growth has been minimal in comparison to the growth that has occurred in the Santa Rosa Plain. The population of the Bodega Bay area was 1127 residents according to the 1990 census.

Americano Creek and Stemple Creek are Clean Water Act section 303(d) listed for water quality impairment associated with high ammonia and low dissolved oxygen (*Stemple Creek Water Quality Characteristics and a Maximum Daily Load Process*, Marin and Sonoma Counties, North Coast Water Quality Control Board, August 15, 1995). A watershed group was formed in the Stemple Creek watershed to address erosion and animal facility operation waste issues. A section 303(d) *Total Maximum Daily Load and Attainment Strategy for the Stemple Creek Watershed* was developed and adopted by the Regional Water Board in 1997 to address sediment and nutrient issues. Water quality improvements have been documented in the last two years as a result of activities in the watershed.

The coastal watersheds (Stemple Creek, Americano Creek, Salmon Creek, and other smaller tributaries to Bodega Bay) located south of the Russian River have historically received little attention from a water quality sampling perspective. However, Americano Creek will be targeted for a waste reduction strategy similar to Stemple Creek in the next few years. The California Department of Fish and Game is presently conducting water quality monitoring in Stemple Creek and Americano Creek. However, we are unsure of the future of that monitoring. The Marin/Sonoma Farm Bureau's Animal Resource Management Committee is implementing a citizen voluntary monitoring program for the Stemple and Americano Creek watersheds.

### **WATER QUALITY GOALS AND ACTIONS**

The following discussion of issues and problems for the Russian/Bodega WMA is not in order of priority, and was compiled from the combined knowledge of Regional Water Board staff, from agency and public involvement at Regional Water Board and other meetings, and meetings of the Russian

River Water Quality Monitoring Committee. As discussed in the Implementation strategy, funding constraints limit our ability to do some mandated tasks primarily associated with core regulatory activities. The prioritization of the goals and actions may allow us to focus new funding on the highest priority items as that funding becomes available, depending on the tasks that the new funding is intended to address. Additionally, priority listing provides a picture of issues not addressed as funding is reduced.

The primary water quality goals focus on protecting beneficial uses of surface and ground water such as salmonid fishery values, recreation, and domestic, municipal and agricultural water supply. Maintaining the core regulatory activities associated with point source waste discharges to surface and ground water from municipal and industrial sites is a high priority. Permitting, compliance inspections, enforcement and cleanup activities are performed on those facilities with the highest threat and/or actual impact on water quality. We will continue our program of investigation and follow-up of spills and complaints regarding water quality problems. Discharges of PCE, petroleum hydrocarbons, pesticides, nutrients, bacteria and sediment will be the primary pollutants of concern.

Nonpoint source discharges are addressed by the core regulatory program storm water permits and inspections, and by the nonpoint source program through timber harvest inspections, outreach, grants, and promoting land management measures that are protective of beneficial uses. The nonpoint source issues are more difficult to address due to their diffuse nature. We have increased our emphasis on animal facility waste control, erosion control, riparian improvements, and fishery habitat enhancement. The primary concerns include sedimentation, nutrients, and riparian destruction.

The nine Goals for the Russian/Bodega WMA are related through the beneficial uses they address:

- **GOAL 1: Protect surface water uses MUN, REC-1, REC-2**
- **GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses**
- **GOAL 3: Protect/enhance coldwater fisheries**
- **GOAL 4: Protect/enhance warmwater fisheries**
- **GOAL 5: Protect aquatic life and public health in Bodega Harbor**
- **GOAL 6: Objectives attainment in the Laguna de Santa Rosa**
- **GOAL 7: Stemple Creek and Americano Creek Waste Reduction Strategies**
- **GOAL 8: Water Rights Coordination**
- **GOAL 9: Assessment of Salmon Creek and other tributaries**

Protection of surface water (Goal 1) for the primary beneficial uses MUN, REC-1 and REC-2 will in most cases protect all other beneficial uses. The MUN (municipal and domestic supply) beneficial use designation is for uses of water for community, military or individual water supply systems including, but not limited to, drinking water supply. It demands, therefore, the highest quality of water. The REC-1 (water contact recreation) beneficial use designation is for uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. This beneficial use also demands a high degree of water quality. If MUN and REC-1 beneficial uses are protected, agricultural and industrial supplies are also protected which relates Goal 1 to Goal 2 (ground water protection).

The protection of cold and warm water fisheries (Goals 3 and 4) requires the protection of surface and ground waters (Goals 1 and 2) along with additional concerns for siltation, habitat loss, low tributary flows and water temperature. When these additional concerns are met, Goals 6, 7, and 9 (Laguna de

Santa Rosa, Stemple Creek and Americano Creek, and Salmon Creek and the remaining coastal tributaries) will also be addressed.

Goal 5, the protection of Bodega Harbor, involves REC-1, REC-2 and COLD beneficial uses among others and is related to Goals 1 and 3. Goal 8, coordination of water rights, is related to Goals 1, 2, 3, and 4 by affecting surface and ground water quality and supply. Therefore, by protecting the beneficial uses which demand the highest quality waters, most components supporting the other beneficial uses also will be protected.

**GOAL 1: Protect surface water uses MUN, REC-1, REC-2**

High quality water is required to protect these primary beneficial uses. The Regional Water Board recognizes that protecting and enhancing water quality for the primary beneficial uses will generally maintain and protect all other uses.

The Russian River must be protected at a level to maintain the municipal and domestic supply systems for over half a million users. These water supply systems include Ukiah, Hopland, Cloverdale, Healdsburg, Windsor, Santa Rosa and southern Sonoma/northern Marin counties, Guerneville and numerous other communities.

The Basin Plan requires that municipal discharges to the Russian River and its tributaries be improved to tertiary levels that are pathogen free. The cities of Santa Rosa, Ukiah, and Windsor and the Russian River County Sanitation District meet the terms of the Basin Plan provision for tertiary effluent. The City of Healdsburg, which is under a Cease and Desist order, discharges secondary effluent to a former gravel pit in the flood plain that was overtopped during the winters of 1994-95, and 1996-97. The Regional Water Board has filed litigation against Healdsburg on the adequacy of the environmental documents for the long term solution.

The City of Santa Rosa, which is under a Cease and Desist Order, has prepared an EIR and is exploring alternatives for their long-range plans for wastewater disposal. Russian River County Sanitation District, also under a Cease and Desist Order, meets advanced treatment requirements, however, bypasses of partially treated wastewater routinely occur with the frequent flooding conditions experienced in the lower Russian River.

The unincorporated communities of Forestville and Graton, which are under time schedules, and Occidental, which is under a Cease and Desist Order, discharge secondarily treated wastewater to tributaries of the Russian River. The time schedules for these communities require improvement of effluent quality to an advanced degree as soon as practicable. Each community is in the early planning stages of projects to meet the terms of their permits. Forestville and Graton are connected by a pipeline. However, each community could pursue independent solutions. Alternatives include complete elimination of the discharge of treated effluent to surface waters by use of additional storage and reclamation; or, upgrade to tertiary level waste treatment. Occidental may build additional storage/irrigation facilities or abandon its facility and transport wastewater to another treatment and disposal facility.

Western Sonoma County areas, Monte Rio, and Camp Meeker have high septic system failure rates. The Health Department and County Board of Supervisors recognize these septic systems as health hazards. The extent to which these systems impact recreational uses in the Russian River is not known. However, the most serious failures probably occur during the winter when body contact recreation season is minimal. The County of Sonoma is aggressively pursuing funding to eliminate chronic septic tank failures. Planning is moving ahead with strong local support; however, funding is a realistic limiting factor in most of the communities. Projects have been included in the State's highly

competitive Small Community Grants Program. Monte Rio has completed the environmental review process and has submitted an application with the Regional Water Board in order to construct an area-wide wastewater collection, treatment and disposal system.

General storm water permits regulate industrial and construction storm water discharges. This is a relatively new regulatory area within the last decade with limited funding resources for permit compliance and assessment. Regional Water Board staff is inspecting a limited number of permittees, and has taken enforcement actions against significant violators.

Timber harvesting in the WMA accounts for less than 5% of the volume of timber harvested in the North Coast Region. Public concerns have been expressed for localized water quality impacts from timber harvesting in urban areas. Specific concerns are in the Willow Creek drainage and smaller tributaries to the lower Russian River area near Guerneville. Staff reviews timber harvest plans in coordination with the California Department of Forestry for potential water quality impacts.

Rural residential roads are a source of sediment in the WMA. Multiple owners, without a unified responsibility for maintenance and prevention of erosion, control these roads. Staff enforces Basin Plan Prohibitions for the discharge of sediment from the construction of individual roads.

Pesticide and fertilizer applications in the WMA are a public concern for domestic and aquatic uses, however water quality sampling has not found pesticides in the water or sediments. The sporadic detection of solvents, likely of industrial origin, in Santa Rosa Creek is a continuing Regional Water Board concern.

Regional Board staff, in response to the TMDL for Stemple Creek and preliminary findings of the Storm water permit, have required the County of Sonoma to investigate the impacts of the Sonoma County Landfill on Stemple Creek. In addition, a ground water investigation is ongoing to determine if contaminated ground water is leaving the landfill. The county also is proposing expansion the landfill. An EIR is currently under consideration and Regional Board staff is reviewing a Report of Waste Discharge (Joint Technical Document). New waste discharge requirements were adopted in early 2000.

Some of the above point source discharge issues also pertain to nonpoint source discharges, for instance the concern about bacterial quality at popular swimming beaches. In addition, storm water runoff from agricultural, urban, industrial, and construction sites contributes episodic and unquantified loads of sediment, metals, organic chemicals, nutrients, and organic matter to waterbodies in the WMA. Erosion from grazing impacted lands may affect the Salmon Creek watershed. Areas of concern include the north side upstream of the Carmet Water District water supply, and the mid-section of the watershed upstream from the community of Bodega. Abandoned mercury mines may affect water quality in the Big Sulfur Creek and Fife Creek watersheds. The Bay Protection and Toxic Cleanup Program sampling results indicate complex organic chemical contamination in sediments at two locations in Bodega Harbor. Persistent bacterial contamination of coastal waters in the Campbell Cove area of Bodega Bay is also a concern that is being investigated.

### **Point Source Issues**

#### **Current Activities**

Current activities are funded with resources that grow increasingly limited. These continued regulatory activities are necessary core elements for maintaining sound water quality protection in the basin, and include:

- Continue to track compliance with time schedules in NPDES Permits and enforcement orders
- Keep all Russian River municipal dischargers on schedule for advanced wastewater treatment.
- Maintain bacterial sampling at public water contact recreation areas.
- Maintain the sampling regimen at the four long-term historical water quality monitoring stations to provide long-term monitoring data for the Russian River mainstem under SWAMP. Evaluate monitoring sites in other streams in the WMA and schedule monitoring under the SWAMP rotating schedule for FY 2004-05.
- Propose modified Basin Plan water quality objectives for Regional Board consideration to address protection of FESA listed salmonid fish.
- Provide assistance/coordination to Sonoma County Water Agency for the development of an early warning system for the mainstem Russian River.
- Evaluate the cumulative impacts of flow changes proposed as alternatives in the Sonoma County Water Agency/US Army Corps FESA Section 7 consultation and of waste discharges using the Russian River water quality model and other methods.
- Continue to regulate industrial and construction storm water dischargers in the Roseland Creek watershed and other watersheds.
- Renew the municipal storm water permit for the Santa Rosa area.

#### **Additional Needs**

There are additional core regulatory elements that are unfunded. Consequently, Regional Water Board staff is responding to complaints and spills on certain dischargers after a problem has been created, rather than prevention through regulatory oversight and inspections. The following details work that could be met with additional staffing in the WMA.

- Continue and also seek additional staffing to work with the City of Santa Rosa and their co-permittees to fully implement their Municipal Storm Water Permit.
- Inspect all regulated facilities in accordance with the State Administrative Procedures manual.
- Identify any point source discharges of hazardous or toxic substances to Santa Rosa Creek and mitigate.
- Target subwatersheds to assess filing status and compliance with industrial and construction storm water permits.
- Pursue enforcement actions on non-filers for industrial and construction storm water permits.
- Provide comment on environmental documents, modify permits, and generally promote concerns for maintaining stream channel form and function.
- Assess spill contingency planning and compliance on aboveground storage tanks.
- Coordinate activities with local agencies and groups.
- Pursue post construction storm water management to improve water quality and flood control.

#### **Nonpoint Source Issues**

##### **Current Activities**

- Use education, outreach and enforcement of Basin Plan provisions to reduce or eliminate nonpoint source discharges from hillside vineyard development and other agricultural operations.

- Expand the outreach and enforcement activities on hillside vineyards including further development of interagency coordination and cooperation on addressing erosion problems. Blatant violations of the Basin Plan are addressed through increased enforcement.
- Continue to work with animal facility operations to develop and implement improved animal waste management practices.
- Maintain the effective individual on-site waste disposal system program described in the Basin Plan and promote reasonable resolution of localized problems.
- Support the Sonoma County's hillside vineyard ordinance that addresses the issue of erosion and sediment discharges from hillside vineyard development.
- Support the Marin County RCD and Southern Sonoma County RCD and Natural Resource Conservation Service efforts to address erosion and mass wasting (landslides) sediment issues in the Stemple Creek watershed with education, outreach and grant assistance
- Continue to review timber harvest operations in coordination with the California Department of Forestry for control of sediment discharges.
- Monitoring for compliance with water quality objectives associated with timberland activities in key areas (e.g., Jenner Gulch).
- Continue the restoration of portions of Santa Rosa Creek.
- Monitor for MTBE in Lake Sonoma and Lake Mendocino.
- Screen for xenobiotic estrogens by using vitellogenin testing of fish in FY 2001-02 under SWAMP. Monitor for toxic chemicals through coordination with the SWAMP rotation in FY 2004-05.

#### **Additional Needs**

- Volunteer monitoring should receive additional attention.
- Promote additional outreach and enforcement where appropriate for road maintenance and sediment control, agricultural operations, implementation of best management practices and pollution prevention at commercial and industrial facilities, and new development of hillside vineyards.
- Seek funding for additional assessment of semi volatile, volatile, and metal pollutants in Laguna de Santa Rosa tributaries.

#### **GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses.**

The discharges to ground water from underground and above ground tanks, wrecking yards, maintenance yards, septic systems, landfills, herbicide and pesticides applications, dairies, illegal disposal sites, and other agricultural and industrial facilities have resulted in contamination and degradation of ground water. Included are the possible impacts of the Sonoma County Landfill on the ground water in the Stemple Creek watershed. Other priority locations include the West College Avenue at Clover Drive neighborhood, McMinn Superfund area, Santa Rosa Avenue area, older residential developments in the North Dutton Avenue/Freeway well area, and areas near Sebastopol wells #4 and #5.

Sonoma County relies heavily on ground water as a domestic supply, including sole-source aquifer for the City of Sebastopol and principal reliance on ground water for the City of Rohnert Park. Santa Rosa uses ground water as stand-by and to supplement diversion from the Russian River underflow, and is planning to augment year-round supplies by additional ground water usage.

The extent to which some ground water contamination areas affect surface waters is not well known, but several toxic sites are documented as affecting nearby streams with contaminated ground water (e.g., Roseland Creek in south Santa Rosa, Santa Rosa Creek in the downtown Santa Rosa area, Foss Creek in Healdsburg, and Porterville Creek in Cloverdale).

The City of Santa Rosa has prepared an EIR and is exploring alternatives for their long-range plans for wastewater disposal. That plan should be completed in 2002 requiring additional staff work to evaluate potential impacts to ground water.

The western Sonoma County areas of Monte Rio, and Camp Meeker have high septic system failure rates. Discharges currently not under permit or other regulation should be eliminated, and nitrate and other pollutant discharges to ground water assessed.

Confined animal operations (dairies, feed lots, horse paddocks) and other animal agricultural operations (rangeland grazing) contribute nitrogen, phosphorus, organic matter, and sediment loads to some watersheds, most notably the Laguna de Santa Rosa, Stemple Creek, and Americano Creek.

## **Point Source Issues**

### **Current Activities**

- Continue with pollution prevention activities to promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water pollution prevention controls, solid waste, dairy waste, municipal waste water, agricultural and domestic and industrial wastes.
- Continue to address the sites that have the highest ground water contamination, greatest risk to the beneficial ground water uses and greatest risk to drinking water sources.
- Assist City of Sebastopol in a source water protection program and continue efforts at source control for the ground water contaminated with solvents and petroleum products.
- Coordinate with local agencies to protect ground water, assess effects of gravel mining and other land use activities on local water tables, and assess impacts of industrial and agricultural chemicals in the ground water.

### **Additional Needs**

- Expand source water protection programs to areas beyond Sebastopol.
- Evaluate local program efforts for eliminating Class V injection wells and unpermitted discharges to the subsurface. Promote eliminating Class V wells and coordinate with US EPA on identifying locations of other Class V wells in the WMA.
- Provide needed enforcement follow-up on unpermitted discharges.
- Expand cleanup efforts to address Priority II and III SLIC dischargers. Expand assessment program for determining sources of polluted well contamination.
- Pursue innovative approaches to funding ground water and volunteer monitoring efforts.

## **Nonpoint Source Issues**

### **Current Activities**

- Maintain the Regional Water Board and County of Sonoma's and County of Mendocino's individual waste disposal system programs and promote reasonable resolution of localized issues.



### **Additional Needs**

- Promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water runoff, solid waste, dairy waste, municipal waste water, agricultural and industrial wastes.
- Coordinate with local agencies to protect ground water, assess effects of gravel mining and other land use activities on local water tables, and assess impacts of industrial and agricultural chemicals in the ground water.
- Coordinate with other agencies and groups regarding ground water issues and funding.
- Establish a monitoring network in high risk/high ground water use areas.
- Determine source of pollutant discharges from ground water-to-surface water pathway.
- Assess nonpoint source impacts of Sonoma County Central Landfill on Stemple Creek.

### **GOAL 3: Protect/enhance coldwater fisheries**

The historic anadromous fishery is in decline due to a combination of factors, including dams, siltation, loss of habitat, low tributary flows, high tributary temperatures, and other factors. The condition of water resources with respect to maintaining and enhancing those uses is being addressed by other agencies, however we share responsibility for determining the level of attainment.

The Russian River Watershed Council (RRWC), in partnership with the State Department of Conservation and the US Army Corps of Engineers, is moving forward with projects aimed at improving overall watershed health. One such project is the development of an interactive information management system. This system will be developed in close coordination with the National Marine Fisheries Service's GIS project and a larger information gathering and management effort proposed by the Sonoma County Water Agency. Other elements of education, information sharing, and policy suggestions are being explored by subcommittees of the RRWC.

Activities to improve conditions and the fishery must be promoted, and water quality must support that use. The following issues are in addition to or provide more detail than those identified for Goal 1, recognizing that actions to achieve Goal 1 will address the same issues for coldwater fish.

Coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), and steelhead trout (*Oncorhynchus mykiss*) are listed under the federal Endangered Species Act as threatened in the WMA. Both coho and steelhead are found in some tributaries of the Russian River and in some coastal streams in the Bodega Hydrologic Unit. Chinook are documented in the Russian River.

The Regional Water Board, under contract to the Sonoma County Water Agency, has reviewed its water quality objectives for the Russian River watershed with regard to listed salmonid species. We are proposing changes to objectives for water temperature, dissolved oxygen, sediment, and aluminum, and will take those changes, as well as implementation plans, to the Regional Board for their consideration in early 2002 and 2003.

Xenobiotic estrogens (organic chemicals that mimic, suppress, or enhance estrogen activity in animals) may affect the reproductive health of the anadromous fishes in the Russian River watershed. We will begin screening for those effects under SWAMP in FY 2001-02.

Hillslope erosion and subsequent sedimentation of coldwater spawning streams in the WMA has been documented for a number of tributaries in the Russian River watershed, as well as other coastal streams in the WMA. Erosion rates are high in the Bodega Hydrologic Unit. The Marin County and Southern Sonoma County RCDs are addressing issues associated with erosion and mass wasting (landslides) in Stemple Creek. Additional concerns have been voiced regarding grazing impacts in the Salmon Creek watershed on the north side upstream of the Carmet Water District water supply. County road failures, especially associated with stream and drainage crossings, can contribute to sedimentation of local streams.

Confined animal operations (dairies, feed lots, horse paddocks) and other animal agricultural operations (rangeland grazing) contribute nitrogen, phosphorus, organic matter, and sediment loads to some watersheds, most notably the Laguna de Santa Rosa, Stemple Creek, and Americano Creek. Funding for assessment and monitoring has diminished seriously over the last decade.

The WMA contains populations of the federally endangered freshwater shrimp, *Syncaris pacifica*, and tidewater goby, *Eucyclogobius newberryi* is found in the esteros. The extensive wetlands areas once found in the WMA have diminished significantly and efforts are underway to restore some of the wetlands values in the area. There is a need for continued planning and coordination of stream restoration projects.

Conversion of mixed hardwood and forested slopes to hillside vineyards contributes sediment to the tributaries of the Russian River, where fish rearing and spawning occur. Riparian habitat is reduced to accommodate commercial vineyard production and can elevate stream temperatures and reduce sediment metering functions of the riparian zone. Resultant impacts include changes in stream channels as well as direct sedimentation of the streambed. Increased sedimentation in some tributaries is causing widening and shallowing of the stream channel, increasing bank erosion and exacerbating water temperature problems.

Timber harvesting in the WMA accounts for less than 5% of the volume of timber harvested in the North Coast Region. Public concerns have been expressed for localized water quality impacts from timber harvesting in urban areas. Specific concerns are in Willow Creek drainage and smaller tributaries to the lower Russian River area near Guerneville. Staff reviews timber harvest plans in coordination with the California Department of Forestry for potential water quality impacts.

Rural residential roads are a source of sediment in the WMA. Multiple owners without a unified responsibility to maintain the roads from erosion of surface soils control these roads. Staff enforces Basin Plan Prohibitions for the discharge of sediment from construction of individual roads.

Maintenance of flows through the Potter Valley powerhouse and diversion, an interbasin transfer of water from the Eel River watershed into the Russian River watershed, is threatened by the fish restoration efforts in the Eel River watershed aimed at reclaiming some of the diverted water and improving conditions in the Eel River.

The State Division of Water Rights has designated tributaries to the Russian River as fully appropriated for the period April 1 through December 14. A report and proposed process for handling new permits has been developed. Concern has been expressed regarding excessive summer diversions and temporary diversion structures impacting salmonid resources in

Russian River tributaries as well as maintaining and protecting coldwater recharge areas and springs in the tributaries. Future urban and agricultural development in the Russian River watershed should be evaluated in light of diminishing water resources, including potential decreases from the Eel River diversion.

Channel down-cutting in the middle reach from entrapment of sediments behind dams and removal of gravel from the streambed, the danger of off-channel gravel pits being captured by the river, and loss of riparian corridor were identified by a Coastal Conservancy study of the river.

### **Point Source Issues**

Point source issues are addressed in Goals 1 and 2.

### **Nonpoint Source Issues**

#### **Current Activities**

- Under contract to the Sonoma County Water Agency, we evaluated the adequacy of water quality objectives and the current regulatory structure in attaining federal Endangered Species Act requirements for threatened salmonids. Included in the analysis was an evaluation of existing data for compliance with water quality objectives related to fisheries.
- We are proposing changes to water quality objectives for water temperature, dissolved oxygen, sediment, and aluminum, and will take those changes, as well as implementation plans, to the Regional Board for their consideration in early 2002 and 2003.
- Under the SCWA contract we also established monitoring protocols to detect any changes in water quality.
- Develop a database of mitigation and enhancement activities that could influence the changes in water quality objectives for listed and unlisted species, and enhance the quality of surface water for the benefit of listed and unlisted species.
- The Russian River water quality model is being refined under the SCWA contract and used in scenario analysis of flow changes associated with the Section 7 consultation. It will be used for evaluating discharge effects on water quality as well.
- The SCWA has proposed a watershed data gathering, analysis, and information system for Sonoma and Marin counties. That system will include the Russian/Bodega WMA and play a significant role in FESA-listed salmonid recovery planning.
- Continue to review timber harvest operations.
- Continue to work with the dairy industry to promote management practices that protect water quality.
- Support the Marin and Southern Sonoma County RCDs erosion control efforts in the Stemple Creek watershed.
- Maintain current involvement in the Russian River Watershed Council.
- Continue outreach and interagency coordination and cooperation to the grape growing industry to reduce impacts of vineyards on water resources, especially the anadromous fishery.
- Proceed with review of the Fish Friendly Farming certification program for grape growers, evaluating it for legal specificity and to formally recognize the program in 2002.
- Continue to coordinate with local agencies/groups in the support of local non-regulatory, cooperative efforts for erosion/sedimentation controls.

- Continue to coordinate with the Division of Water Rights regarding water supply issues and the decline of summer flows.
- Continue to work with the SCWA on channel maintenance activities.

#### **Additional Needs**

- Promote additional outreach and enforcement where appropriate for improved road maintenance and sediment control on rural residential roads.
- Continue to expand efforts to conduct additional outreach and enforcement to promote control of soil erosion and riparian habitat reduction by conversion of hardwood and coniferous forest to hillside vineyard.
- Promote habitat/riparian restoration in existing agricultural areas.
- Promote restoration, enhancement, and maintenance of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups.
- Implement and enforce best management practices for nonpoint source regulation; react to complaints and conduct enforcement.
- Evaluate the sediment data collected by the US Geological Survey for the Russian River with respect to erosion and sedimentation issues and the anadromous fishery.
- Evaluate and pursue methods for evaluating sediment sources (e.g., satellite imagery, aerial photography).
- Pursue innovative approaches to funding and volunteer monitoring.
- Monitor for toxic chemicals in water, sediment, and tissue.
- Coordinate with California Department of Fish and Game in their salmonid restoration activities.
- Increase coordination with the local planning agencies.
- Promote awareness of the effects of increased erosion on channel morphology.
- Promote development and adoption of a county grading ordinance.

#### **GOAL 4: Protect/enhance warmwater fisheries**

The protection and enhancement of warm water fisheries and ecosystems (beneficial use WARM) also is important in the Russian/Bodega WMA.

The issues and actions overlap significantly with those for coldwater habitat and are not restated here.

#### **GOAL 5: Protect aquatic life and public health in Bodega Harbor**

Bodega Harbor supports the following beneficial uses: REC-1, REC-2, COMM, COLD, MAR, WILD, MIGR, SPWN, AND SHELL. The local sewage treatment plant, marina and dry dock operations, and storm water runoff from agricultural, urban, and industrial sites threaten those uses to varying degrees.

#### **Point Source Issues**

##### **Current Activities**

- Inspect the marina and dry dock operations, and the dredge-tailing site.
- Inspect and update Waste Discharge Requirements for Bodega Harbor Wastewater Treatment Plant.
- Work with the Army Corps of Engineers on their Bodega Harbor dredging proposal.

### **Additional Needs**

- Review and inspect selected industrial and construction storm water permit holders.

### **Nonpoint Source Issues**

#### **Current Activities**

- Continue working with individual agricultural operations to improve management practices.
- Continue cooperative investigations with the Sonoma County Department of Environmental Health and the Bodega Marine Laboratory regarding high bacterial levels at Campbell Cove and Doran Park beaches. Look into DNA analysis to identify source species.

#### **Additional Needs**

- Evaluate the extent of complex organic contamination in sediments in Bodega Harbor.
- Determine the need for cleanup and begin cleanup action.
- Develop a monitoring program for the Bay, including water, sediment, and tissue monitoring.
- Eliminate discharges currently not under permit or other regulation.
- Determine sources and extent of sedimentation in Cheney Gulch and refer concern to Sonoma County Planning Department or other responsible agency.
- Work with agricultural, and other runoff discharges, primarily through grant-funded projects, volunteer monitoring coordination, and public education and outreach; conduct enforcement.
- Improve agency coordination regarding runoff issues and marina and dry dock operations; encourage the pursuit of grants.

### **GOAL 6: Objectives attainment in the Laguna de Santa Rosa**

High ammonia concentrations threaten aquatic life in the Laguna, as do frequent events of low dissolved oxygen. The 1995 TMDL and a waste reduction strategy (WRS) require revision to fine-tune the estimates and goals. Implementation monitoring documents an improvement in nitrogen concentrations to the point of meeting the interim instream goals for nitrogen. Dissolved oxygen appears to be largely dependent on internal processes in the Laguna and requires further investigation to support revision of the TMDL and strategy.

Storm water discharges to the Laguna watershed are addressed under the existing municipal NPDES permit and individual general storm water permits. Goals for reductions of nitrogen and oxygen demanding substances are included in the TMDL. The City of Santa Rosa and County of Sonoma have instituted measures to meet those goals. Ammonia goals for the Laguna were met ahead of schedule, however dissolved oxygen continues to be a problem.

### **Point Source Issues**

#### **Current Activities**

- Maintain NPDES permit oversight for the dischargers to the Laguna.

#### **Additional Needs**

- Evaluate load estimates for point source discharges.
- Revise load estimates and the WRS to more accurately reflect conditions in the Laguna and status of dischargers.

## **Nonpoint Source Issues**

### **Current Activities**

- Continue to implement the plan for reduction of nutrient and organic matter loading; maintain liaison with RCDs and Sonoma-Marin Animal Waste Committee.
- Continue to promote restoration and enhancement of riparian areas.
- Expand the hillside vineyard outreach program to educate vineyard landowners of best management practices and conduct enforcement activities to address erosion from hillside vineyards.

### **Additional Needs**

- Coordinate activities with other agencies and groups, using cooperative, non-regulatory programs.
- Work cooperatively with agricultural and other runoff discharges; conduct enforcement.
- Encourage the maintenance of riparian vegetation along the banks of streams.
- Revise load estimates and the WRS to more accurately reflect conditions in the Laguna and status of nonpoint source loads.
- Continue to expand effort to identify erosion and sediment sources and potential sources related to new development of hillside vineyards
- Expand outreach on best management practices for hillside vineyards, including further development of interagency coordination and cooperation on addressing erosion problems.

## **GOAL 7: Stemple and Americano Creeks Waste Reduction Strategies**

This goal provides for the continued implementation of a waste reduction strategy for the Stemple Creek watershed to meet dissolved oxygen and ammonia objectives. It will be used as a model for Americano Creek in the future. For that reason, only the Stemple Creek activities are described below.

Grazing, nonpoint source impacts from the Sonoma County landfill, and other erosion processes impact Stemple Creek and the Estero de San Antonio to varying and largely unquantified degrees. The WRS addresses sediment and nutrient issues, but requires continued involvement and additional investigations and outreach. Continued oversight of the TMDL and attainment strategy is needed. The Sonoma County Landfill near the headwaters of Stemple Creek is under evaluation in relation to its contribution of contaminants of concern.

## **Point Source Issues**

### **Current Activities**

- Continue regulatory oversight of the Sonoma County Landfill.
- Continue investigation of the US Coast Guard Petaluma Training Facility Wastewater Treatment and Disposal Facilities and wet weather operational problems.

### **Additional Needs**

- Investigate the impacts to ground water by petroleum products and other toxic materials from leaky underground tanks and any other sources.
- Work with the US Coast Guard Petaluma Training Facility on leaky underground tanks and other sources.
- Work with dairies on strategies for reducing water quality impacts from these operations.

## **Nonpoint Source Issues**

### **Current Activities**

- Continue on-going data analysis and water quality data collection.
- Continue to encourage the maintenance of riparian vegetation along the banks of streams.

### **Additional Needs**

- Coordinate with the RCDs on public participation and in compiling land use information to support a watershed runoff model.
- Implement and enforce best management practices for nonpoint sources, including work with agricultural, and other runoff discharges; conduct enforcement.
- Investigate the nonpoint source impacts of the Sonoma County Landfill on the surface water and ground water in the Stemple Creek watershed.

### **GOAL 8: Water Rights Coordination**

Water use in the WMA has increased over the years, with competing demands among agriculture, domestic, and wildlife/fishery uses creating conflict over availability. Concern has been expressed regarding excessive summer diversions and temporary diversion structures impacting salmonid resources in Russian River tributaries. We are increasing our coordination with the state Division of Water Rights and reviewing water rights permits for water quality concerns. The issues associated with water diversions are covered under GOAL 3.

### **GOAL 9: Assessment of Salmon Creek and other tributaries**

Little is known about the water quality condition of the coastal tributaries between the Russian River to the north and Americano Creek to the south. Concerns have been raised by the public regarding sedimentation, water temperature, nutrients, and salmonid habitat values. This goal provides for water quality monitoring and water quality problem assessment in Salmon Creek and other coastal tributaries.

### **Current Activities**

- Actions associated with this goal are contained in Goal 3.

### **Additional Needs**

- SWAMP is scheduled for FY 2004-05 to perform water quality sampling and cursory watershed assessments for Salmon Creek and Cheney Gulch as well as other coastal tributaries south of the Russian River

### **Other More General Additional Needs for the Russian/Bodega WMA**

1. Identify ways to speed up permit process with other agencies
2. Seek funding for additional needs
3. Promote incentives for landowners
4. Use focus groups to address specific issues or geographic areas
5. Maintain a database of projects and actions, possibly with a GIS component
6. Promote grants for improved watershed health

## **BUDGET**

The budgeting process associated with the watershed planning process includes an itemization of activities by categories that are standardized statewide. As such, it doesn't specifically detail all individual actions in a WMA as laid out in the *Water Quality Goals and Actions* section. However, it is a representation of the current knowledge of funding levels across a wide spectrum of categories. The actual individual actions that are performed in a WMA are within those categories and will be specifically identified as we proceed through the planning process. We will attempt to fund the highest priority actions as identified in each WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address.

Appendix D contains information specific to the nonpoint source program.

## **APPENDIX 2.1-A**

### **Partial list of agencies and groups in the Russian/Bodega WMA**

#### United States

Environmental Protection Agency

Army Corps of Engineers

This agency has constructed and operates the two major dams on the Russian River: Lake Mendocino on the East Fork at Ukiah and Lake Sonoma on Dry Creek near Healdsburg. The Army Corps is also responsible for administering the CWA section 404 permits on dredge and fill activities. They are in the early stages of a reconnaissance survey (initiated in late 1996) of the Russian River basin preparatory to a study of potential actions to improve aquatic and geomorphic functions.

Geological Survey

National Biological Service

Fish and Wildlife Service

National Marine Fisheries Service

Natural Resources Conservation Service

#### Native American

Pomo Basket Weavers

Yakima (need correct spelling)

#### California State

California Environmental Protection Agency

Department of Fish and Game

This agency is charged with the protection and enhancement of fish and wildlife resources in the State. In the WMA, the department has active programs for fishery enhancement and protection.

Department of Health Services

Department of Pesticide Regulation

Office of Environmental Health and Hazard Assessment

Department of Toxic Substance Control

Department of Water Resources

California Coastal Conservancy

This agency began a Russian River enhancement program in 1991, involving two Technical Advisory Committees (Sonoma and Mendocino Counties) to identify issues on the mainstem and develop alternatives to enhance public access and the resource values of the mainstem Russian River. Their outreach and public participation has been extensive.



UC Agricultural Extension  
Hopland Research and Extension Center

Sonoma County  
Water Agency

This agency supplies domestic water to southern Sonoma and northern Marin counties from wells located in the underflow of the Russian River in the Wohler and Mirabel areas. They have priority water rights on lakes Mendocino and Sonoma and are required to meet minimum flows in the Russian River mainstem based on yearly water yield categories (dry, normal, wet, etc.). The agency is beginning a program to install an early warning network of remote monitoring station to alert them to possible contamination of the water supply. They are currently involved in a Russian River watershed assessment. They are also responsible for the county's wastewater treatment systems.

Planning Department

This local agency is charged with land use planning in Sonoma County. Beyond development and maintenance of the county General Plan, they are involved in the development and execution of an Aggregate Management Resources Plan to address gravel extraction issues in the WMA. The General Plan EIR contained specific reference to erosion control measures for the county.

Department of Environmental Health  
Agricultural Commissioner's Office  
Redevelopment Agency  
Economic Development Board

Mendocino County

Water Agency

This agency is actively involved in a water supply, water quality, and channel structure issues in the Mendocino County portion of the Russian River watershed. They are finishing a CWA section 205(j) project to develop a gravel management plan for the Russian River in Mendocino County.

Planning Department

Department of Environmental Health  
Agricultural Commissioner's Office

Local Agencies

City agencies

North Marin Water District

Resource Conservation Districts

Mendocino County RCD

Sotoyome RCD

This RCD is spear-heading a number of efforts aimed at watershed stewardship and restoration of Russian River tributaries, including interagency coordination, the Northwest Emergency Assistance Program (NEAP) for fishery restoration activities, Clean Water Act section 205(j) and 319(h) grant projects for erosion control, watershed stewardship, volunteer monitoring, and fishery restoration.

Goldridge RCD

Southern Sonoma County RCD

Marin County RCD

Mendocino Water Supply and Flood Control District

local water districts - numerous, to be compiled later

city planning departments

Santa Rosa Waterways Plan

Santa Rosa Creek restoration activities  
city public works departments  
Eel/Russian Commission

This commission was formed to coordinate water resources issues in the two basins in light of their sharing common headwaters with the Eel-to-Russian interbasin diversion.

Public Interest Groups  
Green Valley Creek Watershed Advisory Group (WAG)  
Laguna Foundation

This nonprofit organization is committed to protection and enhancement of the wetlands and other resource values of the Laguna de Santa Rosa. Several areas in the Laguna have been preserved or restored due to their involvement.

Laguna Coordinated Resource Management and Planning (CRMP) Task Force

This facilitated effort was started by the City of Santa Rosa and the Sonoma County Water Agency in 1994 to identify and help resolve issues in the Laguna de Santa Rosa watershed. Membership is extensive, including local, state and federal agencies, public interest groups, individual landowners, and interested persons. The Task Force completed a management plan to assist in protecting and improving the resources in the watershed in early 1995.

Farm Bureau  
Western United Dairymen  
United Winegrowers  
Stemple Creek WAG  
Russian River Watershed Protection Committee  
Friends of the Russian River  
Russian River Alliance  
Vernal Pool Task Force  
Environmental Resource Council  
Sonoma County Taxpayers Association  
Trout Unlimited  
Salmon Unlimited  
Citizens for Cloverdale  
Committee for Sensible Reuse  
Surfrider Foundation  
Citizens Cleanup Committee  
Southwest Area 2000  
Roseland Action  
Russian River Watershed Council  
West College Avenue Citizens Group

## APPENDIX 2.1-B

### Monitoring and assessment needs for the Russian/Bodega WMA.

The prioritized monitoring and assessment activities below support testing hypotheses about support of beneficial uses MUN, REC1, COLD, RARE or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with desired fiscal year implementations identified.

- 1. Coordinated Monitoring and Assessment - \$40,000 (0.3PY + \$10,000) - FY 02-03 - ongoing**  
A consortium of monitoring agencies and groups will be established to coordinate discharger self-monitoring, receiving water monitoring, storm water monitoring, fish habitat assessments, flow monitoring, existing long-term water quality stations (4), agricultural chemical use, and special investigations like xenobiotic estrogen screening. Regional Water Board permits will be coordinated to provide the most ecologically significant, efficient, and effective monitoring strategy for the WMA. . It is hoped that the efforts of the NMFS, RRWC, and SCWA to develop information systems will promote coordination. We have set up a temperature monitoring consortium among agencies, but need to expand that to other interests and water quality parameters.
- 2. TMDL Assessments - \$50,000 (0.3PY + \$20,000 lab) - FY 02-04**  
Continued assessment of water quality, especially nutrient and dissolved oxygen relationships is required by the Laguna and Stemple TMDL waste reduction strategies. The City of Santa Rosa and some local groups are performing chemical monitoring in both streams and the SCWA will deliver some of the analysis, but the Regional Water Board must continue to oversee the program and investigate nutrient and dissolved oxygen problems.
- 3. Ocean tributary assessments - \$40,000 (0.2 PY + \$10,000 lab) - FY 04-05**  
Water quality assessments of streams tributary to the ocean excluding the Russian River are needed to determine general water quality and to serve as the basis for addressing problems associated with land uses in the watersheds, including Salmon Creek, Cheney Gulch, Americano Creek. We intend to address this with the SWAMP rotation in FY 04-05.
- 4. Spatial Data Assessment - \$45,000 (0.4 PY) - FY 03-04, 04-05**  
A number of dischargers and programs are collecting surface and ground water information in the WMA. Spatial assessment of those data would provide a picture of problems associated with groundwater and storm drain contamination and groundwater to surface water connections, as well as providing direction for developing a coordinated multi-agency approach to monitoring and assessment in the WMA.
- 5. Sedimentation Assessment - \$75,000 (0.5 PY + \$20,000) - FY 07-08**  
The Russian River watershed is 303(d) listed for sedimentation. Further assessment of existing data and collection of new information is needed to develop strategies (TMDLs) for reducing erosion and sedimentation of tributary spawning and rearing streams. The NMFS, RRWC, and SCWA efforts should begin to address watershed assessment needs from a spatial scale, assisting in the assessment of sediment sources.
- 6. Sediment TMDL Development - \$750,000 (2 PY + \$500,000) - FY 09-10**

Once assessment is completed a TMDL will need to be developed to identify sources and estimate loading from sediment sources in the watershed.

7. **Sediment TMDL Implementation - \$160,000 (1 PY + \$50,000) - FY 05-06 - ongoing**  
TMDL implementation will require development and adoption of a Basin Plan amendment, estimated to take two years to develop and another year for adoption. Continued implementation will require constant oversight and monitoring for the foreseeable future (at least 20 years).
8. **Chemicals in POTWs - \$52,000 (0.2 PY + \$30,000) - FY 01-02**  
Petroleum products, including solvents, MTBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs. MTBE, gasoline components and pesticides were sampled in 2000. Additional sampling is planned for FY 01-02.
9. **Bodega Harbor Sediment Contamination - \$155,000 (0.5 PY + \$100,000)**  
Sources of contaminants in Bodega Harbor sediments identified with the Bay Protection and Toxic Cleanup Program need additional assessment and focused cleanup efforts.
10. **Ground Water Quality Network.**  
Water quality monitoring of ground water is needed for toxic chemicals at stations throughout the WMA.

**Surface Water Monitoring Program**

Water quality monitoring efforts will be focused on maintaining four long-term monitoring stations in the Russian River watershed. This includes TMDL confirmation monitoring in the Laguna de Santa Rosa, and expanding the temperature monitoring consortium for the watershed to include other water quality parameters. Those activities will be funded through the Surface Water Monitoring Program (SWAMP). Activities also include ground water quality assessment and public participation.

Additional needs in the smaller watersheds in the Bodega Unit including monitoring in the Stemple Creek watershed, and monitoring and assessment in the Americano Creek, Cheney Gulch, and Salmon Creek watersheds. These watersheds will be addressed in the SWAMP rotation in FY 2004-05. Additional options we will consider for improved and enhanced monitoring include the establishment of long-term photo point monitoring records, fostering voluntary monitoring by individuals and watershed groups; reviewing the USEPA Rapid Bioassessment Protocol, providing spatial analysis of surface and ground water data, and increased coordination with local universities and the UC Extension Service for education and outreach. In addition, domestic well sampling in the McMinn Superfund area for the next five years has been funded by the Sonoma County Water Agency as part of the Roseland Action Plan.

<b>Russian River Hydrologic Unit (114) - FY 2001-02 Monitoring Activities</b>					
Station (Type) <sup>(1)</sup> HUC	Beneficial Use(s)	Monitoring Objectives <sup>(2)</sup>	Freq <sup>(3)</sup>	Category(s)	Indicator(s) <sup>(4)</sup>
RRGRNV (P) 114.11 (Russian River at Guerneville)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin

<b>Russian River Hydrologic Unit (114) - FY 2001-02 Monitoring Activities</b>					
Station (Type) <sup>(1)</sup> HUC	Beneficial Use(s)	Monitoring Objectives <sup>(2)</sup>	Freq <sup>(3)</sup>	Category(s)	Indicator(s) <sup>(4)</sup>
RRHMB (P) 114.24 (Russian River at Healdsburg Memorial Beach)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin
RRCLO (P) 114.26 (Russian River Cloverdale)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin
RRUKTL (P) 114.31 (Russian River at Tamadge - Ukiah)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin

- Notes: 1. Type: P = Permanent, R = Rotating  
2. Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)  
3. Frequency: N = number of samples per FY, C= Conventional Water Chemistry  
O = Organic Water Chemistry  
4. Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

### **Other Monitoring Activities**

We are involved in a number of other programs that are focused in nature, providing useful information on specific issues or areas:

#### Water temperature monitoring- Russian River

We are coordinating temperature monitoring in the Russian River watershed with the City of Santa Rosa, the Sonoma County Water Agency, and the California Department of Fish and Game. Station locations are discussed in the spring of each year, and specific protocols are agreed upon for data logger deployment, sampling frequency, and data logger retrieval and data downloading. We intend to expand that cooperative effort into other interested parties in the future.

#### MtBE monitoring – Lakes Sonoma and Mendocino

Under the SCWA contract we sample both reservoirs and their outlets for MtBE on a monthly basis during the summer recreation season at a number of sites and through the water column. A yearly report is produced each winter that details the findings.

#### Diel sampling – Russian River

We perform round-the-clock monitoring a few times a year for dissolved oxygen, pH, temperature, and conductance at several sites along the mainstem Russian River to support refinement of the Russian River water quality model. Nutrient samples are taken at specific intervals during the sampling periods.

#### Bacterial investigations – Bodega Harbor

The Sonoma County Department of Environmental Health monitors bacterial quality of beaches in the county under the SWRCB's Coastal Monitoring Program. High bacterial levels at some beaches in the Bodega Harbor area caused further investigation, including increased sampling frequencies and soliciting the assistance of the Bodega Marine Laboratory in investigating sources. Several potential sources exist and we are looking into using DNA analysis to determine the most likely sources. The Sonoma County Department of Environmental Health has a State Water Resources Control Board Clean Beaches grant to investigate sources using circulation studies and bacterial examinations employing DNA speciation.

#### Jenner Gulch Turbidity Monitoring

In conjunction with the Sonoma County Department of Transportation and Public Works, Regional Water Board staff conducts turbidity monitoring in Jenner Gulch to assess the potential impacts to the domestic water system for the community of Jenner. High turbidity levels have been known to cause the treatment plant to shut down operations. Potential sources include up-slope land management activities, especially associated with timber harvest operations and logging road conditions.

#### West College Avenue Ground Water Monitoring

Using Cleanup and Abatement Account funds, the Regional Water Board staff samples domestic wells in the West College Avenue at Clover Drive area of Santa Rosa, and is performing a hydrologic assessment in the area.

#### McMinn Superfund Area Ground Water Monitoring

Using funds from the Roseland Plan of Action program, the Regional Water Board staff samples domestic wells in the southwest area of Santa Rosa.

## SECTION 2.2

### KLAMATH WATERSHED MANAGEMENT AREA

This WMA is targeted for a ten-year cycle, which staff has contrived to coincide with the Federal Energy Regulatory Commission's relicensing schedule for Klamath River reservoirs.

The following discussion draws upon knowledge obtained through public input, agency contacts, and the personal experience of Regional Water Board staff. This document presents a summary of our knowledge regarding water quality issues and the existing and planned actions at this time.

#### **MANAGEMENT AREA DESCRIPTION**

The Klamath River Watershed Management Area (most of that portion of the overall Klamath River Basin which is within the State of California) has been divided into three sub-basins: Lower Klamath, Middle Klamath and Upper Klamath (Figure 2.2-1). This division facilitates our budgeting process and it also helps us recognize that the size of the overall basin, and its diversity in climatic and geologic facets and land uses affect water quality in different ways in different sub-areas of the basin. In addition to this for-convenience segmentation of the watershed area within California, we recognize that roughly half of the watershed is north (and mostly upstream) of the California-Oregon state border. This "segment" of the basin in Oregon has profound effects on the quality and quantity of the Klamath River in California. The Trinity River watershed, though within the overall Klamath "Basin," is not included in the Klamath River Watershed Management Area. Each sub-basin is described below.

The Lower Klamath subwatershed encompasses that portion of the Klamath River and its tributary watershed downstream from the Scott River to the Pacific Ocean (excluding the Trinity River), and is 2,564 square miles in area. Included in the watershed are the Salmon River, Blue Creek, numerous smaller perennial streams, and the Klamath River delta/estuary. The area is largely rugged, steep forest land with highly erodable soils. The population of the area is small and scattered. Water quality issues have arisen as a result of unauthorized discharges or inadequately treated residential sewage. In one past instance, the Regional Water Board adopted enforcement measures and sponsored grant-funding assistance for the community of Happy Camp where flood damages caused raw sewage discharges. This issue was resolved after a community-wide sewerage system was built. Other issues have included:

- Several to-the-river garbage dumps have been abated;
- Many mill sites and industrial/commercial activities which had direct discharges and spilled petroleum products have been cleaned up;
- Acid-drainage-producing mine waste sites also are under regulation by the Regional Water Board.

While such "past" issues now require diligent regulation, today's water quality issues in the sub-basin are related to the salmonid-habitat qualities of the mainstem river and the effects of silvicultural activities on both federal and private lands to the tributaries. These issues include high summertime temperatures, sedimentation, erosion, mass wasting and stream modifications which affect salmonid habitats, and forest land herbicide applications which threaten domestic water supplies.

The Middle Klamath subwatershed is 2,850 square miles in area and encompasses that portion of the Klamath River and tributaries between the confluence of the Klamath and Scott Rivers and Iron Gate Dam. Included in the watershed are the mainstem Klamath, the Shasta and Scott River watersheds and lesser tributaries. The two major tributaries, the Shasta and Scott Rivers, receive localized precipitation as well as snow and glacial melt from nearby mountain ranges. The quality of water

from Iron Gate reservoir (which is the sum total of the effects of reservoir limnology, up-river irrigation development and hydropower hydrology), agriculture in the Shasta and Scott Valleys and silvicultural activities in the remainder of the drainage are the major issues. Other water quality issues are related to surface water and groundwater contamination from toxic chemical discharges in the Weed and the Yreka areas. Voluntary nonpoint source control projects and monitoring activities in the Shasta and Scott valleys have resulted in improved response by the local agricultural and timber-related interests and formation of Coordinated Resource Management and Planning (CRMP) groups in the Shasta and Scott, and a French Creek Watershed Advisory Group (WAG). Remedial actions have reduced and/or eliminated problems with toxic chemical discharges.

The Upper Klamath subwatershed includes watershed areas in California that are upstream of Iron Gate Dam. Many natural and human-altered watershed elements above Iron Gate and across the California-Oregon border affect the quality and quantity of water which exits Iron Gate Dam, supplies the mainstem flow and affects (both supports and jeopardizes) the beneficial uses of the River within California. The complexity of this sub-basin is magnified by jurisdictional issues associated with water-delivery/utilization infrastructures (including the Federal Klamath Project irrigation), hydropower, endangered species, tribal rights, lake-level-management demands for Upper Klamath Lake, the waters criss-crossing the California-Oregon border, and minimum flow requirements in the Klamath below Iron Gate Dam. Considerable energy is being expended in State/Federal cooperative efforts to assist in resolving trans-border issues. While we recognize that water quality assessment, planning, and management should be conducted with regard to the issues, the realities of the California-Oregon border and other jurisdictions color the perspective and intensify the issues.

Most of the Upper Klamath watershed area is in Oregon. The primary sub-watershed in California is the Lost River watershed, which is 1,689 square miles in area. That sub-watershed, which is about half-and-half in California and Oregon, encompasses Clear Lake Reservoir and most of its tributaries in California, the agricultural and contributing areas in Oregon, and, back in California, the agricultural and wildlife-refuge areas which were once the bottom of Tule Lake and the Lower Klamath Lake. The Lost River basin was, until Euroamerican settlement and development including farmland "reclamation" and construction of the railroad, periodically connected to the Klamath River via the marshes which occurred south of what is now the community of Klamath Falls, Oregon. Further south, the marsh-river systems dead-ended in Tule Lake that was a closed part of the basin with no natural outlet. The lower end of this basin has been modified to support agricultural crop production, and consequently an artificial outlet has been provided for Lost River water to be pumped into Lower Klamath Lake. Lower Klamath Lake was originally a backwater of the Klamath River, but has been extensively modified for agriculture and a wildlife refuge. Water leaving that system is discharged northward, back into Oregon to the Klamath River, via the Klamath Straits Drain. Much of the former wetlands in the basin are now intensively managed for wildlife as part of the Klamath Basin National Wildlife Refuges, with mingled and overlapping cropping and wildlife uses.

Ground water is now part of the surface water system, since numerous high production wells were brought online in 2001 to augment surface flows. Additional wells are expected to be developed and will add to the surface water flow regime in 2002. The Regional Water Board expects to regulate these ground water discharges to surface water under the NPDES program.



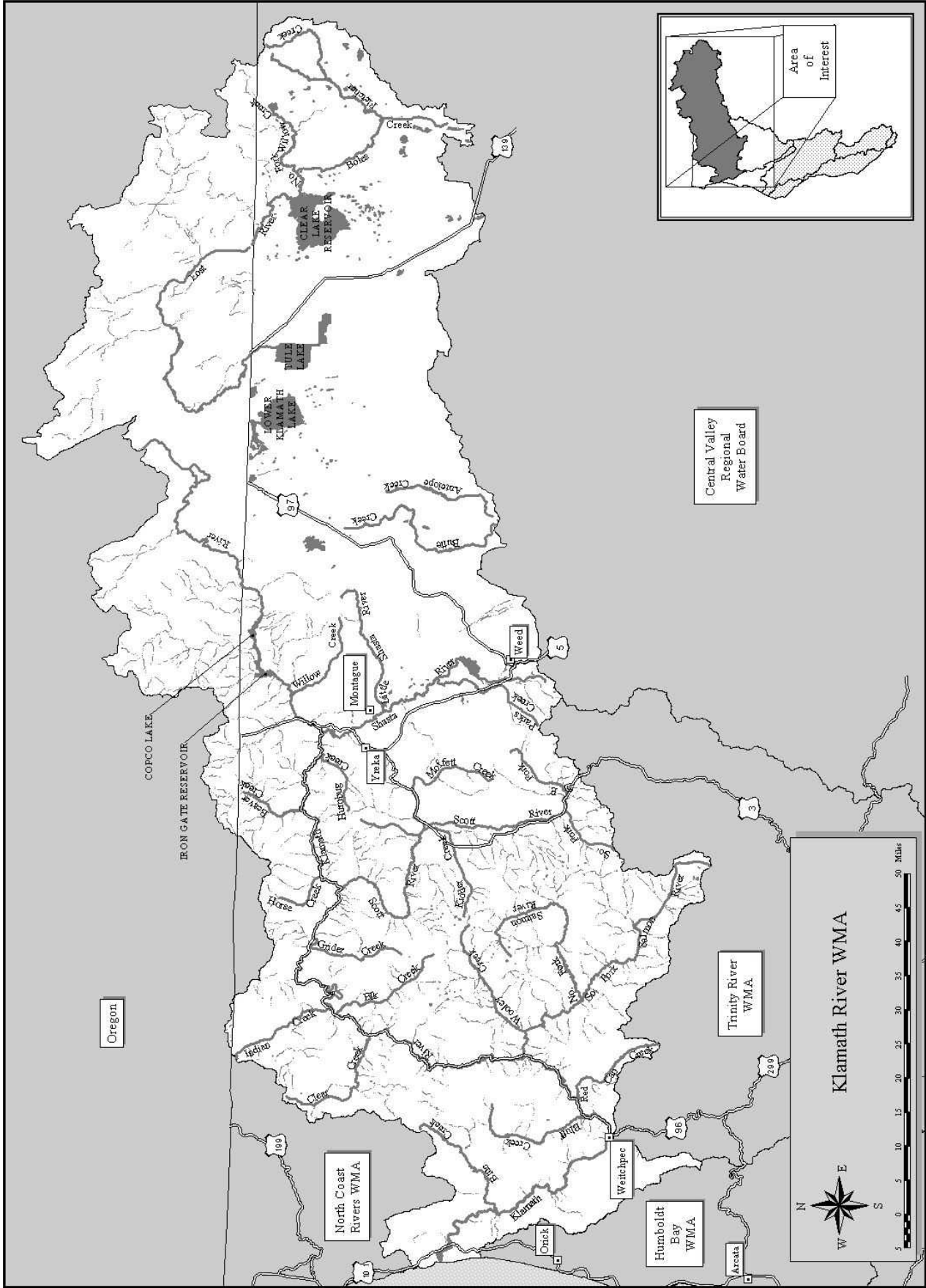


Figure 2.2.1. Klamath River WMA



Primary beneficial uses in the basin are domestic, agricultural and industrial water supply, cold and warm water fisheries, and recreation. The shortnosed sucker (*Chamistes brevirostris*) and Lost River sucker (*Deltistes luxatus*), native to the watershed, are listed as endangered under the federal Endangered Species Act of 1973.

Both Oregon and California have CWA section 303(d) issues of water quality impairment in the Lost and Klamath Rivers. A joint effort to reconcile the inconsistencies between the Oregon and California standards and addressing the nonattainments is under way. A primary element of that effort is to first define the roles of the various states' agencies in these interstate waterbodies. The Klamath and Shasta Rivers have been added to the section 303(d) watch list for sediment. [As part of the 303(d) List update, TMDL Development Unit staff has identified waterbodies to be placed on a watch list. A waterbody was placed on the watch list when there was conflicting or insufficient information necessary for determining the condition of the waterbody. A specific pollutant or stressor was identified for the watch list waterbodies. Placement of a water body on the watch list highlights the need for more information to evaluate the condition of the waterbody. The watch list does not have regulatory implications, but is to be used by staff in prioritizing monitoring and/or assessment, and for allocation of resources, if available.]

### **IMPLEMENTATION STRATEGY**

Significant strategy development and implementation for water quality protection and improvement are occurring in the management area through action by many agencies, tribes, and individuals. We recognize that the WMA problem identification, watershed assessment, and strategy development establish an on-going process, and that further input will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. The actions are prioritized in recognition of shifting resources. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle, likely with higher priority so that they will be addressed. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc.

Clean Water Act section 319(h) grants supported the development of a Klamath River source Information System (KRIS), a computerized database and data analysis tool. The KRIS system provides access to and analysis capabilities for a large body of water resource and land use information, valuable in making the multitude of management decisions necessary in this large and complex watershed.

A working staff level watershed team within the Regional Water Board developed and prioritized the actions. We expect our broad interagency approach will enhance the watershed planning effort, providing the added perspective of the users of the resources, identifying issues not currently apparent to us, and refining the plan in the process.

#### **Institutional Framework**

The following discussion is a brief summary of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined through the public participation process. A matrix of agency's abilities and jurisdictions with respect to the identified goals will be compiled to provide an overall picture for the management area.

The Water Quality Control Plan for the North Coast Region (Basin Plan) and this Initiative recognize that the Klamath watersheds are culturally, climatically and geologically diverse. The watershed provides some of the highest-quality water resources of the Region, yet it simultaneously produces

some of the most-challenging water-resource conflicts. The Basin Plan contains specific water quality objectives for many index points within the Basin and it provides implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provision of the Basin Plan is its discharge prohibitions section, which prohibits direct waste discharge to all freshwater surface waters in this management area. The one exception to this prohibition results from the situation of City of Tulelake at a place that was once submerged by the waters of Tule Lake. This City is permitted to discharge its treated municipal wastes into the irrigation-drain system which eventually is pumped from the low point of the valley into the higher-elevation waters) of the Klamath River in Oregon.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. In addition, staff has coordinated assessment activities in the basin to enhance communication, identify water quality issues, identify water quality monitoring needs, and improve coordination amongst agencies and public interest groups.

The Klamath River Basin Fisheries Task Force (KRBFTF) was authorized by Congress in 1986 and is overseeing a 20-year effort to restore salmonid fishery values to the Klamath watershed. It is headed by a multiple representative Task Force that makes funding, management, and scheduling decisions regarding fishery restoration efforts in the watershed. We coordinate our activities closely with the KRBFTF.

The Klamath Basin Ecosystem Restoration Office (ERO) is mandated and funded to coordinate ecosystem restoration in Oregon's portion of the basin. It also holds an annual conference in the upper basin to further communication and acts as a clearinghouse for information and coordination. The federal Bureau of Reclamation, Fish and Wildlife Service and National Biological Service all are actively involved in the ERO.

Staff intend to continue coordinating with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized. Descriptions of how the major agencies and groups roles and jurisdictions affect water quality is provided in the assessment section, a list is offered for informational purposes in the Appendix.

### **Summary of Activities**

The general emphasis in the watershed is to continue interagency coordination, assess existing conditions and uses, focus reduction efforts for sediment, nutrient and oxygen-demanding loadings to selected sub-watersheds, assess conditions and operations to determine where water temperature and nutrient improvements are feasible, and support efforts to improve riparian areas. We plan to increase effort in assessment, evaluate objectives attainment, and maintain the nonpoint source grant program.

### Assessment:

We intend to focus assessment efforts on identified concerns regarding objectives attainment and integration with Oregon's standards (e.g., dissolved oxygen, temperature, sediment, unionized ammonia) and evaluation of the need to develop an action plan for the management area to be included in the Basin Plan. Interagency coordination is a large part of the effort, since many agencies, tribes, and groups are collecting information and have jurisdiction.

A Clean Water Act grant is being used to support an assessment effort in the Upper and Middle Klamath watersheds. It involves considerable interagency coordination and data sharing with the Bureau of Reclamation, National Biological Service, PacifiCorp, University of California at Davis, California Department of Fish and Game, Oregon Department of Environmental Quality and others.

The assessment is aimed at describing the water quality relationships in the Klamath River downstream to Ike's Falls. Assessment activities are occurring in the major tributary streams, notably the Lost, Shasta, and Scott rivers. Additional investigations into pesticides in the Tulelake area may be warranted in the future.

In the Scott River watershed, sedimentation and temperature studies need enhancement, especially regarding sediment inputs from the east side of the watershed. A recent Clean Water Act 205(j) planning grant will assess the sediment sources in Moffet Creek. The local community is involved in a CRMP process that will need assistance in implementing the TMDL waste reduction strategy for sediment and in developing a strategy for a temperature TMDL.

The Shasta River watershed faces needs regarding local community assistance in developing a TMDL waste reduction strategy for temperature and dissolved oxygen. Further investigation of toxics issues in the upper watershed near Weed should be sought to determine the extent to which dioxins, metals, and MTBE contamination of local sites is impacting the beneficial uses of the Shasta River.

#### Monitoring:

Long-term monitoring is a goal for the entire WMA.

As mentioned above, the NCWAP will be a priority for these watersheds in the next three fiscal years. Significant staff resources and contract funds will be expended by the program in performing the watershed assessments.

The SWAMP will rotate intensive surveys into the WMA in FY 2002-03. The intensive survey will focus on overall assessment of water quality in the WMA, and address assessment of known problem areas.

#### Core Regulatory:

We will continue (through and beyond this first cycle) to support the core regulatory program at its current level with regard to compliance inspections, waste discharge orders and enforcement, groundwater and toxic site mitigation/remediation activities, and coordination with the public and other agencies in pollution prevention and data gathering. Ground water-to-surface water discharges to augment surface flows will be regulated to ensure that constituents and thermal discharges comply with the Basin Plan.

#### Ground water:

The underground storage tank program and remedial work on existing localized ground water contamination will continue. Continued outreach regarding hazardous waste handling and potential ground water contamination is a priority in preventing future problems. The extent to which ground water contamination influences surface waters may be an issue in the Weed and Yreka areas, requiring additional investigation in the future.

#### Water Quality Certification:

We process Clean Water Act section 401 water quality certifications as they are requested, however, we will need to scrutinize them more closely with respect to the Endangered Species Act listing of coho salmon.

#### Nonpoint Source Program:

We will continue to work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Pollution Control Program strategy of first emphasizing voluntary implementation of controls to reduce nonpoint source pollution. Our active outreach program will continue as well as the CWA section 319(h) grant program.

Response to the Section 303(d) requirements for waste load reductions will necessarily include assessment of the feasibility of water quality objectives attainment on the Lost, Klamath, Shasta, and Scott rivers. The data will support assessing the relationships of land and water use to objectives attainment, nonpoint source control alternatives, and development of potential management changes to achieve water quality objectives. Additional information is contained in Section 2.7.

#### Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands. Additional funding is needed to implement the non-timber NPS activities of the Management Agency Agreement (MAA) between the USFS and the SWRCB.

This WMA unit encompasses the Smith River and all the Klamath River within California. An estimated 20% of the timber harvested in the Region occurs in this hydrologic area. Aerial and ground application of herbicides is an issue with the Native Americans of this area. The USFS is the single largest landowner and is protecting water quality through the implementation of Management Agency Agreement with the State Water Resources Control Board. The primary water quality issues are recovery of threatened and endangered species of coho salmon and steelhead trout and protection of domestic water supplies in small rural communities.

Local Contracts: Our active outreach program will continue, as well as the CWA sections 319(h) and 205(j) grant programs and the Water Bond (Proposition 13) grant program.

#### Water Quality Planning:

The Basin Plan review process necessarily feeds into the activities in this WMA to the extent issues are identified that affect the Klamath River WMA:

- review of water quality problems in the Lost, Klamath, Scott, and Shasta rivers
- evaluation of dissolved oxygen and temperature objectives,
- consideration of a nutrient objective,
- review of Nonpoint Source Control Measures.

#### **Evaluation and Feedback**

The progress of implementation will be reviewed on a yearly basis, and adjustments made to the future year's work based on that review. Additionally, an evaluation of the process will occur at the end of the ten-year cycle that will determine the changes to be made in the program overall. A running tally of completed activities will be placed in an appendix to this section.

During the first two years of this Klamath WMA planning cycle, Regional Water Board staff conducted and participated in several multi-agency water quality assessment projects. These included the 1995 Lost River Water Quality Characteristics project (USEPA 319(h) grant), the TMDL data-gathering project (USEPA mini-grant), and the first year of a two-year water quality monitoring project covering areas from Tulelake in the Upper Klamath downstream to Ike's Falls in the Lower Klamath (USEPA 104(b) grant). These efforts built upon our knowledge of water quality conditions and problems from previously-conducted assessments and enhanced inter-agency and public coordination. Problem identification has become much clearer to us on some issues, and the solutions

range from implementation of known, standard Best Management Practices to those which are highly complex and evasive, as discussed below.

### **ASSESSMENT AND PROBLEM IDENTIFICATION**

The Klamath River WMA is divided into three sections for ease in describing the various water quality problems and relationships. As we continue through the assessment phase, these sections will likely expand in relation to the knowledge we accumulate with respect to water quality and land use management.

#### **Upper Klamath subwatershed**

Land uses and associated hydrologic and water quality factors in the Klamath basin change dramatically as we move downstream through the watershed areas. The uppermost Lost River basin around Clear Lake, characterized by high desert stream systems, continues to be dominated by cattle grazing on both US Forest Service and private lands. The area is sparsely settled, with Clear Lake being part of the Klamath Basin National Wildlife Refuges. Clear Lake was a natural waterbody whose outlet was dammed in the early 1900s for two main purposes: 1) to retain upper-basin runoff, in a place where it would evaporate, to help accelerate the reclamation of the lower parts of the Klamath Project farmlands; 2) is to provide increased storage of water for downstream irrigation (which came into play after the lower basin was “reclaimed”). The water released from Clear Lake storage flows downstream in the Lost River through the agricultural areas of the Klamath Project in Oregon. A diversion canal has been constructed to link the Lost River to the Klamath River. Water from both river systems is then transported through the Lost River to irrigate more lands in Oregon and California upstream of Tulelake.

Land uses on the California side in the lower Lost river basin are primarily 1) crop agriculture such as grains, potatoes, and onions, 2) grazing and 3) lands administered for the National Wildlife Refuge. Small agricultural towns such as Tulelake provide the centers for commerce. This pattern of land use started about 1860, then accelerated at the turn of the century when the nutrient rich bottom lands and wetlands started to be reclaimed by the US Government for homesteading and agriculture. Tule Lake sump and Lower Klamath Lake have been diked and managed to accommodate both agriculture and waterfowl. These are shallow, nutrient-rich waterbodies. These lakes receive the agricultural drainage described above before it is then pumped back to the Klamath River north into Oregon upstream of the California-Oregon border. Ground water supplements surface water flows in this reach of the basin.

The Klamath Basin in Oregon is dominated by the large, shallow, nutrient-rich Upper Klamath Lake. Major watersheds flowing into Upper Klamath Lake support silvicultural and grazing land uses for the most part. Upper Klamath Lake has been dammed (raising its surface by about 20 feet) to provide up to 735,000 acre-feet of storage beyond its natural capacity and enable release of water for Klamath Project irrigation. Much of the wetlands around Upper Klamath Lake have been reclaimed for agriculture and grazing. Klamath Falls, Oregon, is the major population center, adjacent to Upper Klamath Lake. Lumber mills, Kingsley Field AFB and agriculture associated with the Klamath Project form its economic base. Klamath Falls is now growing and diversifying its commerce, although agriculture and timber interests still dominate the economy.

The Klamath River begins at the point where the outflow from Upper Klamath Lake is released through the modified natural channel known as Link River and also via hydro-power systems and thence enters Lake Ewana. Keno Dam controls this lake. Below Keno the river flows through rugged canyon areas into California. It passes through the John Boyle hydropower structures along its way. White water rafting is popular from John Boyle Dam down to the California border. Since 1965, when a US Army Corps of Engineers flood-abatement project was constructed to drain Butte Valley/

Meiss Lake, there is, during abnormally wet years, an occasional discharge to the Klamath River from the agricultural Butte Valley. This drainage discharge was a source of concern, because of its muddiness and alkalinity, during 1965-66 and 1996-97, when it was used to drain winter floodwaters from the valley.

Upon entering California, the Klamath River flows into Copco Reservoir, through its hydro-power system and then into Iron Gate Reservoir. Dams created these reservoirs for power generation and to regulate flow regimes down stream. Permanent residences and cabins dot the shoreline of Copco Lake. Both cold and warm-water fishing are popular in the nutrient-rich waters. Iron Gate Dam blocks upstream salmon migration at this point in the Klamath River. Iron Gate Hatchery is located just downstream of the dam.

### **Middle Klamath subwatershed**

The Middle Klamath Basin begins at Iron Gate Dam, downstream of which enters the Shasta River. The Shasta River valley has a substantial cattle-grazing industry on private lands irrigated extensively by streams in the watershed. Dwinnel Dam on the upper Shasta River controls stream flows for downstream irrigation, and the movement and distribution of water is complex. The City of Weed, which is supported by the forest-products and tourist industries, is situated upstream of the reservoir. The Shasta River historically was the top salmon-producing tributary in the Klamath River system. The small cities of Yreka and Weed are the primary centers of population.

The Scott River is the other major tributary in the Middle Klamath basin. It also has a substantial cattle grazing industry irrigated extensively from streams in the watershed. Silvicultural activities on both USFS and private lands dominate the steep, highly erodable watersheds flowing into the valley floor. The Scott River alluvial gravels were mined extensively in the 1800's. That activity and more-recent channeling for flood control altered its morphological characteristics dramatically. The Scott River also supports substantial salmon runs. Small towns in the valley support the timber- and grazing-dominated economies. There has been concern expressed that too much water is being used by agriculture and the expense of maintaining instream flows to the extent necessary to maintain a viable salmonid fishery.

### **Lower Klamath subwatershed**

The Lower Klamath Basin below Scott River is characterized by mountainous terrain used extensively for silvicultural purposes on both USFS and private lands. Logging is particularly heavy on private corporate lands in the redwood region of the lower basin. The small communities along the Klamath are almost all timber-based. The Karuk and Yurok Tribes make their ancestral communities along the lower Klamath River, with fishing being an important part of their cultures. The Lower Klamath River recreational salmon fishery is popular. There has been both historic and recent mining activity on some of the tributaries such as Indian Creek. Timber related herbicide use on tribal lands and adjacent to tribal lands by private timber companies is a large concern for local tribes in the area.

## **WATER QUALITY GOALS AND ACTIONS**

The following goals and supporting actions reflect a synthesis of the problems and issues in the WMA. It is recognized that these goals and their priorities are from the best professional judgment of Regional Water Board staff, and will be refined with public participation activities in the WMA.

The following broad goals provide a focus for water quality control activities:

1. protect and enhance the salmonid fishery (Mainstem and tributaries below Iron Gate)
2. protect and enhance warm water and endangered aquatic species
3. maintain the viability of agriculture and timber uses



4. maintain recreational opportunities
5. protect groundwater uses

Actions to support achieving those goals are arranged by individual sub-basins and/or watersheds due to the size of the WMA and the diversity of issues and jurisdictions. Accordingly, there is overlap in the actions among some geographic areas. The summary listing of actions is in priority order for all actions, with some distinctions based on geographic area, but largely incorporating geographic concerns in the prioritization.

#### **Upper Klamath River Basin - Lost River Watershed**

Livestock which graze on public and privately-owned lands adjacent to streams which flow to Clear Lake have free access to the streams, thus causing trampled banks (sediment discharge) and loss of riparian vegetation nutrient release, increased water temperature and widely-ranging temperature extremes. Unshaded, sediment-laden eutrophic streams are poor-to-unsuitable habitat for RARE species; the severity of degradation to Clear Lake tributary streams varies by location, but Boles, Willow and Mowitz creeks have been assessed and are receiving remedial efforts. Lost River below Clear Lake Dam in California is substantially impaired. The current effort towards resolution to this issue is to continue to support USFS and Lava Beds RCD efforts to protect the streams by methods such as alternative watering sources and prescriptive and management measures such as stream-sensitive grazing allotments, riparian plantings, and livestock exclusion (seasonal or year-to-year rotations). This support is currently accomplished through the 319(h) grant program.

These measures are recognized as BMPs on US Forest Service land and have been widely embraced throughout the arid western basins. They are being employed by grazing allotment holders on the Doublehead District of the Modoc National Forest and being supported and monitored under the 319(h) grant program.

Drainage from geologic weathering processes throughout the Basin, agricultural lands and wetlands conveys nutrient-rich suspended-particulate materials and dissolved materials into waterbodies which are, themselves, long-standing nutrient traps. Evaporation, transpiration, insolation and planktonic growth processes cause these waters to have very high nutrient levels, support very high plankton (algae) populations, and have widely-swinging diel dissolved oxygen, pH and ammonia-nitrogen levels. The Tule Lake sump system is highly eutrophic with consequent low dissolved oxygen levels, high pH levels, high un-ionized ammonia levels, and high water temperatures. This water quality is perceived as impaired and may become or remain toxic to and uninhabitable by native fish species, including the ESA-listed shortnose sucker and Lost River sucker. The question remains open whether irrigated agriculture and lake wetland modifications have affected this eutrophic condition to a measurable degree such that water quality beneficial uses are impaired.

The effort towards resolution of this open question is through monitoring and assessment of specific field drainages by the Tulelake Irrigation District. This also can be supported through California's participation with the TMDL Committee established by the Oregon Department of Environmental Quality for Klamath River and Lost River non-attainment issues. Remedial and restoration measures may include revised impoundment management (refresh stagnant lakes/sumps), enhance marsh/wetland functions to convert water-borne nutrients and particulates into plants and soil, revised land/crop management to keep nutrients and particulates on cropland and in marketable biomass, and support for fish screening the canal and drain systems at strategic points to keep the fish in the streams and Tule Lake.

The following specific actions are aimed at addressing the issues and problems described above for the Lost River watershed, and are responsive to the broader goals to: 1) protect and enhance warm water and endangered aquatic species, and 2) to maintain the viability of agriculture:

1. continue existing level of point source compliance and complaint inspections, including NPDES, underground tank, toxic site remediations, etc.
2. continue existing level of baseline water quality monitoring and investigation of pesticide and toxics issues
3. increase staff interactions with BOR and National Wildlife Refuges to document and understand influences of Klamath Straits Drain discharges on downstream Klamath water quality and to address the issues of water quantity, conveyance, and timing issues in a manner that better protects water quality
4. increase staff interaction with ODEQ and TID on review of existing water quality objectives through the TMDL process and funding support for assessment of agricultural practices affecting water quality in Lost River and Tule Lake
5. continue existing level of CWA section 319(h) grant programs for stream restoration on Clear Lake tributaries

### **Upper Klamath River Basin - mainstem Klamath River above Iron Gate Dam, including reservoirs**

The Lost River watershed contributes to a problem downstream in the mainstem Klamath River from the commingled drainage from agricultural lands and wildlife refuges which is pumped from the area known as Klamath Straits and discharges into the Lake Ewana reach of Klamath River in Oregon. Water in Straights Drain has been used and retained in the Lower Klamath Wildlife Refuge in diked-off cells to benefit resident and migratory waterfowl. Cells are shallow areas of water that may sit for long periods of time. Because of the differences in timing of waters routed through the Klamath River/Lake Ewana system versus the Straits system and the concentrating processes which occur before water is pumped from the Straits, this drainage discharge is usually of much lower quality than the river.

Straits Drain contributes un-ionized ammonia and nutrient-rich suspended particulate materials which, in summer heat, contribute to the robust algae growth potential (eutrophication) of river flows which have been released from Upper Klamath Lake. The Drain discharge contributes to the nonattainment of desired water quality conditions in the river and is an issue to be addressed by Oregon in a TMDL process pursuant to Clean Water Act Section 303(d). Possible remediation of the non-attainment should consider turn-over time of water in the refuges, the timing and quantity of discharges to and from Klamath Straits Drain, and the quality of discharges to and from the Drain which can be accomplished within the primary wildlife-protection mandates of the Refuge.

Hydromodifications (dams and levees and irrigation-diversion and drain-water-removal works) which have been constructed since 1860 in the basin upstream of Iron Gate Dam have resulted in:

- diminished dry-season river flow rates,
- increased summer/fall water temperatures and impairments to WARM and RARE beneficial uses,
- arrested migration of anadromous fish,
- endangerment of fish species native only to this basin,
- development of an extensive agricultural community in Oregon and California, including the development of extensive private property on once-underwater lake/marshes and once-inhospitable canyon lands,
- development of extensive hydropower resources,
- preservation of managed migratory waterfowl refuges, and

- ground water augmentation of surface flows.

There is a range of opinion and polarization about the extent of "over-appropriation" of water resources and "ecological degradation" in the upper-basin area affected by the hydromodifications. The US Bureau of Reclamation's Klamath Project and PacifiCorp's Klamath River hydropower projects are major components of the hydromodification works, but these rely, in part, on water rights and State-owned properties which were ceded to the United States by the States of California and Oregon during the development of the Klamath Project. The U S Federal Energy Regulatory Commission (FERC) licenses the hydropower resource of the Klamath River between Upper Klamath Lake and Iron Gate, subject to periodic review and consideration of public interest issues. Oregon has an adjudication of water rights underway, agencies of the United States are supporting an Ecological Restoration Office, and the California-Oregon Klamath River Compact Commission is proposing to coordinate state/federal interests within the authorities of the Commission.

The Klamath Tribe has treaty rights to water and fishery resources of the basin in Oregon, and the Karuk and Yurok have treaty and grant rights to fish and waters in California. These entities are engaged in the realization, protection and enhancement of those rights as sovereign nations on par with the States of Oregon and California; their initiatives will be expressed on any future management processes in the Basin.

The Klamath River, after it is formed and modified by the natural and man-modified processes (including releases from storage in Upper Klamath Lake, cross-connection to Lost River, discharges from Straits Drain, wastes from riverside industrial plants and wastewater discharges from Klamath Falls and its suburban surrounds) is released from today's Keno Dam thence flows through the John C. Boyle hydropower project and drops into a nearly-wild canyon enroute to the California-Oregon border and the Copco and Iron Gate hydropower projects. Water in the Klamath River at the state border can, during hot summer weather and times of reduced river flow, be hotter than those temperatures which are healthful for to cold-water fisheries. Such high temperature is attributable, in part, to natural causes, but upstream reservoir management could be a factor.

The trans-border canyon is a not only a popular white-water recreation area, it is also a reach of the river where side streams and springs add cold fresh water to the river and make the river suitable, during most of normal years, for cold water fishery uses. It supports a high-quality trout fishery. There are times during most years, however, when temperature and other quality factors force cold-water fish to leave the River (migrate into cooler tributaries) or perish. As part of the upcoming FERC re-licensing process, the fishery agencies of both states are looking toward resolution of this issue. Desired outcomes would be to encourage and support PacifiCorp and BOR efforts to determine whether revised water management through the upper reservoir system, or additional deep-storage capacity, could beneficially influence water temperatures in the canyon and further downstream into California.

Water in Copco and Iron Gate reservoirs becomes thick with algae in the summer months, leading to complaints about aesthetic conditions from the public to the Regional Board. These conditions are to be expected to some degree in reservoirs in a eutrophic river system. Additionally, the Regional Water Board water quality objectives for dissolved oxygen, temperature, pH and ammonia-nitrogen/toxicity may not be in line with Oregon DEQ's findings above the border. As part of the FERC process above, the effort towards resolution would be to encourage and support PacifiCorp and BOR efforts to determine if revised reservoir water management through the system would help alleviate the problem. At the end of the extensive interagency monitoring effort we will have part of the statistical basis for re-examining those objectives and interacting with the ODEQ's standards review in the TMDL process.

The following specific actions are aimed at addressing the issues and problems described above for the mainstem Klamath River in the Upper Klamath Basin, and are responsive to the broader goals to: 1) protect and enhance the salmonid fishery, 2) protect and enhance warm water and endangered aquatic species, 3) maintain the viability of agriculture, and 4) maintain recreational opportunities:

1. significantly increase staff interaction with PacifiCorp, BOR, Klamath Compact Commission, USFWS, and CDFG working towards understanding water conveyance and flow scheduling as relates to water quality factors in the FERC and SWRCB water rights licensing processes
2. continue existing level of baseline monitoring, including multi-agency coordination of Hydrolab stations in Oregon at JC Boyle and Keno with emphasis on documenting water quality as it flows from above Klamath Straits Drain into Copco reservoir
3. begin SWAMP sampling of permanent station at Klamathon below Iron Gate Dam
4. increase staff interactions with ODEQ on review of common bi-state water quality objectives through the TMDL program, including California concerns regarding Klamath water quality meeting recreation standards
5. increase staff time spent interacting with USFWS for KRIS maintenance and use
6. increase staff interaction with residents of Copco Reservoir regarding summertime nuisance conditions
7. continue existing level of grant program for stream restoration work

#### **Middle Klamath River Basin - mainstem Klamath River and Shasta and Scott River watersheds**

The discharge from Iron Gate Dam can be at water temperatures considered detrimental to salmonids. The degree that reservoir management is a factor must be determined during the upcoming FERC re-licensing process. The effort at resolution of this issue may be through Regional Board input on water quality factors to the State Water Resources Control Board at it reviews and considers “401 Certification” of the FERC re-licensing process.

Silvicultural activities have historically had a significant and adverse impact on water quality beneficial uses of the Middle Klamath Basin. The effect has been impaired stream habitat from erosion and mass wasting, and consequent declining fisheries. New laws, regulations, and State and Federal regulatory activities during the past 20 years have moderated these impacts during current logging and associated activities. The current resolution is continued Regional Board participation in the CDF Review Team process, review of sensitive federal Timber Sales, and monitoring overview of forest herbicide applications.

The Shasta River has high water temperatures and low dissolved oxygen at times during the summer. Cattle grazing affecting riparian habitat and bank stability, along with warm flood irrigation return flow are the primary causes. The current effort towards resolution to this issue is to support local landowner efforts to restore riparian habitat and reuse irrigation return flow. The Yreka sewage treatment plant discharges to percolation ponds in the Yreka Creek flood plain. Evidence of leakage of those ponds directly into Yreka Creek has prompted staff to work with the City of Yreka on alternatives to percolation pond disposal of effluent. Contamination from sites in Weed and Yreka may contribute dioxins, metals, and MTBE to tributary streams. Additional assessment and monitoring may be required to assess the degree of impact and further cleanup and remediation efforts.

The Scott River has high water temperatures, no flow in locations at times, and areas of high streambed sedimentation. Irrigation canals diverting large amounts of water and cattle grazing affect the first two issues. Upslope logging and road building on sensitive and highly erosive soils affect the

latter. Current resolution includes supporting local landowner efforts towards alternatives to diverting large amounts of stream flow during the fall months, restoring riparian corridors to improve water quality, and reducing erosion sources to control stream sedimentation. Current field support comes through the 319(h) grant program activities.

The following specific actions are aimed at addressing the issues and problems described above for the mainstem Klamath River and its tributaries in the Middle Klamath Basin, and are responsive to the broader goals to: 1) protect and enhance the salmonid fishery, 2) maintain the viability of agriculture and timber uses, and 3) maintain recreational opportunities.

1. continue existing level of point source compliance and complaint inspections
2. on commercial timberland areas (federal and private) -
  - a) continue existing level of CDF Review Team meetings and inspections
  - b) increase level of review of USFS Timber Sales as well as other USFS projects
  - c) continue existing level of work with local community on sediment control in the upper Scott River watershed
  - d) continue existing level of forest herbicide application monitoring
3. continue existing grant program for stream restoration and nonpoint source control of agricultural, construction, and timberland in the Shasta, Scott, and Salmon rivers, concentrating on those issues which affect water temperature and habitat, such as riparian corridors, irrigation water discharges
4. increase staff interaction with USFWS and CDFG towards determining specific temperature needs for fish in the mainstem below Iron Gate dam and in the Shasta and Scott rivers using the FERC process to ensure adequate flows for migration and temperature maintenance
5. review grazing permits and practices for water quality compliance
6. increase baseline water quality monitoring, using SWAMP permanent stations at Klamath River at Klamathon, Klamath River near Empire Creek, Shasta River at the mouth, and Klamath River near Horse Creek.
7. continue existing level of staff interaction with local watershed groups towards developing TMDLs in designated subwatersheds
8. increase cooperation with the Division of Water Rights to evaluate water diversions and impacts to salmonids.

### **Lower Klamath River Basin**

Silvicultural activities have historically had a significant and adverse impact on water quality beneficial uses of the Lower Klamath Basin. The effect has been impaired stream habitat from erosion and mass wasting, and consequent declining fisheries. New laws, regulations, and State and Federal regulatory activities during the past 20 years have moderated these impacts during current logging and associated activities.

The following specific actions are aimed at addressing the issues and problems described above for the Lower Klamath Basin, and are responsive to the broader goals to: 1) protect and enhance the salmonid fishery, 2) maintain the viability of timber uses, and 3) maintain recreational opportunities:

1. continue existing level of CDF Review Team meetings and inspections
2. increase level of review of USFS Timber Sales as well as other USFS projects
3. increase staff interaction with private timber companies to develop long-term water quality monitoring programs
4. foster adaptive management based on water quality findings
5. begin monitoring of SWAMP stations at the Scott R at the mouth, Klamath River at Seiad Valley, and Klamath River at Weitchpec.
6. increase level of forest herbicide application monitoring.

## BUDGET

The budgeting process associated with the watershed planning process includes an itemization of activities by categories that are standardized statewide. As such, it doesn't specifically detail all individual actions in a WMA as laid out in the *Water Quality Goals and Actions* section. However, it is a representation of the current knowledge of funding levels across a wide spectrum of categories. The actual individual actions that are performed in a WMA are within those categories and will be specifically identified as we proceed through the planning process. We will attempt to fund the highest priority actions as identified in each WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address.

### Appendix 2.2-A

#### **Partial List of Agencies and groups with jurisdiction and/or interest in water quality in the Klamath WMA.**

##### United States

Klamath River Basin Fisheries Task Force  
administers a program of fishery restoration that extends from the upper Klamath in Oregon to the mouth, encompassing the three sub-basins in this plan. KRBFTF efforts are extensive and involve data gathering, information sharing and habitat restoration.

Bureau of Reclamation  
Forest Service  
Bureau of Land Management  
Klamath Basin Ecosystem Restoration Office  
Environmental Protection Agency, Regions IX & X  
Army Corps of Engineers  
Geological Survey  
National Biological Service  
Fish and Wildlife Service  
National Marine Fisheries Service  
Natural Resources Conservation Service

##### Native American

Klamath tribe  
Hoopa Tribe  
Yurok Tribe  
Karuk Tribe

##### Oregon State

Oregon Department of Environmental Quality

##### California State

Department of Fish and Game  
Department of Health Services  
Department of Pesticide Regulation  
Office of Environmental Health and Hazard Assessment  
Department of Toxic Substance Control  
Department of Water Resources  
California Coastal Conservancy

UC Agricultural Extension

County and Local Agencies

Resource Conservation Districts

Lava Beds RCD

Siskiyou RCD

Shasta RCD

Irrigation districts

Tulelake Irrigation District

Klamath Irrigation District

Butte Valley Irrigation District

Montague Irrigation District

others in Shasta and Scott watershed

County Agricultural Commissioners

city planning departments

city public works departments

Companies, Organizations, and Public Interest Groups

PacifiCorp

Klamath Water Users Association

American Fisheries Society, Humboldt Chapter

Timberland owners

Farm Bureaus

Scott CRMP

Shasta CRMP

Klamath Forest Alliance

French Creek WAG

## APPENDIX 2.2-B

### Monitoring priorities and needs detail for the Klamath WMA

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently not funded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

- Nutrient and Eutrophication Studies - \$170,000 (1.0 PY + \$60,000) – FY 01-02 thru 00-05**  
An intensive nutrient, temperature and dissolved oxygen monitoring and assessment program was funded for two years on the upper and middle Klamath River. The effort continues with some 205(j) funds, and by other agencies and entities in the upper and middle Klamath River without significant involvement by Regional Water Board staff. We should be collecting data specific to our needs for TMDL development and implementation of nonpoint source controls. The SWAMP has established five permanent stations in the upper and middle Klamath in FY 2000-01. The intensive survey in FY 2002-03 will focus more intensively on problem areas.
- Sedimentation - \$70,000 (0.3 PY=\$40,000) – FY 02-03, 04-05**  
The Scott River watershed is 303(d) listed for sediment impacts. Assessment of sediment sources and impacts is needed to assist in developing a TMDL sedimentation reduction strategy for the watershed. A Section 205(j) project with the Siskiyou RCD is evaluating sediment sources in Moffett Creek. Additional assessment is needed in the lower Klamath River tributaries (Terwer, Blue, High Prairie, Hunter)
- Lake Shastina Toxics - \$42,000 (0.2 PY + \$20,000)**  
While cleanup activities continue on Beaughton and Boles creeks to eliminate metals, dioxins, and MtBE contamination, new sources have been identified. Additional assessment is needed to determine the extent of the problem in the tributaries and Lake Shastina. The SWAMP may be able to address some of those issues in FY 02-03.
- Chemicals in POTWs - \$21,000 (0.1 PY + \$10,000) – FY02-03**  
Petroleum products, including solvents, MTBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs. The SWAMP rotation in FY 2002-03 will address this need.
- Pesticides in Tulelake Area - \$115,000 (0.5 PY + \$60,000) – FY 02-03**  
The US Geological Survey assessed pesticides in the basin some years ago. Additional assessment keyed to current agricultural chemical use should be performed. The SWAMP rotation in FY 2002-03 may be able to partially address this need.
- Yreka Creek Petroleum - \$42,000 (0.2 PY + \$20,000) – FY 01-02**  
While groundwater contamination from solvents and other petroleum products are documented and being addressed to varying degrees, contamination of Yreka Creek from contiguous groundwaters is a concern. To date no significant problems have been identified, however it remains a concern.



### **Surface Water Monitoring Program**

The Surface Water Monitoring Program (SWAMP) will rotate intensive surveys into the Klamath WMA in FY 2002-03. The intensive survey will focus on overall assessment of water quality in the WMA, and address assessment of known problem areas. In FY 01-02 three monitoring stations were established in the Scott River watershed: Fort Jones, near Etna Creek, and at the town of Callahan. Parameters tested are water chemistry, nutrients, metals and organic compounds. In addition, multiparameter dataloggers are scheduled to be deployed at scheduled intervals for continuous measurement of pH, dissolved oxygen (DO), specific conductance (SC) and temperature at each of the stations.

Seven long-term stations will be maintained in the WMA as initiated in FY 2000-01: Klamath River at Klamathon, near Empire Creek, near Horse Creek, at Seiad Valley, at Weitchpec; Shasta River at the mouth; Scott River at the mouth. Other long-term stations in the WMA will be proposed if appropriate from the rotation in FY 2003-04.

Additional monitoring sites have been established in the Shasta River system as well for FY 01-02. In addition to the permanent station at the Highway 263 Bridge, monitoring stations have been added at the Highway 3 Bridge and at East Louie Road. Multi-parameter dataloggers will be deployed at these stations as well.

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation.

The intensive FY 2002-03 survey will provide numerous sampling sites in the WMA. Anticipated parameters are general water chemistry, nutrients, metals and organic chemicals.

### **SWAMP Program in Current Water Quality Issues**

#### **1. Nutrient and Eutrophication Studies**

An intensive nutrient, temperature and dissolved oxygen monitoring and assessment program was funded for two years on the upper and middle Klamath River. The effort continues with some 205(j) funds, and by other agencies and entities in the upper and middle Klamath River without significant involvement by Regional Water Board staff. We should be collecting data specific to our needs for TMDL development and implementation of nonpoint source controls. We have established four permanent stations in the upper and middle Klamath in FY 2000-01. The intensive survey planned for FY 2002-03 will focus more intensively on problem areas.

#### **2. Sedimentation**

The Scott River watershed is 303(d) listed for sediment impacts. Assessment of sediment sources and impacts is needed to assist in developing a TMDL sedimentation reduction strategy for the watershed. A Section 205(j) project with the Siskiyou RCD is evaluating sediment sources in Moffett Creek. Additional assessment is needed in the lower Klamath River tributaries (Terwer, Blue, High Prairie, Hunter). For FY 01-02 we have established one permanent and four rotating stations on the Scott River. Sediment studies may be undertaken by SWAMP as resources allow.

#### **3. Lake Shastina Toxics**

While cleanup activities continue on Beaughton and Boles creeks to eliminate metals, dioxins, and MtBE contamination, new sources have been identified. Additional assessment is needed to determine the extent of the problem in the tributaries and Lake Shastina. For FY01-02 we have established three stations in the Shasta River, at the Highway 3 crossing, at the Highway 263 crossing and near Big Springs, downstream from Parks Creek to address toxics as well as nutrient issues (#1 above).

**4. Chemicals in POTWs**

Petroleum products, including solvents, MTBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs. The SWAMP rotation in FY 2002-03 will address this need.

**5. Pesticides in Tulelake**

The US Geological Survey assessed pesticides in the basin some years ago. Additional assessment keyed to current agricultural chemical use should be performed. The SWAMP rotation in FY 2002-03 may be able to partially address this need.

**6. Yreka Creek Petroleum**

While groundwater contamination from solvents and other petroleum products are documented and being addressed to varying degrees, contamination of Yreka Creek from contiguous ground waters is a concern. To date no significant problems have been identified, however it remains a concern. Currently, there are no SWAMP stations in Yreka Creek.

**North Coast Watershed Assessment Program**

The NCWAP rotation includes the Middle Klamath and the Scott and Shasta Rivers. A five-agency team will gather existing information on these three watershed areas, performing assessments in the Middle Klamath first. Assessments for the Scott and Shasta Rivers are 2-year efforts. For more information on the program, see [www.ucwatershed.ca.gov](http://www.ucwatershed.ca.gov).

## SECTION 2.3

### NORTH COAST RIVERS WATERSHED MANAGEMENT AREA

North Coast rivers not specifically included in other WMAs are included in this grouping. The major watersheds from the Oregon border south include the following listing. Those in bold have some information in this section:

- 2.3.1 Smith River
- 2.3.2 Bear River
- 2.3. **Mattole River**
- 2.3.4 **Ten Mile River**
- 2.3.5 **Noyo River**
- 2.3.6 **Big River**
- 2.3.7 **Albion River**
- 2.3.8 **Navarro River**
- 2.3.9 **Greenwood**, Elk, and Alder creeks
- 2.3.11 **Garcia River**
- 2.3.12 **Gualala River**

A citizens lawsuit against US Environmental Protection Agency produced a consent decree scheduling a number of north coast rivers for development of Clean Water Act section 303(d) “TMDLs” or Total Maximum Daily Loads, primarily for sediment and temperature. The Regional Water Board has accepted responsibility for developing and implementing waste reduction strategies in compliance with the Clean Water Act in the Mattole, Noyo, Big, Albion, Navarro, Garcia, and Gualala rivers within this WMA. In fiscal year 2000-2001, activities targeted the Garcia, Navarro, Mattole, Gualala, Big, and Noyo Rivers, as well as a Mendocino Coastal Watershed assessment that also included information on the Big and Albion Rivers. Descriptions of those activities appear in this section, developed to varying degrees depending on the level of activity completed in this past fiscal year.

The Ten Mile River, Albion River, Big River, Greenwood Creek, Elk Creek, and Alder Creek support an anadromous fishery including coho salmon which was listed on July 19, 1995 as threatened under the federal Endangered Species Act. The Ten Mile River, Albion River, and Big River, pursuant to section 303(d) of the Clean Water Act, are listed as impaired by excessive sediment loading associated with historic logging, overgrazing and road building.

Approximately 25% of the timber harvest in the Region occurs in Mendocino County that comprises the majority of this hydrologic area. The primary water quality issues are recovery of threatened and endangered species of coho salmon and steelhead trout. The potential impacts of timber harvesting on water supply for coastal communities of Elk, Gualala, and Fort Bragg have been raised. Forest herbicide application is an issue of concern.

#### **Institutional Framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan.

The new North Coastal Watershed Assessment Program (NCWAP) is focussing on assessment in the following watersheds in this WMA: FY 2000-01—Gualala, Albion, and Big Rivers; FY 2001-02—Mattole River, FY 2002-03—coastal streams south of the Mattole River not identified above. This

multi-agency effort will gather existing data and collect new data to provide assessments of the watersheds. Those data and the assessments will be made available on an interactive computer database. Significant outreach to local landowners and agencies is an element of the program and will add to our understanding of issues in these watersheds.

Additionally, the new Surface Water Ambient Monitoring Program (SWAMP) has monitored sites in the WMA in FY 2000-01, leaving behind permanent stations to be sampled as an ongoing trend analysis. The actual station locations and timing are detailed in the individual watershed sections.

### **Summary of Activities**

The overall emphasis in the WMAs is the inspection of timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our timber harvest program activities on private land in concert with California Department of Forestry and Fire Protection. The future development of TMDL waste reduction strategies for sediment will be another primary activity by Regional Board staff.

As mentioned above, the NCWAP will be a priority for these watersheds in the next three fiscal years. Significant staff resources and contract funds will be expended by the program in performing the watershed assessments.

### **SECTION 2.3.3**

#### **MATTOLE RIVER WATERSHED**

The Mattole River in Mendocino and Humboldt Counties, California, is listed on California's 303(d) report as a water quality limited waterbody requiring the establishment of a Total Maximum Daily Load (TMDL) due to sedimentation and temperature. The North Coast Regional Water Board has scheduled the completion of the TMDL for sediment for late 2002 and for temperature for late 2003. The key stakeholder concern for the Mattole River is the decline of the once healthy coho and chinook salmon fisheries, thought to be associated with excess sediment load and elevated water temperatures.

#### **WATERSHED DESCRIPTION**

The Mattole River starts in northern Mendocino County, and flows north 62 river miles, through steep, forested lands into the ocean ten miles south of Cape Mendocino. The watershed encompasses an area of approximately 194,560 acres (304 square miles) and supports a population of over 2,000 people. The main population centers are in Petrolia, Honeydew and Whitethorn, but people are scattered throughout the watershed. Small landowners (less than 450 acres) own 43 percent of the land, Bureau of Land Management (BLM) owns about 12 percent, and commercial timber companies own much of the remaining land. The area is subject to intense rainfall from 50 inches per year near the mouth to 115 inches per year near Honeydew. The main tributaries to the Mattole River include East Branch North Fork Mattole, Upper North Fork Mattole, Mill Creek, Squaw Creek, Bear Creek, Thompson Creek, Honeydew Creek, and Bridge Creek

From 1947 to 1987 an estimated 82 percent of the timber was harvested. By 1988 over 90 percent of old-growth forests had been harvested and by 1996 late seral habitats comprised less than 8 percent of the original forest cover. A large part of the late seral stage acreage lies within the King Range National Conservation Area. Twelve percent of the Mattole watershed lies within this management which, since 1991, has been managed as a Spotted Owl Habitat Conservation Area. The "one hundred year" floods of 1955 and 1964 deposited hundred of tons of sediment into the river system from which the Mattole River has yet to recover. Floods also occurred in 1995 and 1997.

The Mattole is widely recognized as being a landscape prone to excessive erosion due to tectonic movement, slope instability, and high levels of rainfall. The tectonic Mendocino Triple Junction of the Pacific, North American, and Gorda Plates makes the Mattole the most seismically active watershed in the continental United States. Most of the Mattole is underlain by coastal belt rocks, is highly unstable and uplifts 1-2 cm/year. A 1993 inventory estimated 3,350 miles of active and abandoned roads in the Mattole basin, with 115 miles maintained by the county, 25 miles maintained by BLM, leaving 425 miles of active and 2,800 miles of abandoned roads that are not managed or maintained. In addition to roads that account for approximately 76 percent of human-induced erosion, logging, conversion of forestland to pasture and over grazing contribute to erosion and sedimentation of the streams in the watershed.

The Mattole Restoration Council and the Mattole Salmon Group have been active in the watershed since the early 1980's, and have conducted numerous successful restoration projects and collected valuable data on the declining fisheries. Sanctuary Forest owns about 1,100 acres of old growth forest, and BLM manages about 6,500 acres of old growth (Gillham Butte and Mill Creek Forest). Major timber landowners are Pacific Lumber Company (PALCO), the Bureau of Land Management (BLM) and Barnum Lumber Company. The federal government has classified the Mattole River as

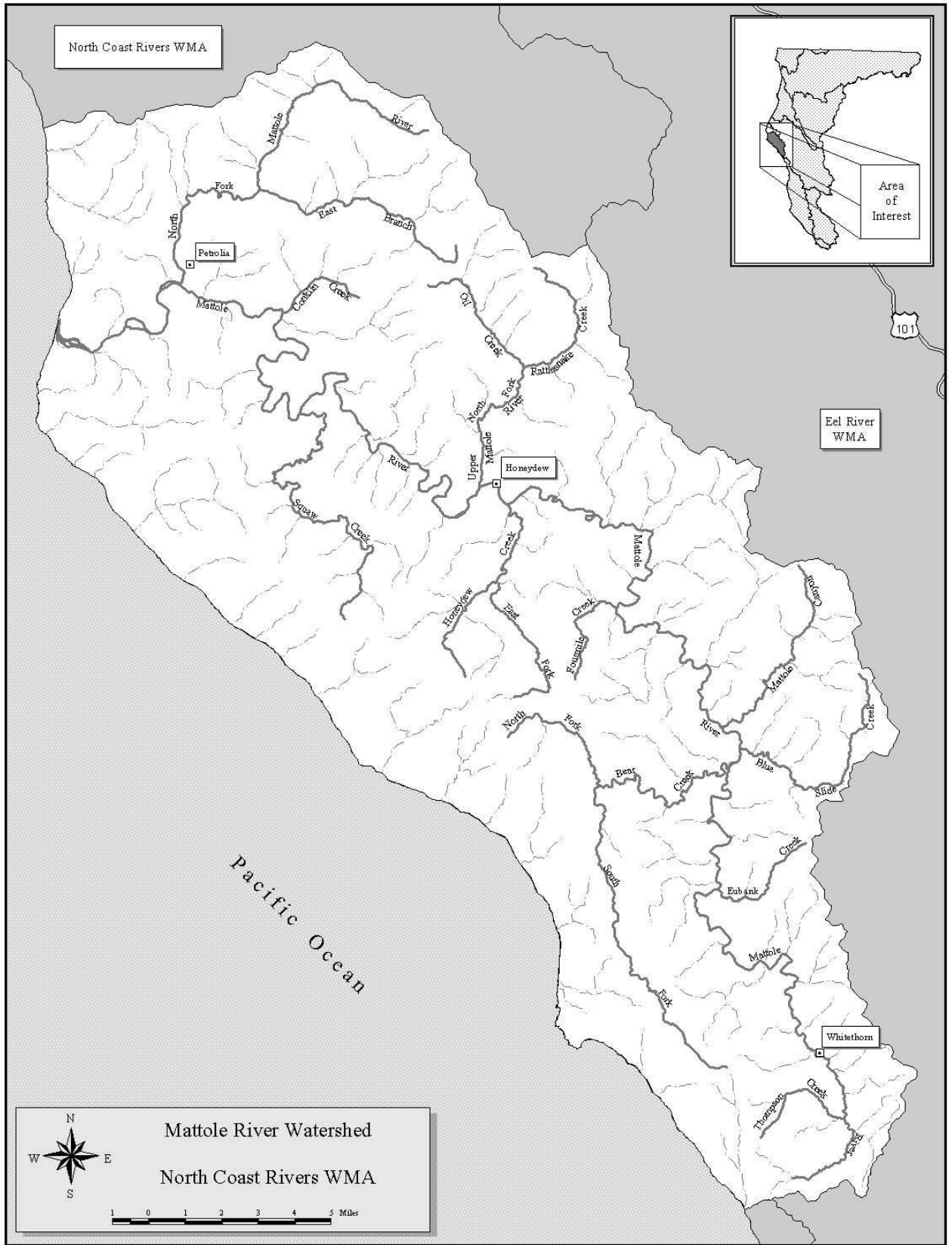


Figure 2.3.3.1. Mattole River Watershed

a Tier 1 Key Watershed essential to the survival of coho and chinook salmon stocks. Known fish species in the Mattole include coho and chinook salmon, steelhead trout, rainbow trout, green sturgeon, and brook lamprey. In addition to anadromous salmonids, species at high risk of extinction include the southern torrent salamander and the tailed frog.

### **IMPLEMENTATION STRATEGY**

Significant strategy development and implementation for water quality protection and improvement are occurring in the Mattole River watershed at the present time by many agencies, interest groups, and individuals. We recognize that the watershed problem identification, watershed assessment, and strategy development are an on-going process, and that further input as we proceed will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle, likely with higher priority so that they will be addressed. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc. Given the current funding constraints, any new and/or redirected resources should be focused on staffing for field nonpoint source compliance and enforcement inspections.

#### **Institutional framework**

The following is a brief description of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined by the Mattole River Watershed Team and through the public participation process. A matrix of agency's abilities and jurisdictions with respect to the identified goals will be compiled to provide an overall picture for the management area.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Consistent with that process, a watershed workshop will be held in the watershed, and special task forces or work groups may be formed to help identify water quality issues and strategies. With respect to other agencies and groups in the management area, a list is offered for informational purposes in Appendix 2.3.3-A. It is our intent to continue to coordinate with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized.

#### **Summary of Activities**

The general emphasis in the watershed is to increase assessment activities (including monitoring coordination) and education/outreach, especially regarding erosion control and sedimentation. While maintaining a watchful eye on traditional dischargers, forestry related activities are a high priority.

Two new state programs will improve monitoring and assessment in the watershed beginning in FY 2000-01 and continuing: The North Coast Watershed Assessment Program (NCWAP) is a multi-agency approach to gathering, developing, analyzing and presenting watershed assessments and data for north coast watersheds. In addition to the Regional Water Board, four agencies within the Resources Agency are involved: Department of Fish and Game, Department of Forestry and Fire Protection, Division of Mines and Geology, Department of Water Resources. Each has specific tasks relating to gathering existing data, filling information gaps by collecting new data, analyzing the data, and presenting the resulting watershed assessments in a standardized format for agency, landowners, and watershed groups. NCWAP will be closely coordinated with the Surface Water Ambient Monitoring Program (SWAMP) and the outreach functions of the WMI Coordinator in the Regional Water Board. Within this watershed the following areas are scheduled for assessment in the next three fiscal years.

SWAMP is a regionwide monitoring program that will monitor permanent stations for long-term trends as well as rotate into WMAs on a five-year basis. Up to five stations are scheduled as permanent stations, sampling began in early 2001.

#### **ASSESSMENT AND PROBLEM IDENTIFICATION**

The following analysis is based on existing knowledge of issues and problems in the Mattole River watershed from monitoring, discharger regulation, water quality planning and nonpoint source program efforts, and public input. However, the following analysis does not constitute a full assessment and will be refined as we move through the assessment phase. As such, a very cursory description and analysis is presented herein.

The populations of anadromous salmonid species in the Mattole River watershed have declined dramatically since the 1960's. According to the California Department of Fish and Game the carrying capacity of the habitat for fish populations has been seriously degraded due to cumulative adverse impacts caused by timber operations, residential development, private road construction, agricultural operations and other land use practices. Natural events such as wildfires, floods, and earthquakes have also played a major role. Impacts to the fishery are from sedimentation caused by erosion from landslides, streambank failures, and sheet and gully erosion, loss of large woody debris for instream cover, and increased water temperatures due to removal of protective streamside shade canopy. Many tributaries have sediment in storage, in-filling of pools, streambed aggradation, siltation of spawning gravels, fewer plunge pools, reduced flows and moderate migration barriers. Coho salmon that require cool pools scoured by water flow over woody debris or rock outcrops now exist only in the headwaters and its tributaries because habitat in the lower reaches has been lost. In 1981 escapement data indicate 3,000 chinook and 500 coho were present, but by 1989 there were only 150 chinook and 50 coho present. Such information prompted the Department of Fish and Game in 1990 to recommend a zero net discharge of sediment to watercourses, retention of existing large woody debris, and no further increases in water temperature.

In addition to natural, background sediment sources, timber harvesting, salvage logging and roads also contribute sediment to streams and accelerate mass wasting and downstream flooding. The Mattole River estuary, important for fish rearing, is now shallow and warm and may have anoxic zones. Juvenile chinook are no longer found in the Mattole summer lagoon. Riparian zone management is needed on the mainstem and in some tributaries. The U S Geological Survey has been doing sediment sampling at their flow gauging station, and temperature monitoring has occurred throughout the watershed by various entities. Many roads have been inventoried and assessed in a five-county coho effort. For example, the county road upstream of Whitethorn is graded to an outside berm that can wash into the stream.

There are no NPDES permits or Waste Discharge Requirements in the watershed. Blue Slide Creek has a diesel discharge from an above ground tank. Other home heating-oil discharges in the watershed are likely. A problem with an underground tank at the Petrolia Store has been addressed. Herbicide applications on forestlands are limited to hand applications to prevent widespread drift of toxic materials. The Queens Peak Mine on BLM property has recently been recontoured and restored. The Queens Peak mine is actually two mines next to each other—Queens Peak A and Queens Peak B. The primary issues in the Mattole River watershed are lack of large woody debris, high water temperatures, sediment buildup and siltation in the mouth of the river and in the mainstem and tributaries, and increased turbidity. Monitoring needs include water temperature, turbidity, channel morphology, sedimentation, riparian habitat health, macroinvertebrates, bacteria, and toxics such as fuels.



## **WATER QUALITY GOALS AND ACTIONS**

The following goals and supporting actions are in rough order of priority and reflect the Watershed Team's synthesis of the issues and problems identified from public and agency input. The goals and attendant actions are listed in rough priority as developed by the Watershed Team. Refinement of the goals and strategy through public participation will include scheduling of the actions by fiscal year, seeking support fiscally and otherwise from local agencies and groups, and enhanced interagency and public coordination and cooperation.

The following broad goals provide a perspective from which to view the specific goals and actions presented below: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect and enhance the anadromous salmonid resources, and 3) protect surface and ground water uses for municipal supply, and recreation.

The three goals for the Mattole River watershed are related through the beneficial uses they address:

- **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE, EST)**
- **GOAL 2: Protect all other surface water uses**

The protection of cold water fisheries (GOAL 1) requires the protection of surface water (GOAL 2) with additional concerns for siltation, habitat loss, temperature and low tributary flows. Actions for protecting the beneficial uses for GOAL 1 (COLD) largely serve to protect all other uses, except MUN.

### **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE, EST)**

The anadromous fishery has experienced severe decline in the last 40 years. Most notable is the destruction of fish habitat. Natural events and multiple land uses are responsible to varying degrees for sediment contributions through accelerated erosion and mass wasting and include timber production and harvest, road construction and maintenance, and grazing. Increased water temperatures in some parts of the watershed, are issues. Additional upslope erosion controls are needed to reduce sediment delivery to waterways in the Mattole River watershed. We must promote and develop considerations for the stability of stream channels and maintenance of channel form consistent with a functioning hydrologic channel. The riparian and instream habitat components must be enhanced. Instream temperatures for cold-water habitat and adequate stream flows to protect and enhance salmonid resources and COLD will be managed.

### **GOAL 2: Protect all other surface water uses**

The actions above for GOAL 1 largely serve to protect all other uses, however additional issues with regard to beneficial use impairment may arise in the future. If issues do arise, we will address them through this process.

## **SUMMARY OF WATERSHED ACTIVITIES AND NEEDS**

### Assessment and Monitoring

NCWAP is currently scheduled to focus on watershed assessment in the watershed in FY 2000-01 and FY 2001-02. That program will gather existing data and collect new data on private and state lands in the WMA. The final product will be an interactive computerized format including the data and watershed assessment. Hard copies of watershed assessments will also be made available to those not having computer access.

SWAMP is a regionwide monitoring program that will monitor permanent stations for long-term trends as well as rotate into WMAs on a five-year basis. Up to five stations are scheduled as permanent stations, sampling began in early 2001.

### Education and Outreach

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

### Watershed Coordination

We currently coordinate with local agencies and watershed groups, State and federal agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process. The NCWAP also will require more coordination with landowners and agencies in the watershed.

### Core Regulatory

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers is anticipated and covers above ground tanks, underground tanks, storm water pollution control, landfills, as well as construction related pollution, and gravel management.

### Water Quality Certification

The Clean Water Act Section 404 permitting (and associated Section 401 Water Quality Certification required of the Regional Water Board) have been streamlined significantly for salmonid stream habitat restoration activities that follow the California Department of Fish and Game *California Salmonid Stream Habitat Restoration Manual*. Adequate staff funding is needed to completely implement the 404/401 program. Staff continues to pursue innovative approaches to assure appropriate review and certification of all projects. High priority projects (those with a potential for adverse impacts) will continue to receive a complete review.

### Ground water

Ground water issues center on petroleum contamination and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem

### Nonpoint Source Program

Continued involvement in forestry, grazing, and road issues is necessary to ensure protection of aquatic resources. The Regional Board continues implementation of the MAA with U.S. Forest Service for non-timber nonpoint source issues on a very limited basis due to a lack of staff resources. However, this issue is becoming more important as we further evaluate sediment sources in this watershed. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Pollution Control Program strategy of first emphasizing self-determined implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Where land management activities are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

### Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in

concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

The timber division is specifically funded to oversee the water quality protection of the Habitat Conservation Plan for the Pacific Lumber Company (PALCO) in the North Fork Mattole. The primary water quality issues are the protection of domestic water supplies and nuisance flooding from sediment discharges from PALCO timber harvesting. The primary water quality issues are recovery of threatened and endangered species of coho and chinook salmon and steelhead trout; protection of domestic water supplies and water quality beneficial uses. Forest herbicide application is an issue of concern.

PALCO is subject, in part, to regulation under a Habitat Conservation Plan (HCP). The HCP is intended to protect habitat for endangered species and requires that PALCO incorporate interim prescriptions (best management practices) into its timber harvest and harvest-related activities, while performing watershed analysis for the watersheds within its ownership. As watershed analyses are completed, watershed-specific and project-specific prescriptions will be developed, implemented, monitored, and adapted as necessary. In the interim, PALCO is required to conduct several types of monitoring, including interim prescription effectiveness monitoring.

#### Local Contacts

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game programs.

#### Water Quality Planning

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Mattole River. The top priority issues are:

- Review the Nonpoint Source Control Measures
- Adopt an implementation plan for sediment reduction

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

#### Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. The final evaluation once the Mattole River TMDL is developed (2002) will feed into the next cycle of assessment and problem identification.

### **BUDGET**

We will attempt to fund the highest priority actions as identified in this watershed to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address.

## Appendix 2.3.3-A

### **Partial listing of agencies and groups in the Mattole River Watershed with an interest and/or responsibility for water quality.**

#### United States

- Environmental Protection Agency
- Army Corps of Engineers
- Forest Service
- Bureau of Land Management
- Geological Survey
- National Biological Service
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### California State

- California Environmental Protection Agency
- Resources Agency
- Department of Fish and Game
- Department of Health Services
- Department of Parks and Recreation
- Department of Pesticide Regulation
- Office of Environmental Health and Hazard Assessment
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy
- UC Agricultural Extension
- Humboldt State University
- College of the Redwoods

#### Humboldt and Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health
- Agricultural Commissioner's Office

#### Local Agencies

- Resource Conservation Districts
  - Mendocino County RCD
  - Humboldt County RCD
  - local water districts
  - city planning departments
  - city public works departments
  - county planning departments

#### Public Interest Groups

- Cattlemen's Association
- Trout Unlimited
- Salmon Unlimited
- California Forestry Association
- Mattole Salmon Group
- Mattole Restoration Council

Timber Companies  
Pacific Lumber Company  
Barnum Lumber Company



## **SECTION 2.3.4**

### **TEN MILE RIVER WATERSHED**

Based on the recognition that the anadromous fishery is in decline, activities to assess the watershed and improve conditions for anadromous salmonids are underway. The Ten Mile River watershed harbors the last native coho salmon in Mendocino County. As such, protection of the fish and restoration of their habitat in the Ten Mile River watershed is of special interest. A Clean Water Act section 303(d) TMDL waste reduction strategy for sediment has been completed and approved by USEPA in 2000. The following provides an overview of activities and outlines the basic framework and strategy at this time.

#### **WATERSHED DESCRIPTION**

The Ten Mile River watershed drains an area of approximately 31,000 hectares or 120 mi<sup>2</sup>. It is located north of the City of Fort Bragg by eight miles, sharing ridges with Pudding Creek and the North Fork of the Noyo River to the south and Wages Creek and the South Fork of the Eel River to the north. Elevations range between sea level and 977 meters (3,205 feet). The Ten Mile River watershed experiences a Mediterranean-type climate typified by abundant rainfall and cool temperatures during the winter and dry, hot summers punctuated with cool breezes and fog along the coast. Precipitation occurs primarily as rain with 40 inches in the western portion and 70 inches in the eastern portion of the watershed. Approximately 90% of the annual precipitation occurs between October and April.

The watershed is entirely privately owned, with Hawthorne Timber Company, LLC (managed by Campbell Timberland Management, LLC), the successor to Georgia-Pacific West, owning about 85 percent of the watershed. Three small non-industrial timber owners and a handful of other residences are in the watershed. The terrain varies from the flat estuary and broad river floodplain to rugged mountainous topography with high relief. The Ten Mile River has three main forks: the North Fork, Middle Fork (also known as the Clark Fork) and the South Fork. Most of the basin, aside from the northeast grasslands, is characterized by steep, narrow drainages bordered by steep to moderately steep slopes leading to the headwaters of the tributaries.

The Ten Mile River watershed has a dominant overstory consisting of Redwood and Douglas fir. Redwood is the dominant constituent of coastal forest stands while Douglas fir dominates the more inland sites. Minor conifer components in the area include Grand Fir and Western Hemlock. Hardwood species such as Tanoak and Pacific Madrone are other common components of conifer stands, though only on xeric sites. Generally, Tanoak and Pacific Madrone constitute a higher percentage of the stands in the inland portions of the watershed. Interior Live Oak is a minor component at most xeric sites on inland ridges. Further inland, near the headwaters of the North Fork and Clark Fork, open grassland dominates with an overstory of California Black Oak and Oregon White Oak punctuated with Douglas-fir/Redwood/Tan Oak stand.

Rocks of the Franciscan Complex, primarily the relatively coherent and stable Coastal Belt Terrain, dominate the bedrock geology of the watershed. These rocks are overlain by a variety of surficial deposits, varying locally from beach sand, marine terrace deposits, dune sands, estuary deposits, landslide debris, alluvium, and soil and colluvium.

The history of the Ten Mile River watershed is largely defined by timber harvest, which began in the lower basin about 1870. The railroads were developed in the 1910's and used for timber yarding and hauling. Tractor yarding began in the 1930's and major portions of the watershed were harvested for

timber from the 1940's to the 1960's. The forest was left to regenerate until the 1980's when timber harvest was again increased. Coho and chinook salmon have declined sharply in the Ten Mile River watershed. Steelhead trout, however, may be now surpassing the population numbers identified in the 1960s. The Ten Mile River watershed harbors the last native coho salmon in Mendocino County (last count indicates less than 200 individual fish). The population of coho in the 1960's was about 6,000. As such, protection of the fish and restoration of their habitat in the Ten Mile River watershed is of special interest. Chinook salmon are not considered to be native to the Ten Mile River, although chinook have been reported caught in the River "several decades ago."

The primary beneficial use of concern in the Ten Mile River watershed is the cold freshwater fishery which supports coho salmon (*Oncorhynchus kisutch*), steelhead trout (*Oncorhynchus mykiss*), and chinook salmon (*Oncorhynchus tshawytscha*). The Ten Mile River watershed also supports other native and introduced fish and aquatic species including: three-spined stickleback, coast range sculpin, prickly sculpin, several species of lamprey, pacific giant salamander, several species of newt, yellow-legged frog, and tailed frog. The beneficial uses of water related to rare, threatened or endangered species has been proposed for this basin. As with many of the north coast watersheds, the cold water fishery appears to be the most sensitive of the beneficial uses in the watershed because of the sensitivity of salmonid species to habitat changes and water quality degradation. Accordingly, protection of these beneficial uses is presumed to protect any of the other beneficial uses that might also be harmed by impaired water quality.

Additional beneficial uses related to the Ten Mile River watershed's cold water fishery are:

- Commercial and sport fishing (COMM)
- Cold freshwater habitat (COLD)
- Migration of aquatic organisms (MIGR)
- Spawning, reproduction, and early development (SPWN); and
- Estuarine habitat (EST)

There are two permits for gravel mining currently in effect in the Ten Mile River watershed. These are issued to Watkins Sand & Gravel for the removal of up to 2,500 cubic yards of gravel per year from several sites in the South Fork of the Ten Mile River channel and up to 10,000 cubic yards from a hillside quarry, and to Baxman Gravel Company for the removal of up to 50,000 cubic yards of rock per year from a hillside quarry. There have been other gravel mining operations in the Ten Mile River watershed prior to those associated with these two permits. However, previous operations were not permitted. Although gravel mining is a land use activity in the basin, it does not appear to have contributed significantly to the sediment problems.



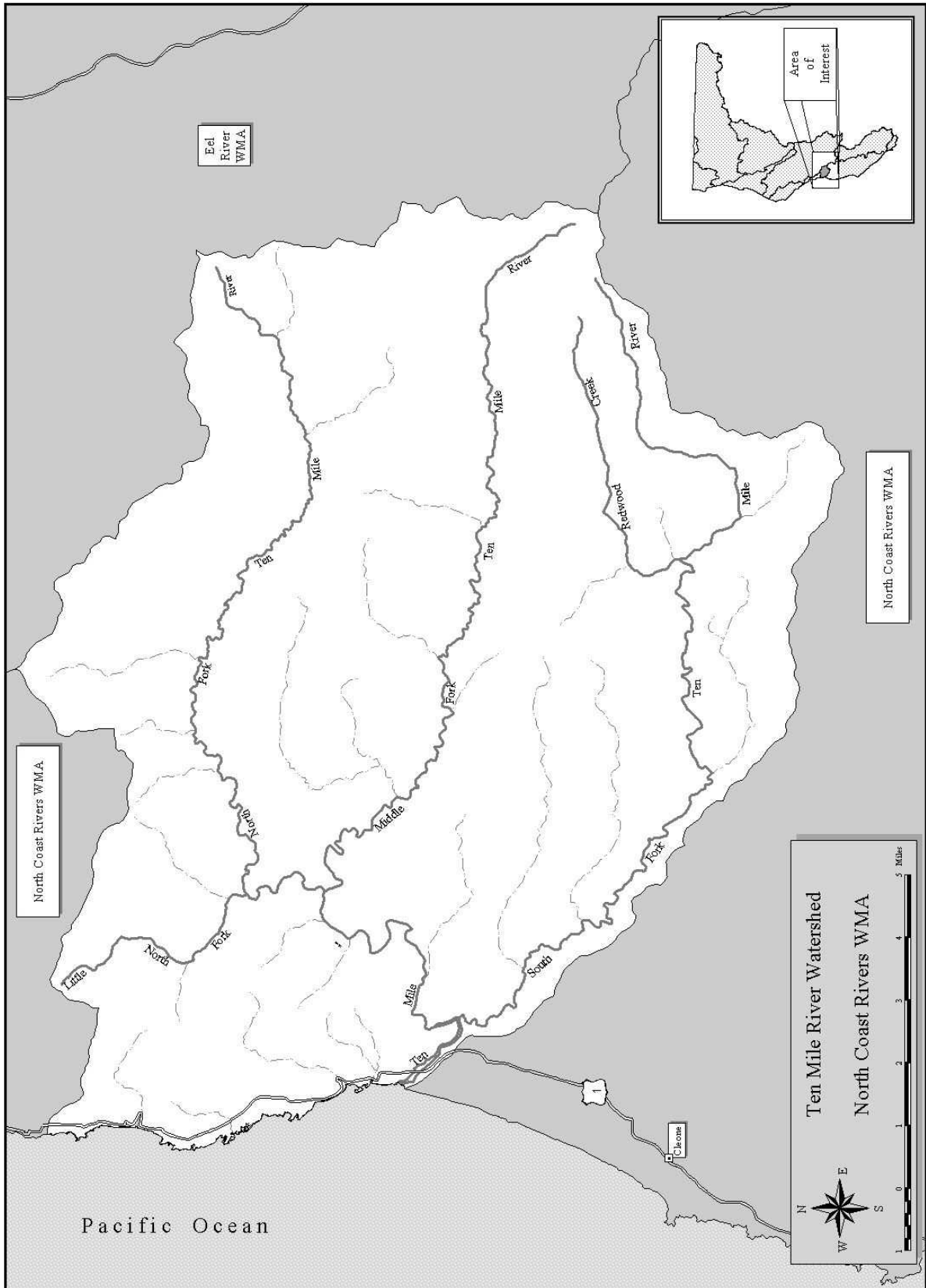


Figure 2.3.4.1. Ten Mile River Watershed

## IMPLEMENTATION STRATEGY

Strategy development will occur in the form of the TMDL waste load reduction strategy for sedimentation. The TMDL is tied to resource impacts and reduction of sources to reduce impacts and bring the watershed into a desired future condition that is consistent with the enhancement and maintenance of salmonid species. A broad interagency effort was used to gather and assess existing information on the watershed. Likewise, the development of the strategy incorporated significant interagency and public coordination.

Other concerns in the watershed will continue to be addressed through existing programs. However, vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. Outreach is being conducted by Regional Board staff to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Current funding constraints will limit Regional Board staff outreach activities and enforcement activities to address this issue.

Given current funding constraints, any new and/or redirected resources should be focused on staffing for field nonpoint source compliance and enforcement inspections and hillside vineyard erosion issues as they develop

### **Institutional framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. The SWRCB and CDF/BOF entered into a Management Agency Agreement, which delegates primary water quality authority to the CDF/BOF associated with timber harvest regulation. The Regional Water Board has not given up any authority to regulate timber if violations of the Basin Plan occur or threaten to occur. Regulatory activities associated with timber harvest are conducted in accordance with that agreement.

## ASSESSMENT AND PROBLEM IDENTIFICATION

Several management-related factors have contributed to the elevated sediment delivery rates throughout the watershed. The most important include high rates of timber harvest and associated road building, both historically and currently; high road densities; and, historically, high densities of skid trails. While overall rates have declined in the period from 1933 – 1999, sediment generation from road surface erosion has increased. Current sediment delivery from all sources is estimated at 629 tons/sq. mile/ year, with about 50 percent of that background and rest management related. There are currently 940 miles of roads in the Ten Mile watershed, which translates to a basinwide road density of 7.86 miles/sq. mile (including the former railroads that were converted to roads).

While some sediment load in the stream is natural, much of the excess sediment is directly and indirectly caused by land management activities. For example, timber harvest activities can result in excess sediment loads in the stream as a result of road construction and use (sediment discharged into the basin from road crossings failures, surface erosion and deposition, and landsliding associated with road location and construction), as well as the actual harvesting of timber (which causes ground disturbance and surface erosion or could trigger landslides and other ground failures that deliver directly to the stream).

The existing data indicate that coho salmon continue to spawn and rear with some regularity in the Little North Fork Ten Mile River, Clark Fork Ten Mile River, Bear Haven Creek, South Fork Ten Mile River, Smith Creek, Campbell Creek, and Churchman Creek. For the most part, these streams

have at least some habitat characteristics that favor salmonids – some C-type channel, good scour pool frequency, LWD-formed habitat, and suitable summer stream temperatures. Coho salmon habitat in the Ten Mile River watershed could be significantly improved with reductions in sediment delivery, protection and improvement in riparian functions, increases in large woody debris for sediment metering and habitat, and modification of stream channel type. Coho salmon may currently comprise only about 2% of the salmonid population in the Ten Mile River watershed.

In the 1960s, the Ten Mile River was estimated to have a total steelhead trout population of 9,000 fish. More recent data, including electrofishing, outmigrant, and spawning surveys indicate fairly stable populations of steelhead distributed throughout the Ten Mile River watershed. An estimated 905,169 steelhead trout have occupied the basin from 1993 to 1997. This is 100 times greater than the 9,000 steelhead trout estimated to occupy the basin in the 1960s.

It is reported that chinook have been introduced to the Ten Mile River in the 1980s, with the last and largest release in 1987 (9,000 fingerlings released). Chinook carcasses found in the watershed are composed of various age groups and may indicate a rare successful introduction. Less than ten fish were found in the watershed in 1995-96. Though few, chinook are found widely scattered throughout the Ten Mile River watershed, including: Little North Fork Ten Mile River, North Fork Ten Mile River, Clark Fork Ten Mile River, and South Fork Ten Mile River. Unfortunately, very limited data regarding chinook salmon has been collected over the years.

Less than 14 percent fine sediment (< 0.85 mm) in a stream is good for salmonid spawning and rearing. Locations with fine sediment falling within the range of 14 to 20% are therefore judged to be less than ideal with respect to sediment composition; but, they may nonetheless allow for at least minimal salmonid spawning, incubation and emergence success. Using these criteria, it appears that each of the three main forks of the Ten Mile River watershed, on average, only minimally support salmonid spawning, incubation, and emergence success. The subwatersheds of the Clark and South Forks of the Ten Mile River are essentially identical in the percentage of substrate that is composed of fine sediment (<0.85 mm). The North Fork Ten Mile River subwatershed appears slightly more rich in fine sediment (<0.85 mm) than the other two. Data developed for the Ten Mile River watershed indicates an average annual sediment discharge of 1,135 ton/mile/year for the period 1952 to 1997.

A maximum weekly average temperature (calculated as the mean of daily maximums) of 16.8°C predicts whether or not coho will be present in a stream. The Little North Fork Ten Mile River, the Middle and Upper Clark Fork Ten Mile, Smith, Mill, Churchman and Redwood Creeks and Upper South Fork Ten Mile River all exhibit temperatures adequate for salmonid survival. All other sampling locations exhibit temperatures that are inadequate to support coho summer rearing.

The existing data indicate that coho salmon continue to spawn and rear with some regularity in the Little North Fork Ten Mile River, Clark Fork Ten Mile River, Bear Haven Creek, South Fork Ten Mile River, Smith Creek, Campbell Creek, and Churchman Creek. For the most part, these streams have at least some C-type channel; scour pool frequency of at least 17% (by length), LWD-formed habitat frequency of at least 11% (by length), and weekly average summer stream temperatures no more than 16.8 °C.

Summary of findings on salmonid habitat:

- Shelter is extremely poor throughout the watershed, including large woody debris.
- Stream temperatures are elevated in the three main forks. Temperatures are also elevated in Campbell Creek and Redwood Creek. At these locations, more than 16% of the stream side canopy is open.

- The percentage of habitat in scour pools is extremely poor in all but the main forks and Little North Fork Ten Mile River, Bear Haven Creek, Smith Creek and Campbell Creek.
- The percentage of habitat formed by large woody debris is extremely poor in all but Little North Fork Ten Mile River, Bear Haven Creek, Smith Creek and Campbell Creek.
- The availability of C-type channel is limited to Little North Fork Ten Mile River, Bear Haven Creek, Little Bear Haven Creek, South Fork Ten Mile River, Smith Creek, and Campbell Creek.

Coho salmon habitat (and therefore other salmonid habitat) in the Ten Mile River watershed could be significantly improved with reductions in sediment delivery, protection and improvement in riparian functions, increases in large woody debris for sediment metering and habitat, and modification of stream channel type.

### **WATER QUALITY GOALS AND ACTIONS**

**GOAL 1: Protect surface and ground water MUN, DOM, REC-1, and REC-2 uses**

**GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD, MIGR, SPWN, EST, COMM**

### **SUMMARY OF WATERSHED ACTIVITIES**

The overall emphasis in the watershed is the completion of the TMDL waste reduction strategy for sediment. Increased assessment activities and continued high priority forestry related activities, including any needed outreach to new vineyards, are commensurate with that charge.

#### Assessment and Monitoring:

Assessment of existing information was used in the development of the TMDL strategy, drawing from existing information contained in plans being developed by the CDF and private timber companies as well as any citizen information that is made available.

Monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future condition.

#### Education and Outreach:

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

#### Coordination:

We currently coordinate with local and State agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process and the North Coast Watershed Assessment.

#### Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers with some increase in storm water issues is anticipated. Individual waste disposal systems as well as construction related problems, are addressed through the core regulatory program and the local oversight of individual systems.

#### Ground water:

Ground water issues center around petroleum contamination and mill sites and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of

pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

Nonpoint Source:

Continued involvement in forestry, grazing and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL implementation process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing voluntary implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Where land management activities are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

Local Contracts:

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs and the Water Bond (Proposition 13) grant program, as well as promoting other programs like the California Department of Fish and Game programs.

Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Ten Mile River watershed. The top priority issue is review of the Nonpoint Source Control Measures.

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

**Evaluation and feedback**

We will evaluate progress on a yearly basis, the TMDL providing the focus.

The Regional Water Board will coordinate with landowners to develop a monitoring plan that includes road and hillslope indicators that directly relate to sediment delivery to the watercourse. Substrate composition and V\* are relatively simple to monitor, and should be monitored regularly. Thalweg profiles are better monitored on an infrequent basis, potentially after large flood events.

**Resource Needs**

The habitat inventories available for the Ten Mile River watershed provide useful information about habitat conditions. The fish population data, temperature data, and substrate composition data are especially useful for understanding conditions and trends in the basin. The availability of each of these data sets in electronic form for each of the years in which they were collected would vastly improve the ability of Regional Water Board staff to analyze it. Some additional parameters that would help better understand changes in sedimentation in the basin, include:

- Longitudinal profiles

- Cross-sections
- V\*
- LWD volume and distribution

Continued and improved spawning, rearing, and outmigrant salmonid population studies are necessary to keep close track of the success of the few remaining native coho salmon.

Some locations where substrate data could confirm suspected aggradation include:

- Blair Gulch
- Barlow Gulch
- McGuire Creek
- Cavanaugh Gulch
- O'Connor Gulch
- Gulch 8
- Gulch 11
- Gulch 19
- Gulch 23
- Gulch 27

#### **BUDGET**

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding to conduct outreach and enforcement activities on new developments of hillside vineyards is needed to pursue the actions we are currently unable to address.

## Appendix 2.3.4-A

### Partial listing of agencies and groups in the Ten Mile watershed with water quality jurisdiction and interests.

#### United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### California State

- California Environmental Protection Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Health Services
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy

#### Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health

#### Local Agencies

- Mendocino County Resource Conservation District
- city planning departments
- city public works departments

#### Public Interest Groups and Industries

- Coast Action Group
- Pacific Coast Federation of Fishermen's Associations
- Georgia-Pacific Corporation
- Louisiana-Pacific Corporation
- Ten Mile River Watershed Association
- Campbell Group (Hawthorne Timber Company)





## **SECTION 2.3.5**

### **NOYO RIVER WATERSHED**

Based on the recognition that the anadromous fishery is in decline, activities to assess the watershed and improve conditions for anadromous salmonids are underway. A Clean Water Act Section 303(d) TMDL waste reduction strategy for sediment has been completed and approved by EPA in December 1999. The following provides an overview of activities and outlines our basic framework and strategy at this time.

#### **WATERSHED DESCRIPTION**

The Noyo River watershed is a 72,323-acre coastal tributary immediately west of the City of Willits that flows to the Pacific Ocean at the City of Fort Bragg. Redwood and Douglas fir forest on rugged, mountainous terrain dominate the watershed. The climate has moderate temperatures (annual average 53 degrees F) and an average annual rainfall of 40 - 65 inches. The primary land use within the watershed is timber production and harvesting by three large timberland owners: Mendocino Redwood Company, Hawthorne Timber Company and the Jackson State Forest (run by the California Department of Forestry and Fire Protection which owns about 19 percent of the watershed). Together these three landowners own approximately 70 percent of the watershed. The California Western Railroad operates the Skunk Train that traverses the Noyo River watershed along the mainstem channel with 40 miles of track and 31 bridges and trestles crossing the river. Other minor land uses in the basin include ranching and recreation. The mouth of the Noyo River is dominated by a marina and associated fish processing facilities in support of the local fishing industry. This is the only major fishing fleet between Bodega Bay and Eureka. Hillside vineyard development is a concern for production of sediment as land is converted to new vineyards in the future.

Old growth logging started in the mid 1800's and continued into the early part of the 20<sup>th</sup> century. Second growth logging began in the 1960's primarily in the lower main drainage area, and continues today. Removal of residual old-growth stands began in the 1960's and continued into the mid 1980's. In addition, the average road densities for the watershed overall is 6.71 miles per square mile. But road densities in most individual tributaries are higher, and the majority of these roads are seasonal, unsurfaced, and have the potential for greater surface erosion. Many logging and rural residential roads are involved in mass wasting and sediment discharge incidents.

The Noyo River supports an anadromous fishery including steelhead trout and coho salmon, which was listed on July 19, 1995 as threatened under the federal Endangered Species Act. The Noyo River, pursuant to Section 303(d) of the Clean Water Act, is listed as impaired by excessive sediment loading associated with historic logging, overgrazing and road building.

The City of Fort Bragg uses surface water from the Noyo River as a primary source of drinking water. The City of Fort Bragg suffered from lack of sufficient quantity of water during the drought in the 1980's and is subject to high raw water turbidities during the winter period. A new water treatment plant was constructed in 1987. The water intake system was designed to frequently backflush compressed air through the intake screens to remove silt that was plugging the screens (State Department of Health Services, personal communication, July 1995). The City has established a new deep well about a mile inland on the Noyo River where timing of pumping is important to avoid seawater intrusion. Another diversion from the river has been established to send water to Pudding Creek to service the Georgia Pacific Corporation mill. Many summer camps use the river for water supply.

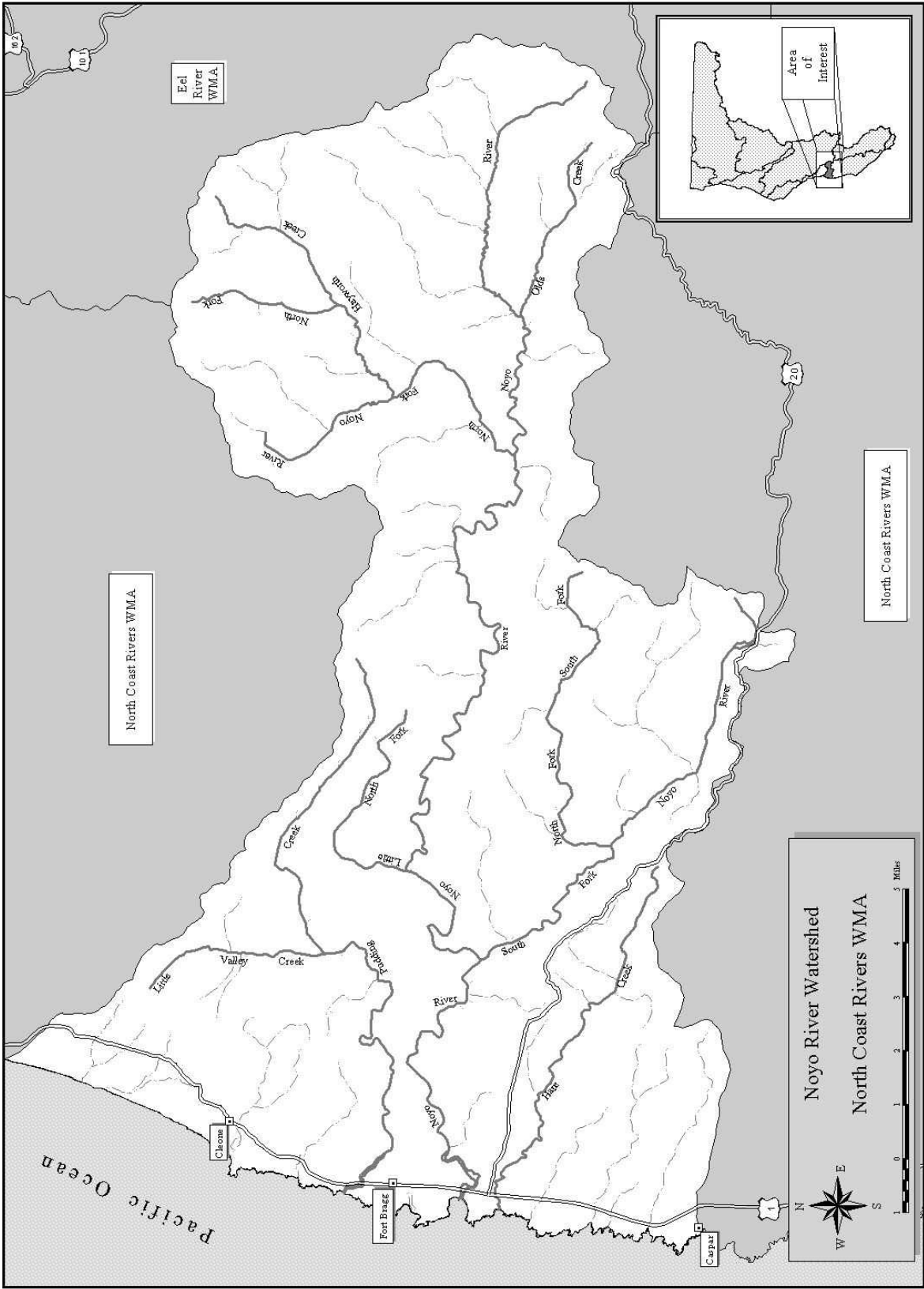


Figure 2.3.5.1. Noyo River Watershed

## **IMPLEMENTATION STRATEGY**

Strategy development will occur in the form of the TMDL waste load reduction strategy for sedimentation. The TMDL is tied to resource impacts and reduction of sources to reduce impacts and bring the watershed into a desired future condition that is consistent with the enhancement and maintenance of salmonid species. A broad interagency effort was used to gather and assess existing information on the watershed. Likewise, the development of the strategy incorporated significant interagency and public coordination.

Other concerns in the watershed will continue to be addressed through existing programs. However, vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. Outreach is being conducted by Regional Board staff to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Current funding constraints will limit Regional Board staff outreach activities and enforcement activities to address this issue.

Given current funding constraints, any new and/or redirected resources should be focused on staffing for field nonpoint source compliance and enforcement inspections and hillside vineyard erosion issues as they develop.

### **Institutional framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. The SWRCB and CDF/BOF entered into a Management Agency Agreement, which delegates primary water quality authority to the CDF/BOF. Regulatory activities associated with timber harvest are conducted in accordance with that agreement.

## **ASSESSMENT AND PROBLEM IDENTIFICATION**

The Noyo River watershed is primarily private land in timber production. Little development has occurred in the watershed in the last two decades. As mentioned above, the primary water quality concerns are related to drinking water supply and the anadromous fishery. Some of the major issues are noted below.

The City of Fort Bragg's Noyo River water supply is directly influenced by surface water and suffers from frequent siltation of the intakes. Turbidity data collected by the City of Fort Bragg between 1993 and 1997 indicate that turbidity values have increased steeply through this period. Turbidity levels have periodically obscured visibility and have remained elevated even after the cessation of rain. This can adversely affect fish and drinking water quality.

Existing salmonid habitat is limited by various erosion-influenced factors, including infrequent and shallow pools, few backwater pools and other overwintering habitat, embedded cobble, and elevated fines in potential spawning gravels. Limited availability of large woody debris in the channels of Noyo River watershed contributes to the problems associated with sedimentation. Pool volume in the Noyo River watershed has decreased due to the accumulation of fine sediment delivered by surface erosion throughout the basin. The availability of large woody debris and deep pools appear to be two of the main factors limiting the success of salmonids in the Noyo River watershed. Coho populations today are probably less than 6 percent of what they were in the 1940's and there has been at least a 70 percent decline since the 1960's. The anadromous fishery has experienced shifts in species

composition. Calif. Dept. of Forestry and Fire Protection employees, Valentine and Jameson repeated aspects of earlier fisheries work by Calif. Dept. of Fish and Game biologist, J. W. Burns, on the Little North Fork Noyo River in 1992 near the same location as Burns' initial study reaches. They found the total salmonid biomass was similar to that found by Burns but the species composition has inverted from primarily coho salmon to primarily steelhead trout. They suggest that the decline in the stream channel's average pool depth, in response to past logging practices, seems the most likely instream parameter causing the inversion in salmonid species composition in the Little North Fork Noyo River.

The Noyo River, pursuant to Section 303(d) of the Clean Water Act, is listed as impaired by excessive sediment loading associated with historic logging, overgrazing and road building. The harbor must be dredged on a frequent basis due to the large amounts of sediment deposited from upstream. Dredging volumes have increased over the years. For example, the average dredging volume in 1994 was 236 percent of the average volume in 1957 and 127 percent of the average volume for the first ten years of dredging (starting in 1933). A new marina, Dolphin Marina, needs to dredge to maintain adequate depth. The California Department of Transportation is replacing the Highway 1 bridge over the Noyo River and dredge spoils are being placed at the north bank of the bridge footing.

Contamination from diesel, penta- and tetrachlorophenol, and dioxins in stream sediments has been documented in the Parlin Fork and the Noyo River as a result of past activities at a wood treatment plant at the CDF camp. There are concerns about metals and creosote from the Skunk Train. Georgia Pacific has a bark dump on the north side of the river where tannins may be leaching into a wetland area at Newman Gulch. Herbicide use continues on forest lands. The Office of Emergency Services reports frequent oil spills in the harbor area, and fish waste dumping is also a concern. Urchin wastes are discharged one mile off shore and assessment of this practice is incomplete. Waste discharge requirements exist for the Conservation Camps at Chamberlin Creek and Parlin Fork.

### **WATER QUALITY GOALS AND ACTIONS**

The following listing represents a first-cut delineation of goals and actions to achieve the goals that will be refined through the TMDL development and a Watershed Team.

#### **GOAL 1: Protect surface and ground water MUN, DOM, REC-1, and REC-2 uses**

##### **Point Source Issues**

###### **Current Activities**

- Continue to perform waste discharger compliance inspections
- Address highest priority groundwater cleanups/remediations, e.g., Parlin Fork CDF camp
- Address highest priority underground tank cases
- Promote continuing development and application of management practices for storage, treatment and disposal of hazardous substances

##### **Nonpoint Source Issues**

###### **Current Activities**

- Maintain timber-related activities and focus on erosion controls

**Additional Needs**

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards

**GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD, MIGR, SPWN, EST, COMM**

**Nonpoint Source Issues**

**Current Activities**

- Completed Section 303(d) waste reduction strategy (TMDL) to focus on assessment and watershed planning and a strategy for addressing instream and up-slope problems with respect to land use activities and to promote habitat and riparian zone restoration activities

**Additional Needs**

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards

**SUMMARY OF WATERSHED ACTIVITIES**

The overall emphasis in the WMA was the completion of the TMDL waste reduction strategy for sediment. Increased assessment activities and continued high priority forestry related activities, including any needed outreach to new vineyards, are commensurate with that charge.

Assessment and Monitoring:

Assessment of existing information was used in the development of the TMDL strategy, drawing from existing information contained in plans being developed by the CDF and private timber companies as well as any citizen information that is made available. As mentioned above, data along with some analysis is available in the KRIS-Noyo computerized database package.

Monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future condition. Additional biological assessment in the surface waters near the Parlin Fork Conservation Camp may be required in association with a contamination issue. The SWAMP has identified a rotating station low in the watershed for basic water quality parameters. Monitoring needs also include monitoring toxins associated with marina use, boat repair and herbicide use. Monitoring for bacteria and sediment also needs to be increased.

Additional detail of monitoring needs is contained in Appendix 2.3.5-B.

Education and Outreach:

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

Coordination:

We currently coordinate with local and State agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process and the North Coast Watershed Assessment.

#### Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers with some increase in storm water issues is anticipated. Harbor issues associated with fish processing and individual waste disposal systems (primarily on the south shore of the harbor), as well as construction related problems, are addressed through the core regulatory program and the local oversight of individual systems.

#### Ground water:

Ground water issues center around petroleum contamination and mill sites and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

#### Nonpoint Source:

Continued involvement in forestry, grazing and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL implementation process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing voluntary implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Where land management activities are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

Vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. The Regional Board staff will need to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water through an outreach program as conversion of land to vineyards occurs.

#### Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

#### Local Contracts:

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs and the Water Bond (Proposition 13) grant program, as well as promoting other programs like the California Department of Fish and Game programs.

#### Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Noyo River watershed. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature

- Review the Nonpoint Source Control Measures

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

### **Evaluation and feedback**

We will evaluate progress on a yearly basis, the TMDL providing the focus.

### **BUDGET**

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding to conduct outreach and enforcement activities on new developments of hillside vineyards is needed to pursue the actions we are currently unable to address.

Appendix 2.3.5-B contains monitoring and assessment needs, and Appendix D contains details on nonpoint source program activities and needs.

## Appendix 2.3.5-A

### Partial listing of agencies and groups in the Noyo River watershed with water quality jurisdiction and interests.

#### United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### California State

- California Environmental Protection Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Health Services
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy

#### Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health

#### Local Agencies

- Mendocino County Resource Conservation District
- city planning departments
- city public works departments

#### Public Interest Groups and Industries

- Coast Action Group
- Pacific Coast Federation of Fishermen's Associations
- Georgia-Pacific Corporation
- Louisiana-Pacific Corporation
- Friends of Fort Bragg
- Campbell Group (Hawthorne Timber Company)
- Mendocino Redwood Company
- Noyo Watershed Alliance



## Appendix 2.3.5-B

### Monitoring priorities and needs detail for the Noyo WMA

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently not funded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. **TMDL Monitoring - \$65,000 - (0.5 PY + \$10,000) – FY 03-04, 06-07, 11-12, ongoing at 5-year increments**  
Instream and hillslope conditions should be monitored to gauge success and progress of implementation and to provide feedback into the implementation process.
2. **Parlin Fork Biological Assessments - \$32,000 (0.2 PY + \$10,000) – FY 04-05**  
Documentation of conditions and monitoring of the aquatic biota should be conducted to assess the success of wood treatment chemical cleanup actions at the Parlin Fork Conservation Camp.



## **SECTION 2.3.6**

### **BIG RIVER WATERSHED**

Based on the recognition that the anadromous fishery is in decline, activities to assess the watershed and improve conditions for anadromous salmonids are underway. A Clean Water Act Section 303(d) TMDL waste reduction strategy for sediment has been completed in draft and awaits approval by USEPA. The following provides an overview of activities and outlines our basic framework and strategy at this time.

#### **WATERSHED DESCRIPTION**

The Big River watershed drains an area of approximately 116,000 acres, or about 181 square miles. The Big River estuary is located immediately south of the town of Mendocino and approximately ten miles south of Fort Bragg. The watershed drains from the east to the west, sharing ridges with the Noyo River watershed to the north, the Eel River watershed to the east, and the Little, Albion and Navarro River watersheds to the south. The Big River watershed has a Mediterranean climate, characterized by a pattern of low-intensity rainfall in the winter and cool, dry summers with coastal fog. Mean annual precipitation is 40 inches at Fort Bragg near the western margin of the watershed and 51 inches at Willits to the east. About 90% of the precipitation in this area falls between October and April with the highest average precipitation in January. Snowfall is very rare and hydrologically insignificant.

The Big River Basin is sparsely populated, with most of the land used for silviculture and other smaller areas used for ranching. There are only a handful of populated areas within the Big River Basin, including the areas around Orrs Springs, Whiskey Springs, Cameron, and Mendocino. By far the largest populated area is Mendocino, with a population of approximately 824 people.

The Big River, like the other coastal watersheds in Mendocino County, is in the Oregonian Biotic Province, which includes the moist, cool strip from Vancouver, Canada south to San Francisco Bay. Vegetation in the Big River basin is predominantly coniferous with redwoods near the coast and in the stream bottoms and Douglas fir in the interior and along the ridges. Broadleaf trees typical of the area include tan oak, live oak, alder, bay and madrone. They are interspersed throughout the conifer stands. On the drier slopes in the headwaters there is considerable oak-grassland and brush. California black oak, Oregon oak, ceanothus, currant, raspberry, and manzanita comprise woody species dominant in these areas. Herbaceous species consist of oat grasses, bromes, fescues, and filagree.

Of particular note in the Big River watershed are the brackish and freshwater bogs, the extensive estuary, and the freshwater marshes. There are eight freshwater marshes within the first seven miles of the estuary valley. Salt water extends up the Big River estuary approximately 8.3 miles in the summer and three miles during the winter. This is the largest estuary in the North Coast Region and the mouth of the river stays open all year. Plants common in the brackish and freshwater bogs include: sedge, yellow skunk cabbage, common spike rush, bulrush, water hemlock, willow herb, brooklime, and cattail. The estuary contains eelgrass, pondweed, water plantain, sedge, low club rush, and brass buttons. The marshes include sedge, cattail, yellow pond lily, water hemlock, yellow cress, pondweed, azolia, duckweed, and bladderwort.

Historically, coho and steelhead are thought to have occurred throughout the Big River watershed. All of the subwatersheds in the Big River watershed have accessible streams presumed to have been suitable for sustaining populations of salmonids under pre-management conditions. Compared to coho, currently steelhead are reported to be relatively more abundant

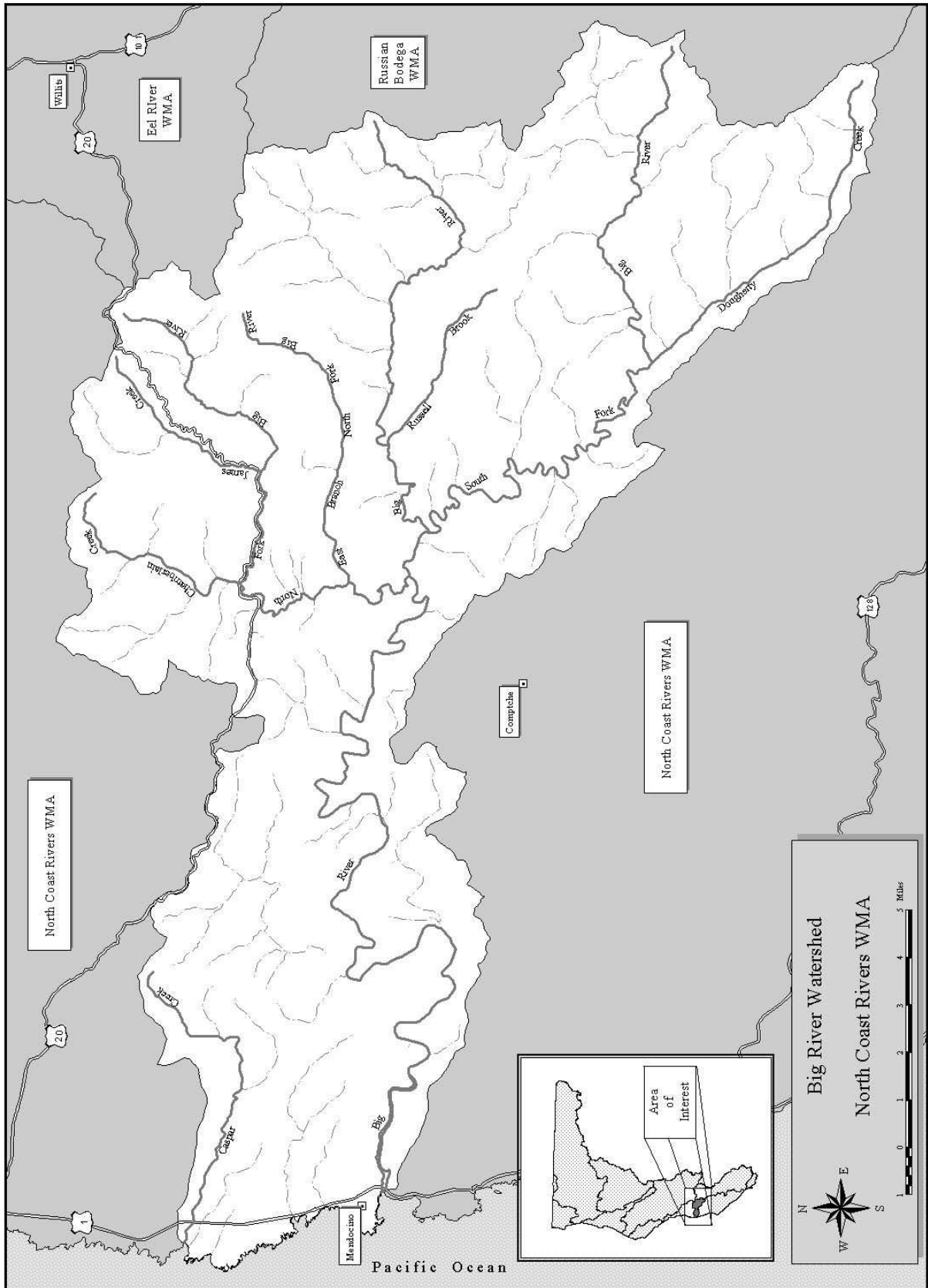


Figure 2.3.6.1. Big River Watershed

and more widespread in the Big River watershed, but the actual population numbers are low for both species, especially as compared to historic levels.

The primary beneficial use of concern in the Big River watershed is the cold freshwater fishery that supports coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*O. mykiss*), both listed as threatened under the federal Endangered Species Act. The Basin Plan identifies municipal, industrial, agricultural, and recreational uses of the Big River watershed. The beneficial uses of water related to rare, threatened or endangered species has been proposed for this basin. As with many of the north coast watersheds, the cold water fishery appears to be the most sensitive of the beneficial uses in the watershed because of the sensitivity of salmonid species to habitat changes and water quality degradation. Accordingly, protection of these beneficial uses is presumed to protect any of the other beneficial uses that might also be harmed by sedimentation.

The following beneficial uses are related to the Big River watershed's cold water fishery:

- Commercial and sport fishing (COMM);
- Cold freshwater habitat(COLD);
- Migration of aquatic organisms(MIGR);
- Spawning, reproduction, and early development(SPWN); and,
- Estuarine habitat (EST).

The five largest property owners are private timber companies and a state-owned forest: together, Mendocino Redwood Company, Jackson State Demonstration Forest, Pioneer Resources, Campbell Timber Management (Hawthorne Timber Company), and Weger Holdings own 83 percent of the watershed. Thirty-one property owners (ownership from 160 to 3,760 acres) own another 14 percent of the land, and the rest is in scattered private residences. Timber production and harvest are the primary land uses in the watershed. The history of the Big River watershed is dominated by timber harvest. Logging began in the basin about 1852. A mill was built, railroads were constructed and splash dams were used to transport logs down the river to the mill. Tractor yarding and road construction began in the 1940's with cable yarding starting in the 1970's. The entire watershed has been logged, some areas more than once. There is some grazing along Comptche-Ukiah Road and the southeast portion of watershed.

There is currently an effort to purchase portions (7,400 acres) of the Big River watershed for protection of the estuary and upland areas. Mendocino Land Trust is coordinating this effort. A total of \$20 million is needed for the purchase. The State will provide \$3 million, \$7 million has been secured from the State Coastal Conservancy, \$2 million are being provided by the Trust for Wildland Communities, \$4 million in private pledges, \$1 million is being provided by the U. S. Fish and Wildlife Service, and the National Fish and Wildlife Foundation along with the Marin Community Foundation are coordinating a private campaign to raise the remaining funds. The State Department of Parks and Recreation has agreed to incorporate the Big River property into the state park system.

#### **IMPLEMENTATION STRATEGY**

Strategy development will occur in the form of the TMDL waste load reduction strategy for sedimentation. The TMDL is tied to resource impacts and reduction of sources to reduce impacts and bring the watershed into a desired future condition that is consistent with the enhancement and maintenance of salmonid species. A broad interagency effort was used to gather and assess existing information on the watershed. Likewise, the development of the strategy will continue to incorporate significant interagency and public coordination.

Other concerns in the watershed will continue to be addressed through existing programs. Given current funding constraints, any new and/or redirected resources should be focused on staffing for field nonpoint source compliance and enforcement inspections.

### **Institutional framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. The SWRCB and CDF/BOF entered into a Management Agency Agreement, which delegates primary water quality authority to the CDF/BOF associated with timber harvest regulation. However, the Regional Water Board has not given up any authority to regulate timber if violations of the Basin Plan occur or threaten to occur. Regulatory activities associated with timber harvest are conducted in accordance with that agreement.

### **ASSESSMENT AND PROBLEM IDENTIFICATION**

The Big River watershed provides degraded conditions for salmonids because of poor quality summer rearing and overwintering habitat, which is limited by high sedimentation, low large woody debris (LWD), a low number of pools, the shallow depth of pools, channel entrenchment and a lack of connection to off-channel habitat. Spawning gravels generally are present, but their quality is low due to embeddedness of the gravels and fine sediment in the substrate. Low canopy cover and high water temperatures in some of the subwatersheds also serve to diminish the value of the habitat to salmonids. Available data are inadequate to quantify population trends of coho and steelhead in Big River watershed streams, however, regional data suggest that coho and steelhead have declined substantially this century. Historically, coho and steelhead are thought to have occurred throughout the Big River watershed in streams that are accessible to salmonids. Coho are present in some areas in the watershed, but the numbers and distribution is low. Steelhead are relatively more distributed and abundant, but, even so, the population is low compared to historic levels.

Sedimentation is a cause of habitat degradation in the Big River watershed. There are concerns about sedimentation on the estuarine processes in the Big River because timber harvesting within the valley has increased erosion on the slopes above the river. Subsequently, the sediment load of the river has increased, as most of the material eroded within the watershed is eventually transported to the river. Estuaries are subject to natural sedimentation with the coarser particles settling out upriver and the finer particles settling out in the estuary and floodplains along the lower reaches of the estuary. Sedimentation greatly accelerated after logging began, resulting in a major decrease in width and rapid sediment build-up along the banks in the lower river. The narrowing channel caused an increase in water velocity and increased deposition of fine sediment on the floodplains in the tidal areas. Levees built up at the edges of wetland flats where they adjoin the main channel are primary indicators of this rapid sediment accretion. These levees extend at least 3 kilometers (2 miles) further down the estuary than they did 80 years ago. There is concern about the effect of excessive sedimentation in the estuary on vegetation, because sediment-driven levee formation has cut off tidewater intrusion in and around the estuarine sloughs. The productivity of the estuary relies heavily on the production of salt marshes.

Sediment delivery to the river and tributaries has varied over time with the most delivery in the early periods of timber harvest when logging practices accounted for most of the sediment generation. But in recent times, since 1989, even though harvesting has increased (over 55 percent of the watershed has been harvested in the last two decades) and the quantity of roads has increased (over a third of the roads have been constructed in the last decade) total sediment generation did not increase over historical levels possibly due to improved road building and timber harvest practices. However, road

related sediment delivery has increased in total and proportionally to the total sediment generated, with 181 tons/sq. mile/year of sediment generated from roads including associated landslides. There is currently an estimated 1,242 miles of roads in the Big River watershed, which translates to a basinwide road density of 6.86 miles/sq.mile.

Other issues of concern in the watershed are potential herbicide runoff due to timberland management, livestock entry into watercourses, a rock quarry that is still active and adjacent to the main river, a permitted septic disposal facility adjacent to Lagoon Creek, a landfill near Casper, a small mill still in operation on Chamberlin Creek near the men's conservation camp, and the City of Mendocino that is sewered with an ocean outfall. There are some leaking underground fuel storage tank sites in the town of Mendocino and in the watershed itself. There is at least one incident of a fuel spill on Highway 20 into James Creek (a Big River tributary) which continues to contaminate the James Creek.

### **WATER QUALITY GOALS AND ACTIONS**

The following listing represents a first-cut delineation of goals and actions to achieve the goals that will be refined through the TMDL development and a Watershed Team.

**GOAL 1: Protect surface and ground water IND, MUN, DOM, REC-1, and REC-2 uses**

**GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD, MIGR, SPWN, EST, COMM**

### **SUMMARY OF WATERSHED ACTIVITIES AND NEEDS**

The overall emphasis in the WMA was the completion of the TMDL waste reduction strategy for sediment. Increased assessment activities and continued high priority forestry related activities, including any needed outreach to vineyards and ranches, are parts of that effort.

#### Assessment and Monitoring:

Assessment of existing information was used in the development of the TMDL strategy, drawing from existing information contained in plans being developed by the CDF and private timber companies as well as any citizen information that is made available. Data along with some analysis is available in the draft KRIS-Big computerized database package. A watershed assessment of the Big River is currently being drafted in a multi-agency effort led by the California Resources Agency called the North Coast Watershed Assessment Program (NCWAP). In total, five state agencies are participating NCWAP: Department of Fish and Game (DFG), Department of Forestry and Fire Protection (CDF), Department of Conservation-Division of Mines and Geology (DMG), Regional Water Quality Control Board – North Coast Region (NCRWQCB), and Department of Water Resources (DWR). As a result, the assessment will touch on each of the respective disciplines.

The principal goal of NCWAP is to compile and develop baseline scientific information about existing biophysical conditions in north coast watersheds. As part of this goal, extensive historical information will be compiled for the Big River watershed. The final product will include updates to a centrally located KRIS Big River database and a watershed assessment which will, among other things, provide a baseline of watershed conditions, help guide watershed restorations programs, and help landowners and agencies implement laws that require specific assessments such as the State Forest Practice Act and Federal Clean Water Act.

In-stream water quality and hillslope monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future in-stream condition. Three stations were monitored for basic water quality parameters as part of the Surface Water Ambient Monitoring Program (SWAMP) in fiscal

year 2000-2001. Presently, there are no plans to continue monitoring at these sites in fiscal year 2002-2003. Additional in-stream water quality monitoring will be needed associated with the TMDL.

Education and Outreach:

The watershed assessment being conducted under NCWAP and the TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

Coordination:

We currently coordinate with local and State agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process and the NCWAP.

Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers with some increase in storm water issues is anticipated. Construction related problems are addressed through the core regulatory program and the local oversight of individual systems.

Ground water:

Ground water issues center around petroleum contamination and mill sites and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

Nonpoint Source:

Continued involvement in forestry, grazing and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL implementation process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self-determined implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Where land management activities are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

Timber Harvest

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection to achieve recovery of this impaired waterbody.

Local Contracts:

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs and the Water Bond (Proposition 13) grant program, as well as promoting other programs like the California Department of Fish and Game programs.



Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Big River watershed. The top priority issue is the review the Nonpoint Source Control Measures

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

**Evaluation and feedback**

We will evaluate progress on a yearly basis, the TMDL providing the focus.

**BUDGET**

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow, and will pursue additional funding to conduct outreach and enforcement activities as needed to pursue the actions we are currently unable to address.

Appendix D contains details on nonpoint source program activities and needs.

## Appendix 2.3.6-A

### Partial listing of agencies and groups with water quality jurisdiction and interests.

#### United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### California State

- California Environmental Protection Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Health Services
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy
- Jackson State Demonstration Forest
- Montgomery Woods State Park

#### Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health

#### Local Agencies

- Mendocino County Resource Conservation District
- city planning departments
- city public works departments

#### Public Interest Groups and Industries

- Coast Action Group
- Pacific Coast Federation of Fishermen's Associations
- Georgia-Pacific Corporation
- Louisiana-Pacific Corporation
- Mendocino Redwood Company
- Campbell Timber Management
- Pioneer Resources
- Mendocino Land Trust
- Trust for Wildland Communities
- Friends of the Big River
- Big River Watershed Alliance

## **SECTION 2.3.7**

### **ALBION RIVER WATERSHED**

Based on the recognition that the anadromous fishery is in decline, activities to assess the watershed and improve conditions for anadromous salmonids are underway. A Clean Water Act Section 303(d) TMDL waste reduction strategy for sediment has been completed in draft and awaits approval by USEPA. The following provides an overview of activities and outlines our basic framework and strategy at this time.

#### **WATERSHED DESCRIPTION**

The Albion River watershed drains an area of approximately 27,500 acres, about 43 square miles. The Albion River estuary is located near the town of Albion and is approximately 16 miles south of the city of Fort Bragg. It primarily drains from the east to the west, sharing ridges with the Big River watershed to the north and northeast and the Navarro River watershed to the southeast and south. Elevations range from sea level to 1,566 feet. The main tributaries of the Albion River include: Railroad Gulch, Pleasant Valley Creek, Duck Pond Gulch, South Fork Albion River, Tom Bell Creek, North Fork Albion River, and Marsh Creek. The Mendocino Redwood Company ("MRC"), an industrial forestry company, owns approximately 54% of the land contained in the Albion River watershed. MRC property is concentrated in the Lower Albion River, Middle Albion River, and South Fork Albion River planning watersheds. Smaller industrial timberland ownerships, a few ranches, and numerous small parcels, typically private residences, make up the balance. Public ownership is limited to several parcels owned by Mendocino County and various school districts and community services districts. Population centers are the towns of Albion and Comptche.

The watershed is dominated by two distinct landforms: the relatively flat marine terraces extending several miles inland, and intervening deeply incised inner gorges of the major river channels and streams that dissect these surfaces. The geology of the Albion River watersheds is part of the Coastal Belt Franciscan Complex. A large part of the geology of the Upper Albion River watershed is Coastal Belt Franciscan Complex – greenstone formation. Terrace deposits are found in the upper Albion River watershed around Comptche and around the North Fork Albion above Soda Spring Creek. Marine Terrace deposits are in the south part of the lower Albion River watershed. On the north end of the lower Albion River watershed Marine Terrace deposits are found. In a narrow strip along the lower mainstem and along Tom Bell Creek sedimentary rocks are found. Two small areas of alluvial fan/colluvium are found at the upper part of the South Fork Albion watershed.

The Mediterranean climate in the watershed is characterized by a pattern of low-intensity rainfall in the winter and cool, dry summers with coastal fog. Mean annual precipitation is about 40 inches at Fort Bragg near the western margin of the watershed and about 50 - 55 inches at Willits to the east. About 90% of the precipitation in this area falls between October and April, with the highest average precipitation in January. Snowfall in this watershed is very rare and hydrologically insignificant.

The Albion River, like the other coastal watersheds in Mendocino County, lies in the Oregonian Biotic Province. As with these other watersheds, redwood and Douglas Fir forest dominate the Albion River watershed. A 1949 survey identified the following assemblages: redwood and fir forest, laurel and poison oak, chaparral, salt marsh, sedge, coast hemlock, cypress, red alder, velvet grass, blackberry, bull thistle, and tangled underbrush. The Albion River has a large estuary with tidal intrusion extending as much as five miles. It contains over two miles of eel grass beds, as well as algae, sea-lettuce, rock weed, and red laver.

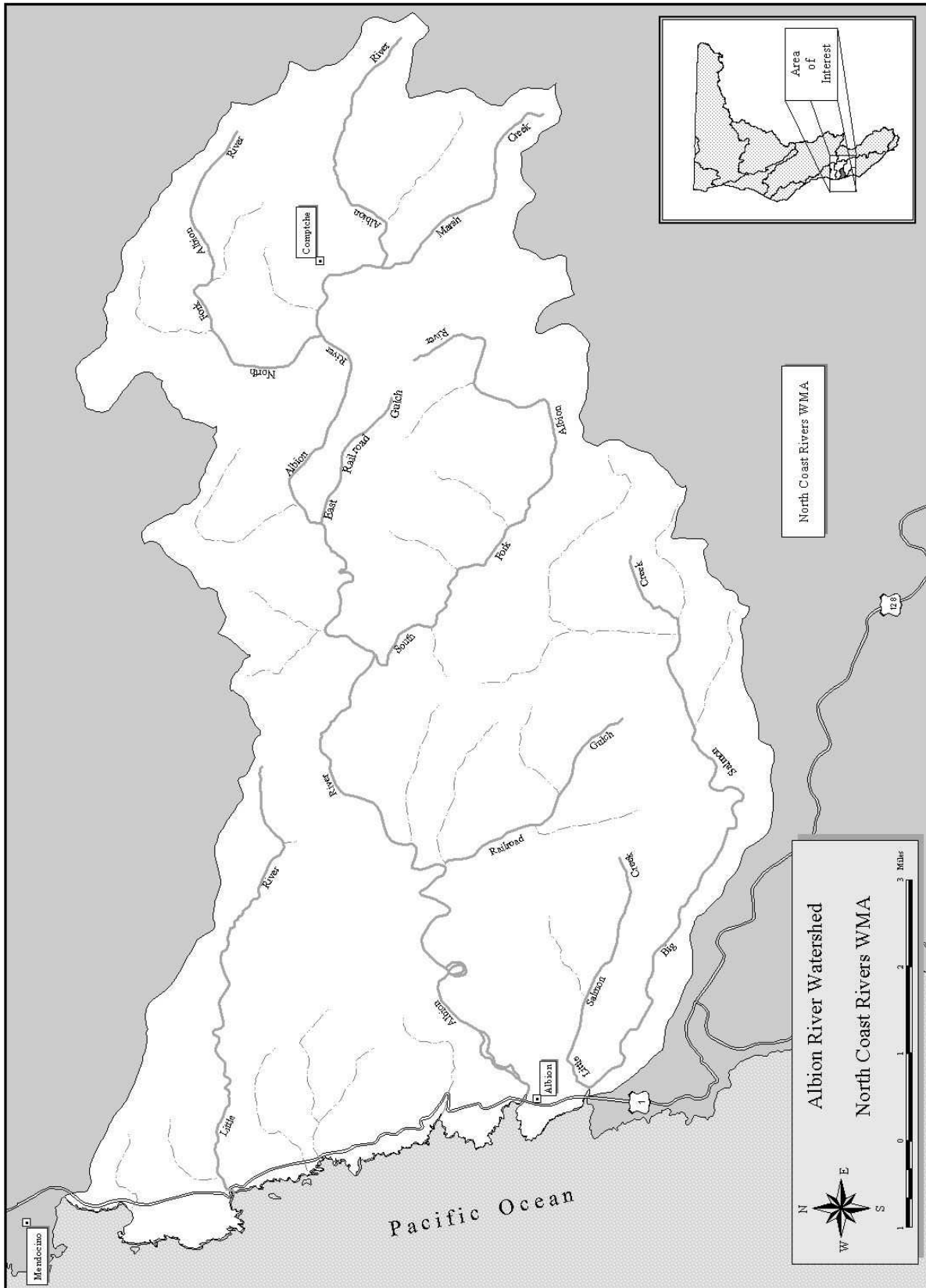


Figure 2.3.7.1 Albion River Watershed

Historic data regarding salmonid abundance and distribution in the Albion River watershed are limited. There are no quantitative data from which to estimate the historic population size of coho and steelhead in the Albion River watershed although there is general agreement that the populations of both have decreased substantially and continue to decline.

The history of the Albion River watershed is dominated by timber harvest. Logging began in the lower basin about 1852, around the time that the first mill was constructed near the lagoon upstream from the mouth of the Albion River. The capacity of the mill was quite small initially, but was expanded to over 10 times its original capacity by 1906. The Albion River Railroad, later sold to Southern Pacific Railroad, began in 1885. The first mill operated until 1928. A number of smaller mills operated in the Comptche area between the mid 1930's and the 1960's. Since 1940, tractor yarding and the construction of roads, skid trails and landings have been the primary types of logging practices.

Until the Forest Practice Rules Act was passed in 1973, logging practices were unregulated. This Act required road construction and timber harvesting practices intended to protect aquatic habitat and watershed resources. During the past twenty years, the use of cable yarding on steeper slopes has increased substantially, and tractor logging is generally restricted to gentler slopes. Cable yarding creates far less ground disturbance than tractor yarding. Tractor yarding is still responsible for a significant amount of the harvest on some ownerships. Relative to the 1890-1928 period, harvest levels were apparently far lower between 1930 and 1960, because the forest was fairly well depleted and was left to regenerate. Current harvest levels have increased significantly with the maturity of second growth.

Albion River estuary as an example of a drowned river valley resulting from a rise in sea level. Tidewater influence extends 4.5 to 5 miles upstream. The mouth of the river is defined by a narrow opening along the south side of the bay protected by rock headlands. This embayment reduces long ocean swell and sea height, which reach the mouth of the river. It also minimizes wave-induced longshore sediment transport, which causes the mouths of many California rivers to close during low flow periods due to sand bar formation. The mouth has aligned itself such that it discharges at the point of lowest wave energy, which allows the stream to remain open to the sea year around. The estuary is used as a commercial and sport fishing harbor and contains a small boat basin.

The Albion River estuary has undergone changes since the logging era that began in the early 1850s. In the early period the estuary was used as a mill pond and transportation corridor to get logs to the mill. A series of dams was also used to transport logs downstream. At least five dam sites that were used in a synchronized fashion to transport logs downstream have been identified. The first railroad to transport logs was built up one of the lower Albion tributaries in 1881. In the mid-1880s a railroad to transport logs to the upper estuary was built along the Albion River from Tidewater Gulch upstream several miles. The Albion Mill eventually closed in 1928 and the railroad discontinued service in 1930. The estuary channel was described as being from 30 to 50 feet wide and 20 to 25 feet deep in the 1940s, well after the modifications resulting from erection of mills, the railroad, mill ponds and dams. In 1961, CDFG estimated the average depth to be five feet with a maximum depth of 20 feet. In 1966, CDFG estimated the average depth to be eight feet.

The beneficial uses impaired by excessive sediment in the Albion River watershed are primarily those associated with the salmonid fishery: commercial sport fishing (COMM), cold fresh water habitat (COLD), estuarine habitat (EST), migration of aquatic organisms (MIGR) and spawning and reproduction and/or early development (SPWN).

## IMPLEMENTATION STRATEGY

Strategy development will occur in the form of the TMDL waste load reduction strategy for sedimentation. The TMDL is tied to resource impacts and reduction of sources to reduce impacts and bring the watershed into a desired future condition that is consistent with the enhancement and maintenance of salmonid species. A broad interagency effort was used to gather and assess existing information on the watershed. Likewise, the development of the strategy incorporated significant interagency and public coordination.

Other concerns in the watershed will continue to be addressed through existing programs. Given current funding constraints, any new and/or redirected resources should be focused on staffing for field nonpoint source compliance and enforcement inspections.

### **Institutional framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. The SWRCB and CDF/BOF entered into a Management Agency Agreement, which delegates primary water quality authority to the CDF/BOF associated with timber harvest regulation. The Regional Water Board has not given up any authority to regulate timber if violations of the Basin Plan occur or threaten to occur. Regulatory activities associated with timber harvest are conducted in accordance with that agreement.

## ASSESSMENT AND PROBLEM IDENTIFICATION

Generally, the most sensitive beneficial use in the Albion River watershed, protection of cold water fish species, is limited by habitat conditions that include excess sediment, lack of complex, deep pools, fair to poor spawning gravels and limited shelter. Excess sediment is adversely impacting the number and volume of pools. Sediment is also causing a moderate to high embeddedness of substrate and spawning gravels in the basin. Shelter is poor throughout the basin. In general, habitat conditions in most locations in the watershed are moderately degraded. However, recently increased road building and timber harvest activities may cause additional degradation in the future, not reflected in current stream habitat conditions. Conditions are more degraded in the South Fork Albion watershed than in the other three subwatersheds.

Data on the salmonid population in the Albion River watershed is sparse, but show that coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*O. mykiss*) spawn and rear in the watershed, although at low numbers. Coho and steelhead populations appear to be in decline.

Although greatly reduced from historic levels, low numbers of coho and steelhead are found distributed throughout the basin. It is believed that native California coho populations have declined by 80 to 90% from their numbers in the 1940s. Data from NMFS regarding commercial landings of coho and chinook from 1976 to 1993 indicate coho landings fell from a high in 1976 of 3.6 million pounds in California, to a low in 1992 of 11,000 pounds, a decline of 99%. Steelhead populations also are in decline. NMFS status review of west coast steelhead concluded that steelhead stocks in the northern California ESU are very low, relative to historical estimates, and recent trends are downward.

The low gradient reaches suitable for coho salmon tend to flow either through tidally influenced, open floodplains, or channels confined by steep side slopes or high terraces. Only Geomorphic Unit type 3 offers the kind of channel conditions typically considered ideal for coho: unconfined, pool/riffle channels with point bars, large woody debris and access to the floodplain. Streams with segments that were found to exhibit geomorphic unit type 3 include Railroad Gulch, Pleasant Valley Creek, Duck

Pond Gulch, Tom Bell Creek, and South Fork Albion. These stream segments, however, have been aggraded in the past and show evidence of moderate to high accumulations of fine sediment today. Both the Albion River mainstem (except that which is tidally influenced) and tributaries (except reaches with slopes >8%) show evidence of aggradation. Coarse sediment continues to accumulate on bars and behind LWD and boulders and fine sediment accumulates on bars and in pools. Stream temperature data shows that in most of the watershed water temperatures are within the range conducive to salmonid production. Watershed analysis showed that spawning gravels are moderately embedded throughout much of the Albion River basin. Overall, MRC found that 73% of mapped landslides in the watershed deposit sediment directly into a watercourse.

There is currently an estimated 362 miles of roads in the Albion watershed, which translates to a basinwide road density of 8.43 mile/sq. mile. Native surface roads are 75 percent of the total, followed by rocked roads at 20 percent, and paved roads at 5 percent. MRC is doing some road rehabilitation and putting new roads on ridge tops or side slopes rather than closes to streams. Road erosion accounts for about 13 percent of sediment delivery to the stream. Together with increased erosion from skid trails, which also reflects the increased timber harvest rates, this accounts for 107 tons/sq. mile/year in the 1998-2000 period, which is double the long-term average of 54 tons/sq. mile/year. Background-related sediment inputs account for about 45 percent of the total, and management-related sediment inputs account for about 55 percent of the total.

Measured canopy closure over the mainstem Albion River ranges from 67% to 84% with an average of 74% (uncorrected for variation in stream segment lengths). All other measured stream segments (with the exception of Railroad Gulch, Segment 4) exceed a mean canopy closure of 80%, although these do not reach a 90% closure. In addition to forest harvest activities, some of the limited canopy in the lower Albion may be explained by the extensive wetlands of this region and some of the limited canopy in the upper Albion may be explained by the presence of grassland vegetation and soils. The lower numbers on the mainstem were attributed to the width of the stream, a streamside road, forest harvest, and extensive wetlands.

In general, one can conclude that the riparian zone of the upper portion of MRC's ownership, with the exception of the South Fork Albion River, has a greater potential to recruit large woody debris than does the riparian zone in the lower portion of their ownership. This fact likely reflects differences in native vegetation from the upper to lower portions of the watershed, as well as differences in the rate and timing of logging activities.

The depth of the estuary has reduced from 20 to 25 feet deep in the 1940s to be less than six feet deep with a heavily silted bottom in 1979. Use of the estuary by salmonids may be limited by the low D.O. concentrations in the estuary as well as poor habitat conditions upriver of the estuary, especially the limited number of large, deep, complex pools. Shelter in pools was found to be far less complex than generally recommended for coho salmon and other salmonids in the mainstem and the tributaries surveyed. Pools are too shallow in most of the basin to provide adequate rearing habitat for coho salmon.

The Albion's estuary dissolved oxygen (DO) concentrations indicate that dissolved oxygen may be limiting for salmonids in the upper portions of the estuary late in the season, a condition that may be exacerbated in low flow years. Low DO may inhibit salmonid use in upper portions of the estuary directly, and secondarily by impacting invertebrate populations. Either an increase in freshwater discharge or increase in tidal action could improve DO concentrations. A decrease in water temperatures might also improve dissolved oxygen concentrations.

Other issues of concern are: two trailer parks with septic system problems that need to be investigated, underground storage tanks leaking to ground water near the bluffs overlooking the ocean, Mendocino Mineral Water bottling plant that at one time had a waste discharge requirement and now needs investigation, and new development of homes and septic systems in the Comptche area.

### **WATER QUALITY GOALS AND ACTIONS**

The following listing represents a first-cut delineation of goals and actions to achieve the goals that will be refined through the TMDL development and a Watershed Team.

**GOAL 1: Protect surface and ground water MUN, DOM, REC-1, and REC-2 uses**

**GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD, MIGR, SPWN, EST, COMM**

### **SUMMARY OF WATERSHED ACTIVITIES**

The overall emphasis in the WMA was the completion of the TMDL waste reduction strategy for sediment. Increased assessment activities and continued high priority forestry related activities, including any needed outreach to new vineyards, are commensurate with that charge.

#### Assessment and Monitoring:

Assessment of existing information was used in the development of the TMDL strategy, drawing from existing information contained in plans being developed by the CDF and private timber companies as well as any citizen information that is made available. Data along with some analysis will be available in the KRIS-Albion computerized database package that will probably be released in the fall of 2002.

In-stream water quality and hillslope monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future in-stream condition. The SWAMP has identified a rotating station low in the watershed for basic water quality parameters. Monitoring needs also include monitoring toxins associated with marina use, boat repair and herbicide use. Monitoring for bacteria and sediment also needs to be increased. Additional in-stream water quality monitoring will be needed associated with the TMDL. NCWAP may be evaluating data and provide a watershed assessment in FY 02-03.

#### Education and Outreach:

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health. Additional outreach to the public will be conducted in junction with the NCWAP effort.

#### Coordination:

We currently coordinate with local and State agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process and the North Coast Watershed Assessment Program

#### Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers with some increase in storm water issues is anticipated. Harbor issues associated with fish processing and individual waste disposal systems (primarily on the south shore of the harbor), as



well as construction related problems, are addressed through the core regulatory program and the local oversight of individual systems.

Ground water:

Ground water issues center around petroleum contamination and mill sites and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

Nonpoint Source:

Continued involvement in forestry, grazing and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL implementation process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self-determined implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the TMDL program.

Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection to achieve recovery of this impaired waterbody.

Local Contracts:

We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs and the Water Bond (Proposition 13) grant program, as well as promoting other programs like the California Department of Fish and Game programs.

Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Noyo River watershed. The top priority issue is review of the Nonpoint Source Control Measures

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

**Evaluation and feedback**

We will evaluate progress on a yearly basis, the TMDL providing the focus.

**BUDGET**

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding to conduct outreach and enforcement activities on new developments of hillside vineyards is needed to pursue the actions we are currently unable to address.

Appendix D contains details on nonpoint source program activities and needs.

## Appendix 2.3.7-A

### Partial listing of agencies and groups with water quality jurisdiction and interests.

#### United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### California State

- California Environmental Protection Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Health Services
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy

#### Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health

#### Local Agencies

- Mendocino County Resource Conservation District
- city planning departments
- city public works departments

#### Public Interest Groups and Industries

- Coast Action Group
- Pacific Coast Federation of Fishermen's Associations
- Mendocino Redwood Company
- Albion River Watershed Protection Association
- Comptche Land Conservancy
- Jughandle Creek Farm and Nature Center

## **SECTION 2.3.8**

### **NAVARRO RIVER WATERSHED**

The Navarro River in Mendocino County, California, is listed on California's 303(d) report as a water quality limited water body requiring the establishment of a Total Maximum Daily Load (TMDL) due to sedimentation and temperature. Technical support documents for the TMDLs were developed in mid-2000. USEPA will promulgate the TMDLs to meet consent decree deadlines. The key stakeholder concern for the Navarro River is the decline of the once healthy coho salmon and steelhead trout fisheries thought to be associated with excess sediment load and elevated water temperatures. Recently, the Anderson Valley Land Trust, Mendocino County Water Agency, and the California State Coastal Conservancy jointly prepared a Navarro Watershed Restoration Plan, focusing on restoration opportunities related to sediment and temperature and their impact on salmonid species in the watershed.

#### **WATERSHED DESCRIPTION**

The Navarro River watershed is a coastal watershed in southern Mendocino County, California, encompassing approximately 315 square miles (201,600 acres). The Navarro River flows through the coastal range, the Anderson Valley, and out to the Pacific Ocean about fifteen miles south of the town of Mendocino. The watershed is the largest coastal basin in Mendocino County and can be subdivided into five major drainage basins: Mainstem Navarro River, North Fork Navarro River, Indian Creek, Anderson Creek, and Rancheria Creek. Three geologic formations comprise most of the Navarro River watershed: the Melange unit of the Franciscan Assemblage, the Coastal Belt of the Franciscan Assemblage, and alluvial fill. Elevations in the basin range from sea level to about 3,000 feet. Rainfall averages about 40 inches per year at Philo, with most of it occurring between December and March.

The population of the watershed is about 3,500 people, with most living in and around the towns of Boonville, Philo, and Navarro. State Highway 128 traverses much of the watershed, paralleling Rancheria Creek and the mainstem Navarro River for approximately twenty-five miles. Land-use in the watershed includes forestland (70%), rangeland (25%), and agriculture (5%) with a small percentage devoted to rural residential development. Timber production, livestock grazing and other agricultural activities have been present in the Navarro River watershed since the mid-1800s. Today, commercial timber harvesting, viticulture, orchards, grazing, and tourism are the principal economic enterprises.

As recently as 1985, the Navarro was considered to have the most anadromous habitat of any coastal stream in the county. The Navarro was famous for its coho (silver) salmon runs. Today the range and abundance of coho salmon have been reduced greatly and subsequently listed as endangered on the federal ESA list. The steelhead, although faring somewhat better than salmon due to a higher tolerance for high water temperature, also have been reduced severely.

The Navarro River basin supports a significant base of agriculture, livestock and timber (and, formerly, fishery) production. Sheep and cattle graze the open grassland areas, especially in the headwaters. Anderson Valley, the most settled part of the basin, supports significant orchard and viticulture industries. Recent vineyard development of the highest ridges surrounding the Anderson Valley has led to the official designation of Sky Island appellation. The lower basin supports mixed redwood-Douglas fir-forest, which has been heavily logged. While exploitation of these resources has been in part responsible for the damage to the salmon and steelhead resource, they continue to play an important role in the local economy. The enhancement of the fishery must be planned and carried out in a way that takes account of other land uses and respects property rights in the basin.

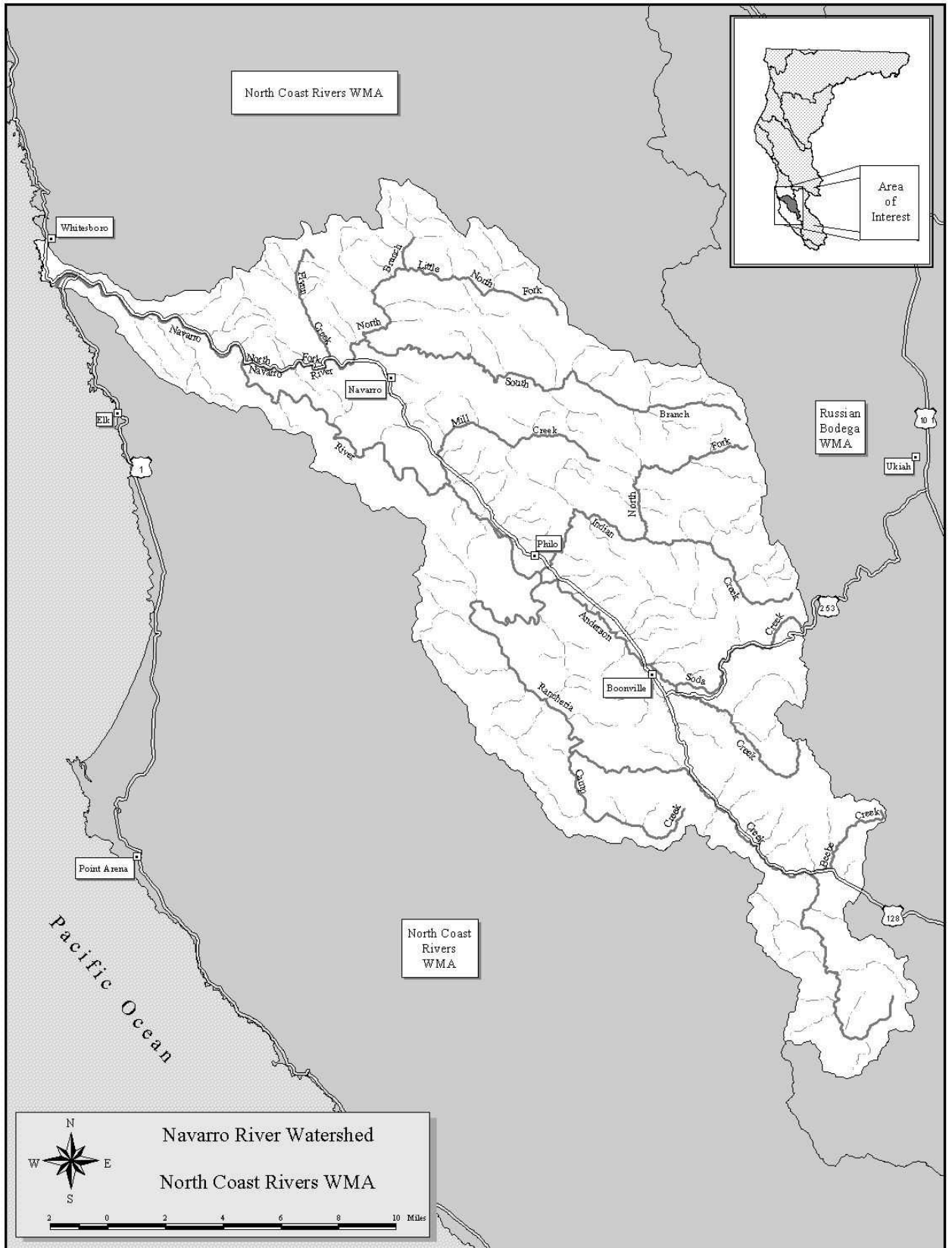


Figure 2.3.8.1. Navarro River Watershed

The watershed damage and concomitant damage to the anadromous fishery of the Navarro River basin is in large measure a result of accelerated erosion and sediment production, coupled with reduced flows in late summer due to agricultural diversion.

A more detailed description and map is available in the restoration plan, *Navarro Watershed Restoration Plan* (1998).

### **IMPLEMENTATION STRATEGY**

The current activities in the watershed aimed at implementing a watershed restoration plan form the primary focus for implementing changes to address problems in the watershed. Regional Water Board staff is actively involved in that effort and is using the information developed in the process for the TMDL strategy for sediment and temperature.

A major challenge to a restoration effort is creation of public understanding of the health of the watershed and support for implementation of specific enhancement activities. Watershed health, and the survival of the coho, is inherently a cross-ownership, community effort in which everyone's actions, upland and downstream, are interconnected. Landowners, interest groups and community leaders should be fully engaged in this process in a non-judgmental, problem solving fashion to build the groundwork for the long-term effort of resource restoration and conservation and economic stability. We will continue to foster a watershed-wide collaborative approach to dealing with watershed problems. Outreach is being conducted by Regional Board staff to also educate vineyard landowners about best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Regional Board staff is continuing to expand outreach activities combined with needed enforcement activities to address this issue.

A TMDL was adopted by the Regional Water Board in January of 2001. Approval by the State Water Resources Control Board is pending. Core regulatory type functions, especially regarding groundwater contamination, will continue as high priority items on a site-specific basis.

#### **Institutional Framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. Provisions in that action plan will be the subjects of the upcoming TMDL waste reduction strategy.

The Anderson Valley Land Trust, Mendocino County Water Agency, and the California State Coastal Conservancy jointly sponsored a Navarro Watershed Restoration Plan, focusing on restoration opportunities related to sediment and temperature and their impacts on salmonid species in the watershed. The products of that effort will be included in the development of a TMDL waste reduction strategy for sediment and temperature by a Watershed Team.

A list of agencies and other groups participating in the process are provided in Appendix 2.3.8-A.

#### **Summary of Activities**

The overall emphasis in the WMA is developing a TMDL waste reduction strategy for sediment and temperature. Increased assessment activities and continued high priority forestry, grazing, and agricultural related activities including hillside vineyards, are parts of that effort.

#### Assessment and Monitoring:

Assessment of existing information and some ground-truthing was performed in developing the TMDL support documents. We will be drawing from existing information developed for a future restoration plan. Monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future condition. Specific monitoring recommendations for temperature include a focused, coordinated monitoring study by the State of California (including CDFG, Division of Water Rights and Regional Water Board) that studies the flow and temperature patterns of areas with current diversions. This would reduce the uncertainty regarding the spatial extent of possible temperature problems from flow and estimates of eleven diversions. Implementation for temperature should include a program to continue to field test the temperature allocations and possible studies on averaging and monitoring techniques for shade. The SWAMP included up to six stations in the FY 2000-01 rotation: Navarro River near Dimmick State Park, Navarro River at Philo, North Fork Navarro at Dimmick, Mainstem Navarro at Dimmick, Indian Creek at Philo, and Rancheria Creek at Highway 128.

#### Education and Outreach:

It is hoped that the TMDL implementation process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health. Increased emphasis on vineyard development is planned through the Nonpoint Source Program.

#### Coordination:

We currently coordinate with local and State agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process, especially with the Division of Water Rights.

#### Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers is anticipated and covers wineries, underground tanks, etc., as well as construction related pollution.

#### Ground water:

Ground water issues center on petroleum contamination and will continue to receive the current level of activity. Ground water and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

#### Nonpoint Source:

Continued involvement in forestry, grazing and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL implementation process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Pollution Control Program strategy of first emphasizing self-determined "voluntary" implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Appendix D contains additional program detail. Where land management activities

are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

Vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. Outreach is being conducted by Regional Board staff to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Regional Board staff is expanding outreach activities combined with needed enforcement activities to address this issue.

Road-related sediment is the dominant source of management-related sediment delivery across the Navarro watershed landscape. Vineyards have the potential to be locally significant, while use of conservation measures such as cover crops and contouring, as well as avoidance of areas prone to erosion can reduce the amount of sediment eroded. Regional Board staff believes that the potential for significant reductions of sediment delivery from vineyard erosion is great, based on the fact that most vineyards in the Navarro watershed are not incorporating the previously mentioned conservation practices. The vineyard density in some smaller watersheds, such as Mill, Lazy, and Floodgate creeks, has great potential to degrade the habitat in those small streams if conservation practices are not employed.

More resources are needed to:

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards

#### Timber Harvest:

The Regional Board has an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

#### Local Contracts:

The Regional Board will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs and Water Bond (Proposition 13) grant program, as well as promoting other programs like the California Department of Fish and Game programs.

#### Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Navarro WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

#### **Evaluation and Feedback**

The Regional Board plans to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. The final evaluation once the TMDL implementation plan (strategy) is developed will feed into the next cycle of assessment and problem identification.

## ASSESSMENT AND PROBLEM IDENTIFICATION

The beneficial uses for the salmonid fishery are currently impaired. Freshwater habitat conditions in the Navarro River and its tributaries have degraded and are not adequate to support the beneficial uses. The degradation in freshwater habitat conditions has contributed to a dramatic decline in the populations of coho and steelhead from historical levels. Current stream temperatures tend to be lowest in small tributary streams, and highest in locations on the main streams of Anderson, Indian, and Rancheria Creeks, and on the Navarro. The active channels are wider than natural in many reaches with high stream temperatures. Riparian vegetation in some of these reaches is sparse. Regional Water Board staff analyzed available data to determine the extent to which various factors are affecting stream temperatures in the Navarro and its tributaries. It is highly likely that summertime water temperatures in the streams of the Navarro River watershed have been altered upward during the past fifty years. Land use activities, water withdrawals, changes in flow, dam construction and associated water releases, point source discharges, and natural factors have contributed to the change.

The results of a sediment source analysis show that human-caused sediment sources deliver approximately 40% of the total sediment yield of the Navarro River watershed. The dominant sources of human-caused sediment delivery (road-related sources) reflect the dominant land uses of the watershed. Both timber production and ranching make use of a vast network of roads, which deliver the majority of the human-caused sediment. Vineyards, which occupy approximately five percent of the watershed, have the potential to deliver large volumes of sediment to streams, and thus have potential to cause locally significant deleterious impacts.

Available data indicate that aquatic habitat could be improved by reducing sediment delivery, increasing large woody debris for sediment metering and habitat, and enhancing the riparian canopy cover to reduce stream temperatures.

This section will be further developed in the future. In summary, the primary water quality problems are sedimentation and increased water temperatures. Water diversions are an issue the Division of Water Rights is addressing.

## WATER QUALITY GOALS AND ACTIONS

The primary goals center around protection of the beneficial uses associated with aquatic life and drinking water supplies. The development of the TMDL waste reduction strategy for sediment and temperature is the highest priority for action in the watershed. For the Navarro temperature TMDL, the Regional Board is setting numeric targets by estimating the natural water temperatures for the watershed. In addition, a target condition related to flow is being set. New and redirected funding has been focused on new staff and/or contracts to assist in developing and implementing the TMDL waste reduction strategy and hillside vineyard outreach and needed enforcement activities.

**GOAL 1: Protect surface and ground water DOM, REC-1, and REC-2 uses**

**GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD**

## BUDGET

The Regional Board will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Additional needs are detailed in Appendix 2.3.8-B for monitoring and assessment and in Appendix D for nonpoint source program activities.



Navarro Watershed Restoration Plan. A Joint Project of the Mendocino County Water Agency, the California Coastal Conservancy, and the Anderson Valley Land Trust, prepared by Entrix, Inc., Pacific Watershed Associates, Circuit Rider Productions, Inc., The Navarro Watershed Community Advisory Group, Daniel T. Sicular, Ph.D.

Additional funding to continue to expand outreach and enforcement activities on hillside vineyards is needed to pursue the actions we are currently unable to address.

#### **Appendix 2.3.8-A**

#### **Partial listing of agencies and groups in the Navarro River watershed with water quality jurisdiction and interests.**

##### United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Council

##### California State

- California Environmental Protection Agency
- Department of Forestry and Fire Protection
- Department of Fish and Game
- Board of Forestry
- Department of Water Resources
- California Coastal Conservancy

##### Mendocino County

- Water Agency
- Mendocino Resource Conservation District

##### Public Interest Groups

- Anderson Valley Land Trust
- Pacific Watershed Associates
- Circuit Rider Productions, Inc.
- The Navarro Watershed Community Advisory Group

## Appendix 2.3.8-B

### Monitoring priorities and needs detail for the Navarro WMA

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently not funded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. **TMDL Monitoring - \$92,000 - (0.7 PY + \$15,000) – FY 01-02, 04-05, 07-08, 12-13, ongoing at 5-year increments**  
Instream and hillslope conditions should be monitored to gauge success and progress of implementation and to provide feedback into the implementation process.
2. **Log Mill Biological Assessments - \$48,000 (0.3 PY + \$15,000) – FY 01-02, 04-05**  
Documentation of conditions and monitoring of the aquatic biota should be conducted to assess the potential problems at historic wood treatment sites at old and existing log mills. Macroinvertebrate sampling under the SWAMP will provide some evaluation of aquatic conditions in this regard as well as begin to establish baseline information for future studies.

## **SECTION 2.3.9**

### **GREENWOOD CREEK WATERSHED**

This section is under construction, but contains some pertinent information.

We will expand the descriptions in the future.

Greenwood Creek is located in Mendocino County in California. It was considered for the 303-(d) lists but was ultimately not proposed for listing. This watershed is still a priority watershed because of the Steelhead and Coho placed on the ESA List.

The creek itself supports many beneficial uses of water, including municipal supplies to the town of Elk, cold water and migratory/spawning habitat for anadromous fisheries (Coho salmon and steelhead), wildlife habitat, recreation, and agriculture.

#### **MANAGEMENT AREA DESCRIPTION**

Greenwood Creek Watershed, approximately 16,000 acres in area, is located on the southern Mendocino Coast between the town of Elk and Philo and between Greenwood Ridge (north), Clift Ridge (south) and Signal Ridge (east). Most of the coastal watershed is privately owned, with 60% owned by Louisiana Pacific Corporation as TPZ land, and the rest owned by approximately 50 smaller landowners. The only public land in or adjacent to Greenwood Creek is Greenwood State Beach, which contains the Greenwood Creek estuary, and a very small parcel owned by Elk County Water District. The watershed is used primarily for timber production, viticulture, fruit orchards, residences and limited cattle ranching. Greenwood Creek, a Class I coastal stream, flows 16 miles from its headwaters high in the watershed, downstream into the Pacific Ocean at the town of Elk. (Greenwood Creek Road Survey)

#### **INSTITUTIONAL FRAMEWORK**

The Water Quality Control Plan for the North Coast Region (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provision of the Basin Plan is the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan.

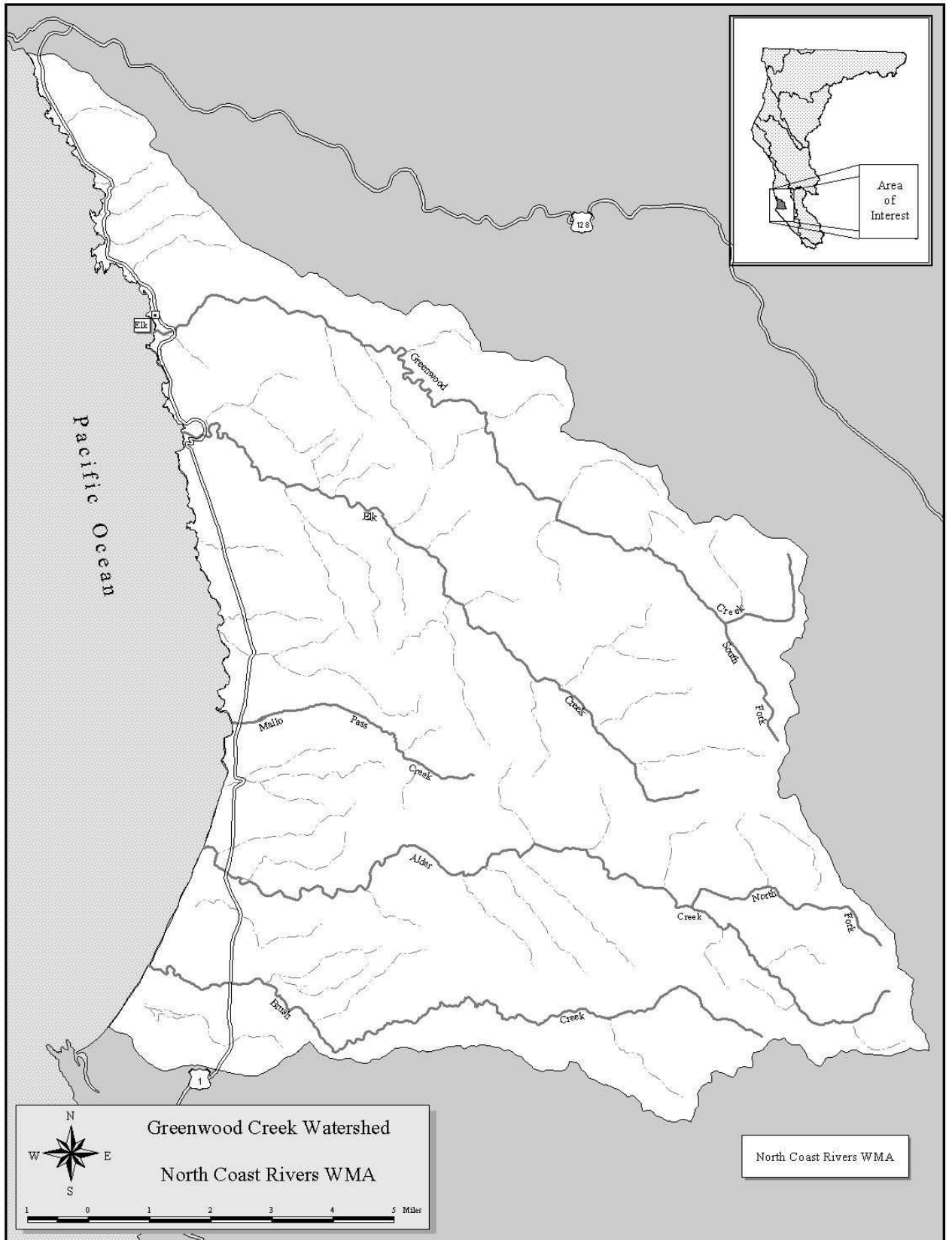
The North Coast Watershed Assessment Program (NCWAP) will move into this watershed in FY 2002-03 as part of the coastal streams south of the Mattole River watershed.

#### **Summary of Activities:**

“Greenwood Creek Watershed Project 1996 Road Survey Summary Report” and “Greenwood Creek Stream Survey Data Analysis and Recommendations.”

#### **Nonpoint Source:**

Continued involvement in forestry, grazing and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat.



**Figure 2.3.9.1.** Greenwood Creek Watershed

## **SECTION 2.3.11**

### **GARCIA RIVER WATERSHED**

The Garcia River watershed, located in southern Mendocino County, is a forested watershed with coastal influenced climate in the lower half of the drainage (Figure 2.3.11-1). Steelhead and coho salmon utilize the stream for spawning and rearing, however populations have plummeted in the last decade. The Garcia River is listed under Clean Water Act Section 303(d) for excessive sedimentation and subsequent anadromous salmonid habitat loss.

Portions of the Garcia River are listed under section 303(d) for excessive water temperatures.

#### **WATERSHED DESCRIPTION**

The Garcia River watershed comprises approximately 73,223 acres in southwestern Mendocino County. The river flows northwest along the San Andreas Fault Zone for part of its course and then west to the Pacific Ocean. The Garcia River forms an estuary that extends from the ocean to the confluence of Hathaway Creek. It is a forested watershed consisting of mixed conifer (primarily fir and redwood) and hardwood (primarily tan oak and madrone) forests. The lower portion of the watershed, including the estuary, is primarily cropland and contains few if any conifers in the riparian zone. Data from 1991 indicates that the canopy density (with the possible exception of Mill Creek) is generally poor. Further, the component of canopy attributable to coniferous tree species is generally low. This finding correlates with the additional finding that the occurrence of large woody debris (LWD) in these same survey reaches was also generally low.

Beneficial uses of the Garcia River include commercial and sport fishing; cold freshwater habitat; wildlife management; migration of aquatic organisms; spawning, reproduction and early development; and estuarine habitat. Sedimentation is impacting the beneficial uses of the Garcia River watershed. The Clean Water Act requires the establishment of a Total Maximum Daily Load (TMDL) as the mechanism for controlling sediment pollution that is impacting the beneficial uses of the Garcia River watershed.

On October 19, 1993, the United States Environmental Protection Agency (US EPA) placed the Garcia River watershed on the Clean Water Act section 303(d) List of Impaired Waterbodies due to impairment and/or threat of impairment to water quality by sediment. The level of sedimentation in the Garcia River watershed was judged to exceed the existing Water Quality Standards necessary to protect the beneficial uses of the watershed, particularly the cold water fishery. Accelerated erosion from land use practices and other causes is impacting the migration, spawning, reproduction, and early development of cold water fish such as coho salmon and steelhead trout.

Natural events and multiple land uses are responsible to varying degrees for sediment contributions through accelerated erosion and mass wasting and include timber production and harvest, road construction and maintenance, grazing, gravel mining, and agriculture. The period of heaviest timber cutting in the Garcia River watershed was between 1954 and 1961, but industrial and non-industrial timber harvesting continues today. Statistics kept since 1987 indicate that 38,363 acres of the 73,223 acre watershed were harvested from 1987 to 1997 (52% of the basin). Forty-two percent of that harvesting occurred in 1988 and 1989. Most of the harvesting in this period occurred on property owned by Coastal Forestlands, Ltd., with additional harvesting on the Georgia-Pacific Corporation, Louisiana-Pacific Corporation, Bewley, Hanes, Alden and Mailliard properties, as well as that of smaller landowners (<1000 acres). The watershed is all privately owned under multiple ownership. Hillside vineyard development is a concern for production of sediment as land is converted to new vineyards in the future.

A comprehensive watershed description is included in the *Proposed Garcia River Watershed Water Quality Attainment Strategy for Sediment* (Mangelsdorf and Lundborg 1997) and the *Assessment of Aquatic Conditions in the Garcia River Watershed* (NCRWQCB 1997) that were prepared for the development of a Clean Water Act section 303(d) waste load allocation and sediment reduction process.

### **IMPLEMENTATION STRATEGY**

In response to the sedimentation and fisheries issues and concerns for the effects of land use practices in the watershed, the Mendocino County RCD obtained Coastal Conservancy funding for a watershed assessment and enhancement plan. The assessment and restoration strategy, *Garcia River Watershed Enhancement Plan*, completed in 1992, involved considerable local involvement and the creation of the Garcia Watershed Advisory Group (WAG). The Regional Water Board reformed the WAG in preparation for the development of a phased "TMDL" waste load allocation and sediment reduction process pursuant to Clean Water Act Section 303(d). The process resulted in the development of a *Garcia River Watershed Water Quality Attainment Strategy* (WQAS) which proposed specific actions to address erosion and sedimentation while recognizing the work that has already been done in the watershed. The strategy has been revised and renamed to reflect its role as a supporting document to a Basin Plan amendment and is now known as the Reference Document for the Garcia River Watershed Water Quality Attainment Action Plan (Action Plan) for sediment. The Reference Document and the Action Plan are staff-level tools for landowners; land managers; interested public; and state, local and federal resource protection agency personnel to use as an aid for developing and implementing plans to reduce sediment delivery to the Garcia River and its tributaries. Core regulatory type functions, especially regarding ground water contamination, will continue as high priority items on a site-specific basis. A TMDL and implementation plan were adopted by the Regional Water Board in June 2001, and the State Water Resources Control Board in November 2001. Self-directed implementation will be encouraged through education, training, financial assistance, technical assistance, and demonstration projects. A self-directed approach would take advantage of the expertise and incentives offered by a variety of existing State and Federal programs which are geared towards promoting private actions which could have water quality benefits.

#### **Institutional Framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan.

Numerous other efforts have evolved in the watershed since the original watershed enhancement plan that furthered the development of the section 303(d) Action Plan.

- The Mendocino County Board of Supervisors approved a Water Agency gravel management plan funded by a Clean Water Act section 205(j) grant;
- The Mendocino Watershed Service, a nonprofit stream rehabilitation organization, used the President's "Jobs in the Woods" funds for salmonid restoration activities;
- A court settlement following a bentonite spill into a tributary of the Garcia resulted in funds for stream rehabilitation;
- Fish and Game stream restoration funds have been used in the North Fork Garcia River to improve habitat

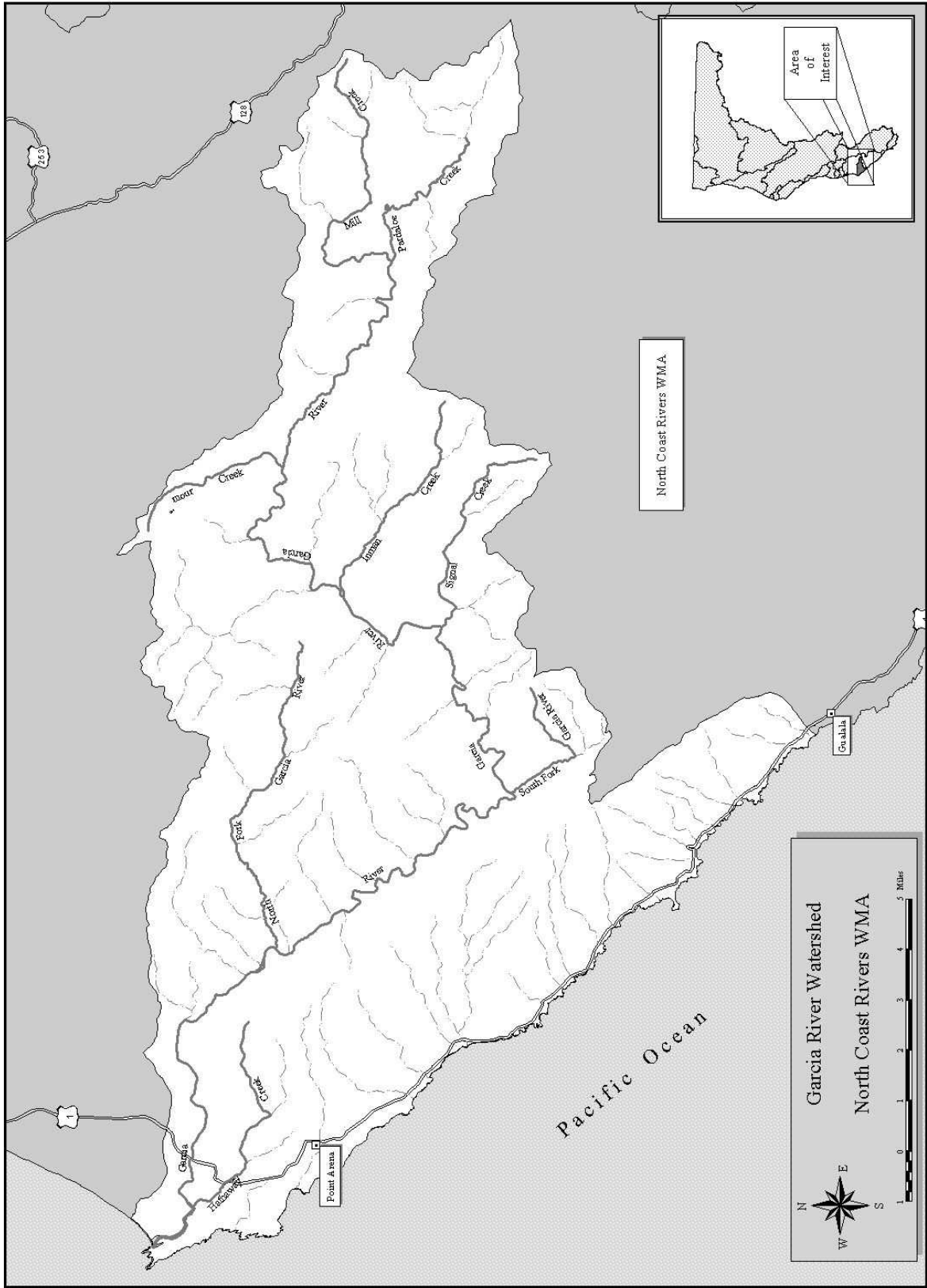


Figure 2.3.11.1 Garcia River Watershed

- The Adopt-a-watershed program is active in the area;
- Coastal Forest Lands (since sold to Pioneer), a timber company that owns most of the North Fork, developed a sustained yield plan (SYP) under the Forest Practice Rules that included watershed management components. Mendocino Redwoods Company (formerly Louisiana-Pacific Corporation) also developed a SYP for their land ownership in the Garcia and made watershed assessment data available to the Regional Water Board staff to assist in the WQAS development;
- The California Department of Forestry and Fire Protection and Board of Forestry targeted the Garcia for a pilot long-term Forest Practice Rules effectiveness monitoring program and;
- The California Resources Agency targeted the Garcia watershed for a pilot data integration effort; the first phase is to develop a metadata listing for access on the World Wide Web through the California Environmental Resources Evaluation System (CERES).

The Regional Water Board effort is focusing on coordinating the above activities and taking actions to reduce erosion and sedimentation to improve salmonid habitat, while satisfying federal and State requirements for Clean Water Act section 303(d). The Action Plan is completed and a formal amendment to the Basin Plan was proposed in January of 1998. Staff returned to the Board with a revised proposal in May of 1998 and another revision in December of 1998. The TMDL and implementation plan was last adopted by the State Water Resources Control Board in November 2000, was approved by the Office of Administrative Law in January 2002, and is now in effect.

The proposed Basin Plan amendment sets a time schedule for addressing sediment sources by type with a final attainment date of 2038. It also incorporates a change to the prohibition regarding sediment discharge in recognition of the impaired status of the Garcia River and proposes three options to obtain relief from fines under the prohibition. The proposed change replaces reference to the prohibition of discharge of sediment in “amounts deleterious” to aquatic life with prohibition of discharge of sediment from “controllable sources” and further defines controllable as human-induced and reasonably controllable.

The three options available to landowners under the proposal are to:

1. avoid controllable discharges of sediment;
2. develop a Site Specific Sedimentation Reduction Plan for their ownership, taking into account watershed conditions and addressing issues on a broad watershed scale as appropriate; or
3. use the measures set forth in the Garcia Watershed Sedimentation Reduction Plan, which are conservative due to the broad application across the entire watershed.

The intent is to focus staff effort and involvement on a priority sub-watershed basis, using criteria for sediment delivery rates, fishery values, and property size in determining which sub-watersheds would be required to submit Statements of Intent detailing their intent to comply with one of the three options or a melding of them. Staff will focus resources on those priority sub-watersheds, providing assistance on the basis of priority.

In addition to the Action Plan, other activities in the watershed are of concern for water quality and will be coordinated within the Regional Water Board and at local levels as appropriate.

### **Summary of Activities**

The primary emphasis in the watershed will be the implementation of the Action Plan for sedimentation reduction, including monitoring. Our core regulatory and toxics site mitigation



activities will continue at their current levels. All landowners engaged in land management activities which result in the discharge of sediment to the stream are encouraged to collect the necessary baseline information, mitigate or control existing and potential sediment delivery sites, and implement fish-friendly land management practices. Instream and hillslope monitoring by landowners is on a voluntary basis. However, most important to the success of controlling sediment is the cooperation and involvement of the largest landowners, including the 10 largest landowners each owning greater than 1000 acres of property in the basin. Without the cooperation and participation of these larger landowners, the overall success of the Action Plan and improvements to the instream environment will be significantly lessened.

#### Assessment and Monitoring:

The Monitoring Plan is an important component to the overall Action Plan because it will provide the information necessary to make adjustments to the overall assessment as site-specific data are generated and more definitive relationships among hillslope conditions, hillslope activities, and instream conditions are revealed and to assess progress towards attainment of the desired future conditions as expressed by the Numeric Targets. There are 10 landowners in the Garcia River watershed that each owns more than 1000 acres of property in the basin. Their total land holdings cover 81% of the watershed. In order to work efficiently, Regional Water Board staff proposes that those landowners are the staff's highest priority for encouragement and assistance in developing and reviewing proposed Site-Specific Management Plans.

Regional Water Board staff will coordinate instream monitoring efforts of the landowners, other regulatory agencies, academic institutions and members of the public and shall set a goal of establishing at least one instream monitoring point in each of the twelve Planning Watersheds in the Garcia River watershed. In addition, Regional Water Board staff will work together with the University of California Cooperative Extension to assist landowners in developing voluntary monitoring plans.

A monitoring strategy is contained in the Action Plan but needs to be refined. The NCR will work with the UC Extension Service in their rangeland management and monitoring training activities, and major landowners in priority sub-watersheds, as well as promote volunteer monitoring in the watershed. Monitoring for the most part will be supportive of the Action Plan and assist in fine-tuning the numeric targets and implementation measures. First-round TMDL monitoring occurred in the spring of 2000, and SWAMP stations are included for FY 2000-01 for general water quality information at: Garcia River near Point Arena and at Eureka Hill Road bridge, and in the South Fork. Additional details on Regional Water Board monitoring and assessment needs are presented in Appendix 2.3.11-B.

#### Education and Outreach:

We will continue to support education and outreach, coordinating with the UC Extension Service, Farm Bureau, the California Department of Forestry and Fire Protection and industrial timber companies. Staff level involvement will be on a priority sub-watershed basis.

#### Coordination:

Coordination with the Mendocino RCD, other restoration efforts, the California departments of Fish and Game and Forestry and Fire Protection, National Marine Fisheries Service, the Garcia WAG, Farm Bureau, local interest groups and others is a necessary part of the phased Action Plan. We will use the sub-watershed prioritization as the primary determining factor for staff involvement.

#### Core Regulatory:

We plan on maintaining the current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers, such as underground tanks, toxic contaminated sites, and sewage treatment works. Involvement in the gravel mining issues will continue under the Action Plan.

#### Ground water:

Ground water issues center around petroleum and other toxic contamination at specific sites. We will continue cleanup activities at those sites, while working with the Mendocino County Health Department to educate users of agricultural, industrial, and residential tanks on pollution prevention.

#### Nonpoint Source:

The Action Plan is a phased reduction plan that focuses on sedimentation as the primary nonpoint source problem in the watershed. Several activities are detailed in this summary, including assessment and monitoring, education and outreach, coordination, local contracts, and water quality planning. The Action Plan lays out an approach for inventorying erosion sites and addressing sedimentation problems and constitutes a meld of the Tier 1 and Tier 2 levels of the statewide Nonpoint Source Management Plan. The Rangeland Water Quality Program is an option for part of the agricultural compliance with the Action Plan. Where land management activities are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

Vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. The Regional Board staff will need to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water through an outreach program as conversion of land to vineyards occurs.

#### Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

#### Local Contracts:

We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs and Water Bond (Proposition 13) grant program, as well as promoting other programs such as the California Department of Fish and Game programs.

#### Water Quality Planning:

The planning process feeds into the activities to the extent issues are identified for the Garcia WMA:

- Perform Triennial Review of the Basin Plan

#### **Evaluation and Feedback**

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. Emerging issues of large magnitude or high priority may cause early re-evaluation and shifting priorities.

### **ASSESSMENT AND PROBLEM IDENTIFICATION**

The Garcia River and its tributaries have experienced a reduction in the quality and amount of instream habitat that is capable of fully supporting the beneficial use of a cold-water fishery, due to

increased sedimentation. The acceleration of sediment delivery in the Garcia River watershed due to land management activities has resulted in the reduction of pools necessary for salmonid rearing and the loss or degradation of potential spawning gravel. In addition, the loss or reduction of instream channel structure in the Garcia watershed due to land management activities has contributed to this habitat loss. The existing watershed enhancement plan provides an overview of the problems and identifies specific areas for implementation. The *Water Quality* Action Plan details specific problem areas and sediment sources. The following is an overview and is not intended to duplicate the comprehensive analysis in the Action Plan.

#### Overview of current and future land uses

Primary land uses are forestry, dairies, grazing, and gravel mining, with little change in the last two decades. The Action Plan or Reference Document contains additional detail on land use and changes over time, which are not repeated in this section.

### **WATER QUALITY GOALS AND ACTIONS**

The Regional Water Board Garcia Watershed Team, composed of staff members familiar with our activities in the WMA, prioritized goals and actions to address issues associated with the goals. The goals and actions, and their priority rankings reflect the desire to address certain issues in a priority fashion. However, the realities of funding constraints and program-related priorities may override the priorities developed by the Team. The Team developed the goals and rankings prior to the development of the Action Plan.

The broad goals for the WMA include improving the anadromous fishery through sediment reductions and habitat enhancements and maintaining the other high beneficial uses of both surface and ground water. The three goals for the Garcia River are related through the beneficial uses they address:

- **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)**
- **GOAL 2: Protect and enhance ground water resources and attendant high beneficial uses**
- **GOAL 3: Protect all other surface water uses**

The protection of cold water fisheries (GOAL 1) requires the protection of surface water (GOAL 3) and ground water (GOAL 2) along with additional concerns for siltation, habitat loss, temperature and low tributary flows. Actions to protect the beneficial uses for GOAL 1 (COLD) largely serve to protect all other uses, except MUN.

The NCR adopted the Garcia River Water Quality Action Plan for sediment on December 10, 1998 in fulfillment of section 303(d) of the CWA. The Action Plan is proceeding through the regulatory approval process with the SWRCB, OAL and EPA. Until approval is completed, the NCR is educating and encouraging landowners to implement land use practices to reduce sediment production.

#### **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)**

The anadromous fishery has experienced severe decline in the last 40 years. Natural events and multiple land uses are responsible to varying degrees for sediment contributions through accelerated erosion and mass wasting and include timber production and harvest, road construction and maintenance, grazing, and gravel mining. A decrease in the depth and size of the estuary, as well as increased water temperatures in some parts of the watershed, are at issue. Additional upslope erosion controls are needed to reduce sediment delivery to waterways in the Garcia watershed. We must promote and develop considerations for the stability of stream channels and maintenance of channel form consistent with a functioning hydrologic channel. The riparian and instream habitat components

must be enhanced. Instream temperatures for cold-water habitat and adequate stream flows to protect and enhance salmonid resources and COLD will be managed.

### **Nonpoint Source Issues**

#### **Current Activities**

- participate in the THP review team and preharvest inspections
- review and comment on SYPs and HCPs to ensure consistency with the Action Plan
- provide outreach and education to local landowners
- promote 319(h) grants for restoration
- review existing temperature data and collect more to fill data gaps
- list segments for temperature exceedances on CWA Section 303(d) list
- review compliance with the Action Plan
- enforce on violations of the Basin Plan and/or Action Plan
- stay involved in and promote the above considerations in the Section 404 permit process and CDFG 1603 process
- manage the 319(h) Garcia Restoration Project
- supplement the Action Plan by doing the following:
  - inventory landowner and county road problems
  - promote outcropping and rolling dips for roads in the WMA
  - develop specific targets for implementation measures within the WMA
  - request Rangeland Management Plans from ranchers
  - promote specific implementation plans in the Action Plan to address identified sources
  - implement upslope erosion controls
  - manage and maintain properly functioning riparian zone (may include promoting late seral stage coniferous vegetation)
  - keep channel profile, plan, and dimension appropriate for the valley type and slope
  - provide outreach and education to landowners, including outreach for new hillside vineyard development projects
  - promote a “no cut” zone with conifers as a component of the vegetation
  - encourage bridges instead of culverts on fish-bearing streams
  - discourage direct diversion for road watering/dust control

#### **Additional Needs**

- identify erosion and sediment sources and potential sources
- implement and monitor the Mendocino County Garcia River Gravel Management Plan
- review effectiveness of current enhancement projects
- monitor, assess, and review areas needing work and determine best option
- support and promote CDFG restoration efforts
- promote and encourage riparian canopy where needed
- promote and encourage maintenance of adequate stream flows
- enhance estuary conditions per the enhancement plan
- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards
- consider effects of off-stream water supply pits and channel stability
- provide increased outreach and education to landowners, including outreach for new hillside vineyard development projects

**GOAL 2: Protect and enhance ground water resources and attendant high beneficial uses**

The underground storage tanks and toxics remediation programs are aimed at addressing the issues associated with this goal. While pollution/contamination issues are site specific and localized, ground water in those areas is an important resource and supports high beneficial uses. Solvents, petroleum, and metals have been detected in the ground water and surface water at the US Air Force's Point Arena Station. A number of small sites are contaminated with petroleum products.

**Point Sources Issues**

**Current Activities**

- continue cleanup activities at contaminated sites
- continue the effective individual waste systems program

**Nonpoint Source Issues**

**Current Activities**

- work with the Mendocino County Health Department to educate users of agricultural and residential storage tanks on pollution prevention
- work with landowners on best management practices for groundwater protection.

**GOAL 3: Protect all other surface water uses**

The actions above for GOAL 1 largely serve to protect all other uses, however additional issues with regard to beneficial use impairment may arise in the future. If issues do arise, we will address them through this process.

**BUDGET**

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Monitoring and assessment needs are detailed in Appendix 2.3.11-B, and nonpoint source activities and needs are contained in Appendix D.

Additional funding to conduct outreach and enforcement activities on new developments of hillside vineyards is needed to pursue the actions we are currently unable to address.

## Appendix 2.3.11-A

**The following is a list of agencies and groups that are active in or have jurisdiction in the Garcia River watershed.**

### United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Department of Defense

### California State

- California Environmental Protection Agency
- Resources Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Transportation
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy

### Mendocino County

- Water Agency
- Planning Department
- Public Works Department

### Local Agencies

- City of Point Arena
- Mendocino County Resource Conservation District

### Public Interest Groups

- Friends of the Garcia
- Sierra Club
- Mendocino Watershed Service
- CalTrout
- Coast Action Group
- Agricultural Landowners Association
- Mendocino County Farm Bureau

### Tribal

- Manchester Rancheria

## Appendix 2.3.11-B

### Detail of monitoring priorities and needs for the Garcia River watershed WMA

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently not funded.

The estimates are Regional Water Board needs on a per year basis with desired fiscal years identified.

1. **Updated Aerial Photos - \$37,000 (0.2 PY + \$15,000) – FY 04-05**

Aerial photos will need to be interpreted to evaluate conditions in the watershed and in providing an update to the TMDL and implementation plan.

2. **Additional Water Quality Monitoring - \$50,000 (0.2 PY + \$28,000) – FY 02-03**

Additional work is needed to assess sediment in the river. Continuous turbidity monitoring, suspended sediment, and bedload evaluations are needed.

### Surface Water Monitoring Program

The SWAMP addressed basic water quality monitoring issues in the WMA in FY 2000-01 at three stations: Garcia River near Point Arena, Garcia River at Eureka Hill Road bridge, and South Fork Garcia River





## **SECTION 2.3.12**

### **GUALALA RIVER WATERSHED**

The Gualala River in Sonoma and Mendocino counties, California, is listed on California's 303(d) list as a water quality limited water requiring the establishment of a Total Maximum Daily Load (TMDL), due to sedimentation. The key stakeholder concern for the watershed is the decline of the once healthy coho salmon and steelhead trout fisheries thought to be associated with excess sediment load and elevated water temperatures. A Consent Decree entered in settlement of a lawsuit against the USEPA assigned the date of December 31, 2001, for completion of TMDL allocations for the Gualala River. The Regional Board staff are required to submit technical support documents for the TMDL by July of 2000.

#### **WATERSHED DESCRIPTION**

The Gualala River watershed is about 300 square miles, running in a north-south direction and flowing into the ocean at the town of Gualala (Figure 2.3.12-1). The watershed consists of five principle tributaries. These include the North Fork, Rockpile Creek, Buckeye Creek, Wheatfield Fork, and the South Fork. The watershed is in mostly mountainous and rugged terrain in both Sonoma and Mendocino Counties with relatively erodable soils. The tributaries flow through steep valleys with narrow bottom lands and elevations range from sea level to over 2,650 feet. The headwaters area of the South Fork and Wheatfield Fork subwatersheds are characterized by steep slopes forested by redwood, Douglas fir, madrone, and tan oak. Open grasslands are interspersed throughout the headwaters of the North Fork, Rockpile Creek, Buckeye Creek, and Wheatfield Fork subwatersheds. The oak-woodland predominates as a more continuous distribution on higher terrain, inland from the coastal marine influence. Streamside vegetation consists primarily of red alder, California laurel, and redwood. Throughout the Gualala River watershed more than ninety percent of the annual precipitation falls between October and April, with the greatest amounts falling in January. Rainfall averages 38 inches per year at the coast and up to 100 inches per year on the inland peaks.

Primary land use is forest production and grazing. Forestry is still a major land use today. Approximately thirty four percent (34%) of the Gualala River watershed is owned by timber companies. Timber harvest activities in the Gualala watershed include, Gualala Redwoods Inc. (GRI), the largest timberland owner (approx. 30,000 acres), employs intensive harvesting practices (clear-cutting and burning coupled with herbicide applications). Some of the last remaining old growth is located on Richardson property in the Haupt Creek subwatershed. Unstable Slopes are present throughout the timberland and harvesting activities on these slopes affects slope stability.

Sheep and cattle ranching were prominent industries but have become less significant in recent times. Agriculture has also been a primary land use in the Gualala Watershed. Orchards were a significant agricultural activity in the past. Today, vineyards are beginning to become more common throughout the watershed and are likely to become more widespread. Hillside vineyard development is becoming an increasing threat to water quality as more and more steep land is converted to vineyards.

The primary population centers in the Gualala River watershed are the towns of Gualala, Sea Ranch, Stewarts Point, Annapolis, and Plantation. The Gualala River is the main source of drinking water for the Sea Ranch community, and the North Fork Gualala serves the town of Gualala. The town of Annapolis depends on springs and wells. The Gualala River supports an anadromous fishery including coho salmon, which was listed in 1995 as threatened under the federal Endangered Species Act. A more detailed description will be available as a result of the development of a restoration plan.

## **IMPLEMENTATION STRATEGY**

The current activities in the watershed aimed at developing a watershed restoration plan form the primary focus for implementing changes to address problems in the watershed. Regional Water Board staff is actively involved in that effort and will use the information developed in the process for the TMDL strategy for sediment

A major challenge to a restoration effort is creation of public understanding of the health of the watershed and support for implementation of specific enhancement activities. Watershed health, and the survival of the coho, is inherently a cross-ownership, community effort in which everyone's actions, upland and downstream, are interconnected. Landowners, interest groups and community leaders should be fully engaged in this process in a non-judgmental, problem solving fashion to build the groundwork for the long-term effort of resource restoration and conservation and economic stability. We will continue to foster a watershed-wide collaborative approach to dealing with watershed problems. Outreach is being conducted by Regional Board staff to also educate vineyard landowners (about) best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Regional Board staff is continuing to expand outreach activities combined with needed enforcement activities to address this issue. Given current funding constraints, any new and/or redirected resources should be focused on staffing for field nonpoint source compliance and enforcement inspections.

### **Institutional Framework**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. Provisions in that action plan will be the subjects of the upcoming TMDL waste reduction strategy.

The Gualala River Watershed Council (GRWC) is a local group of interested citizens, agencies, and businesses, focusing on overall watershed health and restoration opportunities related to sediment and temperature and their impacts on salmonid species in the watershed. An ultimate goal is to develop a watershed enhancement plan.



Figure 2.3.12.1. Gualala River Watershed

A Watershed Team will (combine) information and ideas from that process into the development of a TMDL waste reduction strategy for sediment and temperature in the near future

Appendix D contains additional detail regarding nonpoint source activities.

#### **Additional Needs**

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards.
- Conduct outreach on best management practices for hillside vineyards.
- Water temperature extremes need to be further assessed.
- Additional monitoring of the effectiveness of best management practices related to vineyards and timberland activities.

#### **ASSESSMENT AND PROBLEM IDENTIFICATION**

Recent data indicate that current streambed habitat remains impaired for salmonid spawning, incubation, and emergence. The success of salmonid spawning, incubation, and emergence success in the Gualala River watershed may be limited by the following factors. The impact of fine sediments on spawning and rearing habitats, lack of pool habitat provided by large woody debris, and increased stream temperature possibly due to canopy removal and an oversupply of sediment.

The results of a sediment source analysis by Regional Water Board staff shows that natural sediment yield accounts for approximately 1/3 of the total sediment delivery in the watershed while human-caused sediment delivery accounts for 2/3 of the sediment delivery in the watershed, or 200% of the natural load. The analysis shows that road-related processes are the dominant source of sediment delivery in the watershed. Gualala Redwoods, Inc., measured percent fines in the North Fork tributaries between 1997 and 1999. With the exception of Dry Creek, all of the tributaries, on average, had percent fines greater than 15%, and thus fall within the range for salmonid habitat that is less than ideal. This data indicates a widespread impact of upslope disturbances throughout the watershed.

Data from the Gualala River Watershed Council, Gualala Redwoods, Incorporated (GRI), and the Mendocino Redwoods Company show that stream temperatures for most of the watershed exceed preferred juvenile rearing temperature ranges for steelhead and coho. Limited exceedance of short-term maximum lethal temperatures for steelhead and coho occur throughout the watershed. The causes of elevated stream temperatures (e.g., changes in channel morphology, reduced riparian canopy cover, aggradation) have not been thoroughly assessed.

Available data indicate that aquatic habitat could be improved by reducing sediment delivery, increasing large woody debris for sediment metering and habitat, and enhancing the riparian canopy cover to reduce stream temperatures. In the Fuller Creek and McKenzie Creek watersheds, road-related erosion is believed to be a major source of sediments to the stream, and is the focus of ongoing restoration efforts. More detailed temperature data and analysis, such as that provided by Forward Looking Infrared Imagery and channel surveys, will help characterize temperature dynamics and thermal refugia within the watershed.

Issues involving toxics include the following:

Downtown Gualala has an MTBE cleanup ongoing at a local gas station, which should be monitored. There is a WW II bombing range in Gualala, a formerly used defense site (FUD), near Sea Ranch where the Department of Toxic Substance Control is the lead on a cleanup. The Annapolis Mill may have a bark dump issue that is not permitted. For a number of years the mill

would dump their bark refuse into a gully which serves as a tributary to Buckeye Creek. The last inspection was May 2000. An inspection may be needed. There is a road yard in Annapolis where cleanup may be required.

From 1974 to the present, a 40,000 tons per year gravel extraction limit has been in place for commercial extraction by Gualala Aggregates, Inc. Gravel extraction since 1993 has been below the 40,000 ton per year gravel extraction limit. Gravel extraction has mainly been through gravel bar skimming. In the mid-1960's, trenching was tried but discontinued due to the high amounts of organic material encountered. Currently, gravel bar skimming is the method used to mine gravel, and this practice needs further assessment for implications for long-term water quality protection. In 1998, two herbicide water samples were collected at Stanley ridge and Beatty ridge, and both were analyzed for the herbicide Garlon that was not detected. The YMCA on Wheatfield Fork may have a subsurface wastewater disposal problem and need monitoring for bacteria. It is unknown if it meets water quality standards. The system pre-dates Water Quality regulation. Redwood Camp is within influence of the estuary, but the type of wastewater disposal system is unknown and may need inspection.

In summary, the primary water quality problems are sedimentation and increased water temperatures.

### **WATER QUALITY GOALS AND ACTIONS**

The primary water quality goals center around protection of the beneficial uses associated with aquatic life and drinking water supplies. The development of the TMDL waste reduction strategy for sediment is the highest priority for action in the watershed. Any new and/or redirected funding will be focused on new staff and/or contracts to assist in developing and implementing the TMDL waste reduction strategy.

#### **GOAL 1: Protect surface and ground water DOM, REC-1, and REC-2 uses**

The Regional Water Board will continue to regulate the permittees in the basin, but will need to shift resources to complete additional inspections and evaluations.

#### **GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD**

A TMDL is being developed that should protect, enhance and restore the cold water fishery.

### **SUMMARY OF ACTIVITIES**

The overall emphasis in the WMA is developing a TMDL waste reduction strategy for sediment and investigating water temperatures. Increased assessment activities and continued high priority forestry, grazing, hillside vineyard development, and agricultural related activities are commensurate with that charge

#### Assessment and Monitoring:

The North Coastal Watershed Assessment Program (NCWAP) targeted the Gualala for FY 2000-01 data gathering, collection, and assessment activities. This multi-agency effort will result in a comprehensive watershed assessment ultimately available on a computerized database. Some products of that effort may be available in time to be used in the development of the TDML technical support document. While NCWAP is primarily an assessment with existing data, some new data collection will occur as resources allow providing a current picture of some components of a watershed. Three flow gages are being constructed in the watershed as part of the NCWAP, and five SWAMP stations will provide water quality data (including assessment of bacterial quality in two high use recreation areas. A comprehensive monitoring program to evaluate suspended fine sediments and turbidity will be required to adequately determine the impacts of fine sediment on

beneficial uses including municipal and domestic supply, water contact recreation, non-contact water recreation, spawning reproduction, and/or early development, and cold freshwater habitat. In-stream water quality and hillslope, monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future in-stream condition. Additional in-stream water quality monitoring will be needed associated with the TMDL monitoring needs, and are detailed in Appendix 2.3.12-A.

Education and Outreach:

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health. The Gualala River Watershed Council (GRWC) is currently conducting various workshops for landowners and agencies under their CWA section 319(h) grant.

Coordination:

We currently coordinate through the GRWC on a monthly basis, and with other entities as needed.

Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers is anticipated and covers wineries, underground tanks, sewage treatment, landfills, etc. The town of Gualala has a wastewater treatment plant (WWTP) and the County park is on sewer.

Ground water:

Ground water issues center on petroleum contamination and will continue to receive the current level of activity. Ground water and surface water contamination are suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem. Other groundwater issues revolve around the issue of vineyard expansion. Large deep wells installed by vineyards are issue of concern to surrounding landowners with shallow wells. Decrease in water yield is anticipated. Water rights and impact on stream flows in summer are concerns raised. The Department of Water Resources indicates water yield is on the decrease. Precipitation records show decreases.

Nonpoint Source:

The Gualala River is listed under section 303(d) of the CWA as sediment impaired. TMDL for Gualala show roads as biggest contributor to sediment loading in the watershed. The TMDL also shows high stream temperatures in many of the subwatersheds. Coho salmon are listed as threatened species under the federal ESA. TMDL shows that only coho were found in the Little North Fork from 1993 to 1998 in studies conducted by CDFG.

Some livestock grazing occurs but is not considered a significant contributor to sediment impairment of the watershed. Summer dams are an issue for contributing sediment. The National Marine Fisheries Service and Department of Fish and Game will be enforcing on summer dams. Old Kelly Road is now owned by private landowners and has road maintenance issues.

Vineyards are rapidly expanding in the north coast region much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. A recent expansion of vineyards in the Annapolis area included timberland conversions as part of

expansion. An approximate 5000 acre conversion is also being proposed. CEQA has not yet been met for this project. Outreach is being conducted by Regional Board staff to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Regional Board staff is expanding outreach activities combined with needed enforcement activities to address this issue. Timberland conversions to vineyards have been increasing and require additional staff time to review, as they are more complicated than timber harvest plans.

Continued involvement in forestry, grazing, hillside vineyards and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self-determined implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Where land management activities are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

#### Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection to achieve recovery of this impaired waterbody. Some of our activities may include in-stream monitoring to ensure compliance with Basin Plan standards.

#### Local Contracts:

We will be administrating a CWA section 319(h) contract in the watershed and will coordinate monitoring activities with those in the Garcia River watershed to facilitate learning and cross-pollination. We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs and Water Bond (Proposition 13) grant program, as well as promoting other programs like the California Department of Fish and Game SB 271 and other programs.

#### Water Quality Planning:

The Basin Plan identifies municipal, industrial, agricultural, recreational, commercial and sport fishing, cold water habitat, migration, spawning, estuarine and wildlife habitat, groundwater recharge and navigational uses of the Gualala River watershed. The beneficial uses of water related to rare, threatened or endangered species has been proposed for this basin. As with many of the north coast watersheds, the cold water fishery appears to be the most sensitive of the beneficial uses in the watershed because of the sensitivity of salmonid species to habitat changes and water quality degradation. Accordingly, protection of these beneficial uses is presumed to protect any of the other beneficial uses that might also be harmed by sedimentation.

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Gualala WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures
- 

Additionally, the TMDL strategy will be incorporated into the Basin Plan some time in the future.

**Evaluation and Feedback**

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. The results of the watershed assessment under the NCWAP will feed into the next cycle of assessment and problem identification.

**BUDGET**

We will attempt to fund the highest priority actions as identified in this watershed to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Additional funding to continue to expand outreach and enforcement activities on Hillside Vineyards is needed to pursue the actions we are currently unable to address. Monitoring and assessment needs are detailed in Appendix 2.3.12-A. Nonpoint source activities can be found in greater detail in Appendix D.



## Appendix 2.3.12-A

### Partial listing of agencies and groups in the Gualala River watershed with water quality jurisdiction and interests.

#### United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### California State

- California Environmental Protection Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Health Services
- Department of Toxic Substance Control
- Department of Water Resources

#### California Coastal Conservancy

#### Mendocino County

- Water Agency
- Planning Department
- Public Works Department

#### Local Agencies

- Mendocino County Resource Conservation District
- Town of Gualala

#### Public Interest Groups

- Gualala River Watershed Council
- Matrix of Change
- Friends of the Gualala
- Fort Ross Environmental Restoration
- Redwood Coast Land Conservancy

**APPENDIX 2.3.12-B**

**Detail of monitoring priorities and needs for the Gualala River watershed.**

The Gualala River watershed is 303(d) listed for sediment impacts, and elevated water temperature is a concern. A local watershed group, the Gualala River Watershed Council, has applied and been awarded funding for watershed assessment to assist in developing a watershed enhancement plan and supporting materials for a TMDL. Assessment of existing data and collection of additional data are needed for sediment, temperature, and bacterial concerns. Increasing vineyard development presents additional sediment, temperature, and chemical use concerns.

1. **Sedimentation - \$40,000 (0.2 PY + \$20,000 contract)**  
Assessment of sources and the development of a sediment budget to support the TMDL are needed. Current funding will address this to a degree. The NCWAP assessment will provide more detailed information, but after the TMDL is developed.
  
2. **Water Temperature - \$12,000 (0.1 PY + \$2000 supplies)**  
Additional assessment of water temperatures in the watershed is needed to document areas of concern and support implementation of practices to improve water temperatures.
  
3. **Bacterial Monitoring - \$12,500 (0.1 PY + \$2500 lab)**  
Concern has been expressed regarding bacterial quality for recreational uses the YMCA Camp and Redwood Campground in the Gualala watershed. SWAMP monitoring started to assess the situation in FY 2001-02 that may lead to corrective action if needed.

**Surface Water Monitoring Program**

**Surface Water Monitoring Program Monitoring Sites**

The SWAMP and NCWAP addressed water quality and some channel geometry monitoring issues in the WMA in FY 2000-01 at five rotating sites:

- North Fork near Gualala
- South Fork at Twin Bridges
- Wheatfield Fork at Twin Bridges
- South Fork near Plantation
- Wheatfield Fork above House Creek

Parameters included were general water chemistry, nutrients, metals, and channel morphology and bed characteristics.

A permanent station has been established at Gualala Regional Park and will be included in the FY 01-02 monitoring effort. Anticipated parameters are general water chemistry, nutrients, metals, and channel geometry and stream bed characteristics.

<b>Mendocino Coast Hydrologic Unit (113) - FY 2001-02 Monitoring Activities</b>					
Station (Type) <sup>(1)</sup> HUC	Beneficial Use(s)	Monitoring Objectives <sup>(2)</sup>	Freq <sup>(3)</sup>	Category(s)	Indicator(s) <sup>(4)</sup>
GUAGRP (P) 113.62	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD,	1,2,3, 9,10,11,12,13, 14,15	5 C	Contaminant Exposure, Biological Response, Pollutant	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen,

<b>Mendocino Coast Hydrologic Unit (113) - FY 2001-02 Monitoring Activities</b>					
Station (Type) <sup>(1)</sup> HUC	Beneficial Use(s)	Monitoring Objectives <sup>(2)</sup>	Freq <sup>(3)</sup>	Category(s)	Indicator(s) <sup>(4)</sup>
				Exposure, Habitat	Water Temperature, Channel Morphology

- Notes:
1. Type: P = Permanent, R = Rotating
  2. Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)
  3. Frequency: N = number of samples per FY, C= Conventional Water Chemistry  
O = Organic Water Chemistry
  4. Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

#### **Other Monitoring Activities**

The GRWC has grants as mentioned above to perform project monitoring as well as trend monitoring in the watershed. Most of the parameters are aimed at sediment and temperature concerns. The computerized database made available through the NCWAP can be used to store, analyze, and make those data available to interested landowners and agencies.

CDFG has done stream surveys. Estuary Study could begin this winter by Gualala Watershed Council and Coastal Conservancy. SWAMP sampling indicates nutrients are barely above detection. Total load measurements are needed. Vitellagenic fish sampling needs to be conducted. Gualala Watershed Council does active water quality monitoring and restoration on GRI lands. Channel parameters and temperature measurements are being conducted. California Department of Transportation has a highway runoff monitoring station for sediment and nutrients.



## **SECTION 2.4**

### **HUMBOLDT BAY WATERSHED MANAGEMENT AREA**

The following draws upon information obtained through public input, agency contacts, and the personal experience of Regional Water Board staff. What is presented in this document is a summary of our knowledge regarding water quality issues and the existing and planned actions at this date in time based on current Regional Water Board staff knowledge.

#### **MANAGEMENT AREA DESCRIPTION**

This area encompasses tributary waterbodies to the Pacific Ocean from Humboldt Bay north to, and including, Redwood Creek and all groundwater within that area (Figure 2.4-1). Major river systems in this area are the Mad River and Redwood Creek. Other major waterbodies include Humboldt Bay and Mad River Slough, numerous coastal lagoons (Big Lagoon, Stone Lagoon, Freshwater Lagoon), and coastal streams (Elk River, Freshwater, Jacoby, and Maple Creek, and Little River).

Land use in the WMA is primarily timber production, with agricultural uses in the non-forested areas consisting primarily of grazing and dairies. Lily bulb farms are found in the Arcata bottoms and the McKinleyville area. Urbanized areas include Trinidad on the ocean, McKinleyville and Blue Lake on the Mad River, and Arcata and Eureka on Humboldt Bay. Rural residential developments are scattered throughout the timber/grazing interface.

Freshwater streams in this unit support production of anadromous salmonids, including steelhead and cutthroat trout, coho and chinook salmon. The Mad River is the drinking water and industrial supply for the Humboldt Bay Area, and other coastal streams provide drinking water for local communities and individual homes. The deltas of the Elk River and Mad River Slough support commercial and sport shellfish production and harvesting.

Humboldt Bay includes the typical coastal values of an estuarine embayment, as well as an extensive commercial oyster industry. It is a major shipping center for the north coast, the largest such center between San Francisco and Coos Bay, Oregon, and presents the potential for water quality problems associated with industrial uses adjacent to the bay.

#### **IMPLEMENTATION STRATEGY**

Significant strategy development and implementation for water quality protection and improvement are occurring in the Humboldt WMA at the present time by many agencies, interest groups, and individuals. We recognize that the WMA problem identification, watershed assessment, and strategy development are an on-going process, and that further input as we proceed will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. The issues identified in FY 1996-97 and resultant proposed actions are prioritized in recognition of shifting resources. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle, likely with higher priority so that they will be addressed. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc.

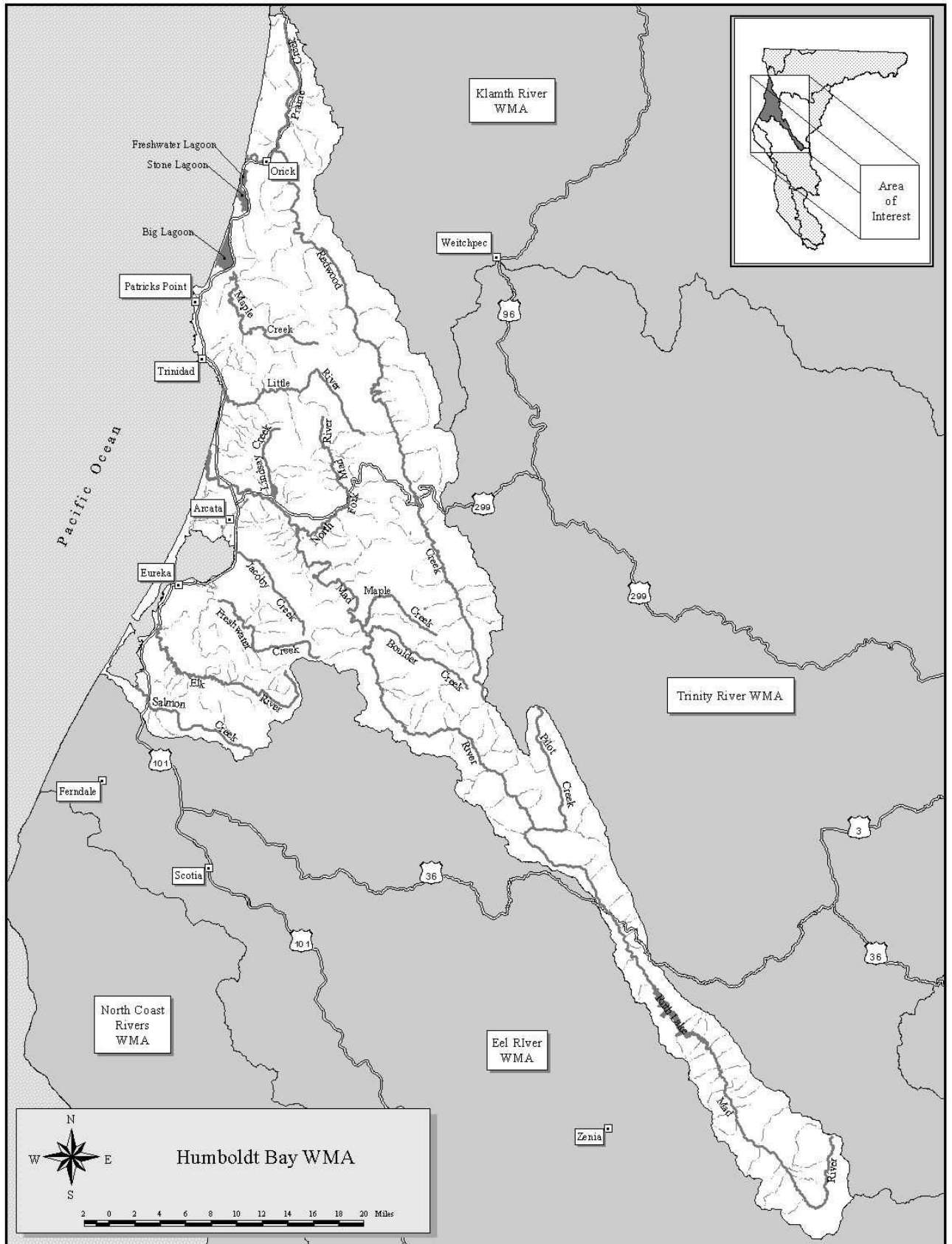


Figure 2.4.1. Humboldt Bay WMA

### **Institutional framework**

This section is not all-inclusive and will be refined through the public participation process. A matrix of each agency's abilities and jurisdictions with respect to the identified goals will be compiled to provide an overall picture for the WMA.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. Over-arching regulatory provisions of the Basin Plan are the discharge prohibitions section, which prohibits direct waste discharge to all freshwater surface waters in this management area with the exception of the Mad River and its tributaries. The State's Nonpoint Source Pollution Control Program also is referenced in the Basin Plan and forms the basis for addressing non-timber, nonpoint source pollution, such as from agricultural operations. Likewise, there are regulations within the implementation section of the Basin Plan addressing waste discharges from logging, road building, and associated construction activities. The policies regarding individual wastewater systems contained in the Basin Plan provide guidelines for local agency jurisdictions to prevent water quality degradation from septic systems.

The State *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* provides water quality guidelines for the prevention of water quality degradation and to protect the beneficial uses of bays and estuaries in the state.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Consistent with that process, a WMA workshop was held in the area on December 4, 1996, and special task forces or work groups may be formed to help identify water quality issues and strategies. With respect to other agencies and groups in the management area, a list is offered for informational purposes in Appendix 2.4-A. It is our intent to continue to coordinate with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized.

### **Summary of Activities**

The general emphasis in the WMA is to increase coordination and education/outreach, especially regarding erosion control and sedimentation and the handling of toxic materials. Increased assessment activities, including monitoring coordination, maintaining a watchful eye on traditional point source dischargers and continued high priority forestry related activities are also part of the strategy.

#### Assessment and Monitoring:

Additional assessment needs were identified for storm water issues, both urban and otherwise. The uses of Humboldt Bay are threatened by runoff contaminants, and the freshwater streams are subject to sedimentation by storm water runoff from eroding areas and from mass wasting (landslides). There is concern that ground water data are not sufficient to describe the condition of ground water in the WMA, and a system to gather and analyze existing information has been suggested.

A monitoring workshop has been suggested to improve coordination, standardize protocols, develop an information bank, and foster a volunteer monitoring program. Likewise, the need to monitor both the implementation and effectiveness of watershed enhancement efforts should be addressed. Long-term monitoring programs are present to some degree, but would benefit from additional coordination. For instance, the bacterial data collected on Humboldt Bay for determining oyster harvest conditions may benefit from a broader data analysis. Continuing to promote the use of State funds for the State Mussel Watch Program and Toxic Substances Monitoring Program is a high priority, so that we maintain a watch on toxic chemical accumulation in food and fauna, and the

ability to detect hot spots. The State Mussel Watch Program, a sentinel monitoring program for toxic chemicals, has provided valuable information on occurrence of toxic chemicals that has guided cleanups around the bay. Current activities relating to water quality in the Eureka Waterfront area are guided by information from that program, the Bay Protection and Toxic Cleanup Program, and ground water monitoring and assessment activities.

Two new state programs will improve monitoring and assessment in the WMA began in FY 2000-01 and will continue:

The North Coast Watershed Assessment Program (NCWAP) is a multi-agency approach to gathering, developing, analyzing and presenting watershed assessments and data for north coast watersheds. NCWAP is funded to assess the health and status of all watersheds in the north coast region in a 7 year rotation basis. In addition to the North Coast Water Board four agencies within the Resources Agency are involved: Department of Fish and Game, Department of Forestry and Fire Protection, Department of Conservation, Division of Mines and Geology, and Department of Water Resources. Each has specific tasks to gather existing data, fill information gaps by collecting new data, analyze the data, and present the watershed assessment products in a standardized format for agencies, landowners, and watershed groups to use in future restoration and land management activities. In addition to Resource Agency staff, the NCWAP program will closely work with previously established watershed groups and Federal agencies, such as USGS and the National Parks Service, to obtain the most current information and address all issues of concern specific to that watershed. Final assessment products, including all data compiled for the report, will be publicly available on the World Wide Web and on compact disks. NCWAP will be closely coordinated with SWAMP and the outreach functions of the WMI Coordinator at the North Coast Water Board. Within this WMA the following streams are scheduled for assessment in the next three fiscal years: FY 2000-01—Redwood Creek; FY 2001-02—coastal streams north of the Mattole River

The Surface Water Ambient Monitoring Program (SWAMP) is a regionwide monitoring program that will monitor permanent stations for long-term trends as well as rotate into WMAs on a five-year basis. Redwood Creek at Orick and the Mad River at Blue Lake are scheduled as a permanent station, sampling to begin in early 2001. We will be working with local residents in the area to address some of their specific needs as resources allow in FY 2000-01. The rotation for intensive monitoring is scheduled for FY 2001-02 along with the Eel River WMA.

More detail on monitoring priorities and needs are presented in Appendix 2.4-B.

#### Education and Outreach:

Pollution prevention activities were highlighted by the Watershed Team as a high priority activity. Increased education and outreach should be addressed for erosion control, other storm water issues, confined animal facilities, management and disposal of toxics, monitoring and assessment, and the core regulatory program. Concern was raised at the public workshop that the public does not have a good idea of the level of compliance of various point source dischargers, and that the Regional Water Board staff should present the compliance histories at a public workshop.

#### Coordination:

Tied in closely with education and outreach is the need for enhanced coordination. We currently participate in a number of activities beyond our day-to-day work that are aimed at improving communication and coordination to the benefit of improved water quality. Included in those actions



are participation in the Humboldt Bay Shellfish Advisory Group and the CalTrans Vegetation Management Advisory Committee, administration of a Clean Water Act 319(h) grant with the Redwood Community Action Agency, close coordination with the local environmental health department, and a group of local agencies and landowners coordinating cleanup activities on the Eureka Waterfront.

Core Regulatory:

The Watershed Team proposes maintaining the current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers, while increasing the level of involvement in storm water issues. Included in core regulatory are the underground storage tanks program and addressing the Eureka Waterfront issues. Involvement in the gravel mining issues in the WMA should continue, especially as regards stream channel geomorphology and potential effects on the anadromous salmonid resources.

Ground water:

Ground water issues center around petroleum contamination and Eureka Waterfront problems, however the Watershed Team proposes that efforts should focus on increased coordination, such as follow-up on illegal disposal cases, and additional assessment.

Nonpoint Source:

Continued involvement in forestry issues is necessary to ensure protection of aquatic resources. The listing of chinook salmon in Redwood Creek and coho salmon in the Humboldt WMA as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that may potentially increase sedimentation or otherwise affect habitat. The Team suggested increasing work with local agencies and groups regarding land use impacts on water quality, following the State Nonpoint Source Pollution Control Program strategy of first emphasizing self-determined “voluntary” implementation of controls to reduce nonpoint source pollution. An active outreach program will enhance the effectiveness of the program.

Response to Section 303(d) requirements resulted in a TMDL for Redwood Creek promulgated by USEPA on December 30, 1998. An implementation plan has been written but not adopted by the Regional or State Water Boards. The USEPA will be addressing a TMDL for the Mad River by the end of 2007. Elk River and Freshwater Creek were added (when?) to the Section 303(d) of impaired waterbodies and will be scheduled for similar actions in the future. Additional information is contained in Section 2.7. Issues of listing additional streams in the WMA will be addressed through the Water Quality Assessment process.

Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We participate in the Timber Harvest review process as a “review team” agency, with the California Department of Forestry and Fire Protection (CDF) as the lead agency for timber harvest plan review and approval. In our role as a review team agency, we review and make recommendations on timber harvesting plans in an effort to ensure protection of water quality and beneficial uses (i.e., Basin Plan compliance).

An estimated 25% of the timber harvesting in the Region occurs in this hydrologic area that has many waterbodies listed as impaired due to sediment discharges. The primary sources of sediment appear due to surface erosion and mass wasting from timber harvesting and other land use activities. Beneficial uses of primary concern include aquatic habitat (COLD, RARE, WILD, COMM, etc.), recreational uses (REC1 and REC2), and domestic water supplies. In addition, downstream residents

in the Elk River and Freshwater Creek watersheds, both listed under the 303(d) process as impaired due to sediment, have experienced increased rates and magnitudes of flooding. Because of these sediment-impaired waterbodies and threats to water quality in other surface waters, staff are working within the timber harvest plan review process as well as under our own authority to require in-stream water quality monitoring for fine sediments to 1) assess long term water quality trends, 2) evaluate effectiveness of timber harvest-related best management practices and prescriptions in ensuring Basin Plan compliance, and 3) provide a feedback loop for timber owner-operators to allow for timely identification and response to sediment discharges from timber harvest and related activities, as well as to provide information to assist with future timber harvest planning timber sales as well as other projects on U.S. Forest Service lands.

Lower Redwood Creek houses the Redwood National and State Park and is subject to discharges originating from industrial timberlands located upstream. Herbicide application on these timberlands is an issue of concern, but the primary water quality issues are: recovery of threatened and endangered species of coho and chinook salmon and steelhead trout; protection of domestic water supplies; and protection of water quality beneficial uses.

The Pacific Lumber Company (PALCO), the largest of many timber companies in the area, owns approximately 211,700 acres of forestland in Humboldt County, encompassing lands within 22 watersheds including the Elk River and Freshwater Creek watersheds. PALCO conducts timber harvesting and related activities on the lands within its ownership, and the Timber Division is funded to oversee water quality protection of the Habitat Conservation Plan (HCP). The HCP is intended to protect habitat for endangered species and requires that PALCO incorporate interim prescriptions (best management practices) into its timber harvest and harvest-related activities, while performing watershed analysis for the watersheds within its ownership. As watershed analyses are completed, watershed-specific and project-specific prescriptions will be developed, implemented, monitored, and adapted as necessary. In the interim, PALCO is required to conduct several types of monitoring, including interim prescription effectiveness monitoring. To date, PALCO has not implemented in-stream effectiveness monitoring, and has not included instream monitoring for fine sediments (turbidity, suspended sediments) in its other HCP-required monitoring programs that are currently underway. PALCO has been required by State and Regional Water Board orders to monitor water quality in association with some timber harvesting activities.

Regional Board staff believes that the interim prescriptions of the HCP may not be adequate to restore, protect or maintain water quality objectives and beneficial uses in 303(d)-listed waterbodies. Since there is no in-stream effectiveness monitoring, adaptive management cannot adequately address the effectiveness of interim prescriptions.

#### Local Contracts:

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs, the State Water Bond grant program (Prop 13), as well as promoting other programs like the California Department of Fish and Game programs.

#### Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Humboldt WMA. The top priority issues are:

- Review the policy for regulation of underground storage tanks
- Update the policy on disposal of solid wastes, wood wastes, and programs for ash applications
- Consider revisions to the water quality objectives for dissolved oxygen and temperature

- Review the Nonpoint Source Control Measures

Additionally, the water quality attainment strategies for the Section 303(d) waterbodies will be incorporated to some degree into the Basin Plan.

### **Evaluation and Feedback**

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. Emerging issues of large magnitude or high priority may cause early re-evaluation and shifting priorities. The final evaluation in FY 2000 –2001 will feed into the next cycle of assessment and problem identification.

### **ASSESSMENT AND PROBLEM IDENTIFICATION**

The following analysis is based on existing knowledge of issues and problems in the Humboldt WMA from long-term monitoring, discharger regulation, water quality planning and nonpoint source program efforts, and public input. However, the following analysis does not constitute a full assessment and will be refined as we move through the assessment phase. As such, a very cursory description and analysis is presented herein.

A public workshop was conducted on December 4, 1996 in Eureka and provided much needed input on problems, issues, and concerns, as well as meaningful and useful ideas to address them. Subsequently, frequent meetings of the Watershed Team have refined the thinking on issues and how to address them. Continued public and interagency involvement will refine the approach in the coming year.

The upper hillslope areas of the WMA, while populated to varying degrees, are primarily occupied by timber production and harvesting activities, with coast redwood as the predominant harvested species. Past practices and continued problems with harvesting techniques and road construction have added to stream sedimentation, in varying degrees, in all the drainages in the WMA.

The lower 40 percent of the Redwood Creek basin houses the Redwood National and State Park, which includes lower Redwood Creek and the Prairie Creek tributary. This protected park is a world famous attraction for tourists and researchers. Prairie Creek and its tributaries are considered by some as “reference watersheds” or ones that are in the most pristine condition for comparison to lands that have been altered by human presence. Private landowners conduct grazing and timber harvesting activities in the estuary and upper reaches of the watershed. A small population of people lives in the town of Orick near the mouth of Redwood Creek. Sedimentation is a problem within lower Redwood Creek perhaps resulting from past harvesting activities, as noted by National Park staff. Assessments by National Park staff document problem areas and suggest follow-up coordination for implementing controls in conjunction with local landowners, USGS, and the Department of Fish and Game, and Humboldt State University. National Park and USGS staff, along with graduate students and local landowners, closely monitors fish populations, temperature, and channel changes on Redwood Creek. This watershed has won worldwide acclaim and is most likely one of the best-studied watersheds. When a Water Board Section 303(d) Water Quality Attainment Strategy (“TMDL”) and implementation plan is adopted, existing efforts to monitor activities in the watershed for the benefit and enhancement of the salmonid resources will be coordinated.

The Mad River watershed is mixed private and Forest Service timberland with a long history of timber harvest. Gravel mining occurs in the lower portions of the watershed. The Mad River is Section 303(d) listed for sediment and temperature impacts. The primary issues for the watershed are forestry-related, with urbanization and associated industrial and public point sources. For the Mad River and its tributaries, discharge of waste is allowed only under NPDES permit during the period of

October 1 through May 14 and at 1% of the flow of the receiving water. The McKinleyville Community Services District discharges municipal effluent to the Mad River in compliance with those restrictions. The City of Blue Lake does not discharge directly, disposing of effluent in percolation/evaporation ponds.

Flooding in Freshwater Creek and Elk River has increased in frequency. The increased flood frequency may be related to stream aggradation and sediment discharges.

Coastal tributaries draining to the ocean south of Redwood Creek and north of Salmon Creek face issues related to timber harvest and grazing, much like those that drain to Humboldt Bay. Humboldt Bay tributaries have experienced problems from urbanization and agricultural uses in addition to timber harvest issues. Additionally, they flow into Humboldt Bay and can impact uses there. Local concerns include sedimentation of Freshwater Creek and Elk River and subsequent flooding and domestic water supply degradation. Some industrial timberland owners are developing *Sustained Yield Plans* that will address sensitive watershed issues to some degree.

The majority of the population in this WMA lives in the Humboldt Bay area and the cities of Eureka and Arcata. Suburban growth is occurring in the unincorporated community of McKinleyville, north of Arcata. Flat land areas around the bay are predominantly pastureland with some limited cultivation, primarily lily bulb farms. Humboldt Bay is an important commercial and recreational shellfish growing area, as well as deep-water port.

Historically, wastewater discharges to the Bay impacted the shellfish uses. Recent emphasis on improved treatment and reliability and the consolidation and relocation of the Eureka wastewater plants has significantly reduced the problem. Discharge of treated wastewater to Humboldt Bay is permitted from the Arcata treatment plant and marsh complex in Arcata Bay (north Humboldt Bay) and the Elk River plant which serves the greater Eureka area. The Arcata plant discharges to a constructed marsh/pond complex prior to discharge to Arcata Bay. The Elk River plant times its discharges to out-going tidal flow so that effluent promptly exits the bay. The College of the Redwoods operates a small sewage treatment plant that discharges indirectly to south Humboldt Bay. Contamination from collection system overflows of raw sewage during high intensity rainfall events is a continued threat to commercial and recreational uses of the Bay.

Storm water runoff from all watersheds draining to the Bay convey indicators of bacterial contamination that impacts shellfish harvest. Seasonal and rainfall-based shellfish harvesting closures are in effect to mitigate the effects of nonpoint source runoff. A shellfish Technical Advisory Committee was established in November of 1995 to address nonpoint source runoff issues.

### **WATER QUALITY GOALS AND ACTIONS**

The following goals and supporting actions are in order of priority and reflect the Watershed Team's synthesis of the issues and problems identified from public and agency input. The goals and attendant actions are listed in rough priority as developed by the Watershed Team. Refinement of the goals and strategy through public participation will include scheduling of the actions by fiscal year, seeking support fiscally and otherwise from local agencies and groups, and enhanced interagency and public coordination and cooperation.

The following broad goals provide a perspective from which to view the specific goals and actions presented below: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect surface and ground water uses for municipal supply, recreation, and industrial shellfish harvest, and 3) protect and enhance the anadromous salmonid resources.

The five goals for the Humboldt WMA are related through the beneficial uses they address:

- **GOAL 1: Protect surface water uses MUN, REC-1, REC-2, NAV, WILD, EST, MAR, MIGR, SPWN, SHELL**
- **GOAL 2: Protect ground water uses MUN, IND, AGR, REC-1, REC-2**
- **GOAL 3: Increase and continue assessment and monitoring**
- **GOAL 4: Protect and enhance cold water fisheries**
- **GOAL 5: Protect of commercial and recreational shellfish uses**

Protection of surface water (GOAL 1) for the primary beneficial uses MUN, REC-1 and REC-2 will in most cases protect all other beneficial uses. The MUN (municipal and domestic supply) beneficial use designation is for uses of water for community, or individual water supply systems including, but not limited to, drinking water supply. It demands, therefore, the highest quality of water. The REC-1 (water contact recreation) beneficial use designation is for uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. This beneficial use also demands a high degree of water quality. If MUN and REC-1 beneficial uses are protected then it follows that agricultural and industrial supplies are also protected which relates GOAL 1 to GOAL 2 (ground water protection). The protection of cold water fisheries (GOAL 4) requires the protection of surface and ground waters (GOALS 1 and 2) along with additional concerns for siltation, habitat loss, low tributary flows and water temperature. The protection of commercial and recreational shellfish uses (GOAL 5) requires high quality water free from bacterial contamination to ensure a safe product and therefore is also related to GOALS 1 and 2. Increased and continued assessment and monitoring (GOAL 3) is necessary to determine whether the other goals are being achieved and whether more action is needed to achieve the goals. Therefore, by protecting the beneficial uses that demand the highest quality waters, most components supporting other beneficial uses will also be protected.

**GOAL 1: Protect surface water uses MUN, REC-1, REC-2, NAV, WILD, EST, MAR, MIGR, SPWN, SHELL**

Numerous activities occur within the watershed that may result in adverse effects to the beneficial uses of surface waters in the Humboldt Bay Watershed. Beneficial uses identified for this watershed include, municipal and domestic water supply, recreation, navigation, wildlife, estuarine, and marine habitat, as well as providing for migration and spawning of aquatic organisms, and support of shell fish harvesting. These uses may be impaired through discharges to surface water bodies of chemical, biological, and sedimentary materials. Activities that threaten the impairment of surface water beneficial uses include: waste disposal, vehicle and railroad maintenance yard operations, herbicide application, gravel extraction, timber harvesting, dairy operations, automotive wrecking yard or metal recycling activities, wood treatment facilities, publicly owned treatment works, construction activities, and many others. The Regional Water Board has operated a procedure to permit and inspect sewage treatment and industrial facilities that discharge from point sources for many years. Programs for the investigation and control of non-point discharges from municipalities and industries have recently been placed into action.

Storm water runoff from logging activities, construction sites, auto wrecking yards, fleet maintenance yards, and highways is likely to contain sediment and chemical pollutants. These pollutants can have adverse effects on all domestic water supply systems as well as other beneficial uses that have been addressed under separate goals for the Humboldt Bay WMA. Potential impacts from dairies, feedlots, and grazing have yet to be evaluated. Soil and groundwater cleanup sites along the Eureka Waterfront are potential sources of pollutant discharge to Humboldt Bay. Contaminated sites along the waterfront require continuous coordination in order to facilitate redevelopment. Herbicide

application on public and private lands can effect water quality. Continuous compliance with waste discharge requirements at local sewage treatment plants is needed.

### **Point Source Issues**

#### **Current Activities**

- Maintenance of basic regulatory programs regulating waste discharges.
- Sampling for petroleum products, including solvents, MTBE, and gasoline and pesticides at POTWs.
- Impose penalties on facilities with repeated non-compliance.

#### **Additional Needs**

- Assist treatment plants to seek additional funding to upgrade existing plant operations.
- Seek additional funding to conduct compliance inspections under the storm water program more frequently.

### **Nonpoint Source Issues**

#### **Current Activities**

- Reviewing timber company's Sustained Yield Plans and Habitat Conservation Plans for protection of beneficial uses.
- Maintaining an active timber harvest review program and promoting enforcement actions on violations.
- Seek increased funding to develop educational outreach programs and regularly scheduled inspections to assist cattle handlers in identifying and implementing good management practices and the California Rangeland Water Quality Management Plan. Impose penalties on animal facilities with repeated non-compliance.
- Continuing active participation in Vegetation Management Advisory Committee (CalTrans) and assisting CalTrans in the development of a study of herbicide runoff from highway spraying operations.
- Promoting watershed analysis of Humboldt Bay tributaries within the scope of the Pacific Lumber Company Habitat Conservation Plan using the Washington State Department of Natural Resources methodology.
- Following up on MTBE detection at Ruth Lake in the Mad River watershed, as part of the SWAMP in FY 2000-01.

#### **Additional Needs**

- Seek funding to improve interagency coordination to assist with identification of problem areas, conduct outreach programs and coordinate enforcement activities for erosion control.
- Encourage local agencies to adopt and enforce local ordinances for erosion control.
- Conduct community education and outreach programs to inform the public and private industries of best management practices and the potential negative impacts if these practices are not implemented
- Perform watershed assessments, such as the NCWAP program, and include bacterial sampling
- Require regular monitoring of water quality at nonpoint source facility discharge points.
- Seek additional funding for regulatory oversight of investigations and cleanups along the waterfront through cost recovery programs and brownfields grants.

- Require regular monitoring of nearby surface water bodies in association with the application of herbicides
- Seek increased funding to conduct inspections and water quality monitoring
- Expedite development of TMDLs for Elk River and Freshwater Creek.

**GOAL 2: Protect ground water uses MUN, IND, AGR, REC-1, REC-2**

Activities, which occur in the Humboldt Bay WMA, may result in the contamination and degradation of ground water. Beneficial uses identified for ground water in this watershed include: municipal and domestic, industrial, and agricultural water supply, and recreation. These uses may be impaired through discharges to ground water from chemical and biological materials. Ground water quality may be impacted by chemicals from various sources (point and nonpoint), such as the improper and illegal disposal of waste, spills from leaking underground storage tanks, dry cleaners, home-owners, maintenance yards (especially in the old Eureka waterfront area), small wrecking or "junk" yards including home owners who have garbage on their property, inactive mill sites, and bacteria from septic systems and confined animal operations.

Ground water information needs to be gathered and placed into a database system. This system can help to: (1) identify the location of the problem areas of the WMA, (2) identify the location of sensitive areas of the WMA, (3) identify cleanup sites and activities associated with the WMA and (4) identify ground water source areas.

**Point Source Issues**

**Current Activities**

- Continuing coordination, cooperation and increasing follow-up activities with various agencies regarding illegal disposal and discharges.
- Continuing to promote the development and application of best management practices for storage, treatment, and disposal of hazardous substances.
- Continuing coordination and cooperation with various local agencies to expediently investigate and remediate problem sites located along the old Eureka waterfront area.
- Continuing regulatory programs for inspections, assessment and enforcement.
- Continuing to monitor on-going activities associated with known ground water contamination
- Bringing all facilities into compliance.

**Additional Needs**

- Prepare, develop, and implement a program to educate the public about point source discharges and disposals.
- Pursue additional Regional Water Board funding (PYs) for staff and laboratory services to assess and address the illegal disposals and assess ground water quality.
- Ground water monitoring funds

**Nonpoint Source Issues**

**Current Activities**

- Identifying sources of existing information, including other agencies and local groups.
- Participating in local outreach programs, such as the Humboldt Bay Symposium

- Administering the new 319(h) grant for dairy waste outreach and implementation in the WMA, including educational meetings with the public and agencies to promote use of wastes at agronomic rates, a Rangeland Management Planning process, disposal of nonpoint source wastes and to increase inter-agency coordination and cooperation.
- Providing information for accessing grant funds for the agricultural community.
- Continuing regulatory programs of inspections, assessment and enforcement.

#### **Additional Needs**

- Pursue additional Regional Water Board funding (PYs) to identify ground water monitoring needs and to coordinate functions with other agencies on a watershed basis.
- Pursue additional Regional Water Board funding (PYs) to develop GIS support for the storage, analysis, and assessment of information.
- Prepare, develop, and implement a program to educate the public, local, city, and state agencies, along with private industry, on discharges of toxic chemicals.
- Increase coordination and cooperation with the RCDs and agricultural community to deal with rangeland and confined animal problems, and to advance to Title 27 requirements in order to avoid ground water contamination.
- Prevent access and discharge to waste pits and ponds.
- Pursue additional Regional Water Board funding (PYs) to conduct nonpoint source inspections (and follow-up) and to investigate non-point source problems, and develop a task force to target problem areas or problem management practices.
- Continue to coordinate with the county to review septic system problems to avoid ground water contamination. This includes enforcement of the Basin Plan requirement to ensure that the county reports septic disposal practices and trends.

#### **GOAL 3: Increase and continue assessment and monitoring**

This goal will continue to be a high priority to support the prioritization of activities and ensure that staff resources and funding are directed to those areas needing attention. This goal will involve considerable outreach and coordination. A limiting-factors analysis should be conducted to identify obstacles to achieving water quality goals. There are specific process issues that need to be addressed to facilitate assessment and monitoring. They include: a) development of standardized monitoring protocols for shared data sources, b) coordination of monitoring and assessment activities, c) promotion of volunteer monitoring, d) development and maintenance of an information bank for locations of watershed projects, activities, and monitoring, and e) development of long-term monitoring programs. Information needs to be developed in a number of areas to assist in assessments. Additionally, the following specific areas should be monitored to ensure all other goals are being met:

- runoff from urban areas, county, state and federal roads, timberlands, construction and industrial sites
- gravel extraction impacts to channel morphology, wetlands, and other habitat values
- stream sediment with regard to aquatic habitat and flooding.
- chemicals in the estuary that not monitored or assessed in the State Mussel Watch Program
- public swimming areas
- the effectiveness of restoration activities



Within this WMA the following streams are scheduled for NCWAP assessment in the next three fiscal years: FY 2000-01—Redwood Creek FY 2001-02—coastal streams north of the Mattole River.

The SWAMP will monitor Redwood Creek at Orick and the Mad River at Blue Lake as permanent stations; sampling began in early 2001. We will be working with local residents in the area to address some of their specific needs as resources allow. The rotation for intensive monitoring is schedule for FY 2001-02 along with the Eel River WMA.

This goal is not separated by discharger type (point versus nonpoint source) as it encompasses both.

#### **Current Activities**

- Maintaining discharger self-monitoring programs.
- Continuing involvement with local efforts to coordinate monitoring.
- A volunteer monitoring workshop was conducted in November 1998 by USEPA and Redwood Community Action Agency to explore opportunities for more volunteer monitoring and to enhance the existing monitoring activities by volunteers.
- The World Wide Web resources being developed by the California Resources Agency at UC Davis should include the Humboldt WMA. They include CERES (California Environmental Resources Evaluation System), and CARA (California Rivers Assessment).

#### **Additional Needs**

- Additional monitoring workshops should be held in the Humboldt Bay area to coordinate among private, public groups, HSU, and other agencies with the goal of standardizing monitoring to increase data exchange utility. The workshops should focus on coordinating data collection and analysis activities in the WMA, standardization of monitoring protocols, and volunteer monitoring efforts
- We should coordinate assessment and monitoring activities with local agencies and groups, initially the Redwood Community Action Agency, Humboldt Bay Shellfish TAC, Humboldt County Health Department, Humboldt County Planning Department, Humboldt County Resource Conservation District, Redwood National and State Park, University of California Cooperative Extension, Humboldt State University, College of the Redwoods, Salmonid Restoration Federation, California Coastal Conservancy, Humboldt Fish Action Council, California Department of Fish and Game, US Army Corps of Engineers, Redwood Creek Landowners Association, local timber companies, and North Coast Gravel Association. We also will coordinate with the Division of Water Rights to address water rights issues as they are identified.
- Staff should assist groups wishing to do volunteer monitoring with both time and equipment.
- Information should be gathered on a database locally prior to input to the above resources
- Seek funding for a local Database/GIS System and coordinator.
- To the extent possible the watershed planning approach will identify opportunities for redirection of staff resources into additional assessment and monitoring functions. Additionally, staff will seek out funding to support increasing assessment and monitoring activities in the WMA.
- Public education and outreach should be increased, and focus on our role in these specific areas: discharger inspections, the potential to monitor specific areas in association with the health department, placing educational handouts at local permit

offices, develop a road map of groups/agencies responsible to assist an individual landowner in a given waterbody or type of problem or situation, and erosion control for small and rural landowners. The compliance of local discharges is generally good and should be communicated to the general public. Support and promote educational opportunities for permitting, erosion control, wetlands values, and aquatic habitat restoration, develop a matrix of agencies and responsibilities to distribute at local permit centers, and promote involvement in the California Resources Agency's World Wide Web informational and educational activities.

- Meet Water Quality Attainment targets from the TMDL to reduce erosion and sedimentation and improve water temperatures. Targets can be attained by assisting in the collection of data contributing to assessments in the initial stages, and generating additional data through future monitoring.
- We should investigate the possibility of looking at restoration projects from the standpoints of utility (did they work) and effectiveness (cost/benefit, ease) on a broad basis.
- Obtain dredging records to assist in the assessment of the quantity of upslope erosion and describe the linkage between numerous small upland or upslope activities and larger problems downstream in the waterways.
- Review discharger self-monitoring programs to make them more ecologically significant and include surface water monitoring, perhaps watershed-wide, as appropriate.
- Improve water quality monitoring activities with an emphasis on dairy waste. Encourage self-monitoring with field test sampling kits for ammonia discharges.
- Seek additional funding for staff and laboratory services for special, focussed water quality studies

#### **GOAL 4: Protect and enhance cold water fisheries**

The coldwater fishery, specifically trout, steelhead, and salmon, is of concern regarding sedimentation and other potential impacts to habitat and water quality. It is recognized that a number of activities already presented for protecting other uses and enhancing assessment and monitoring will also serve to further this goal, thus they are not repeated here.

The following Nonpoint Source issues and actions were identified by the public, and agencies, and relate directly to concerns about the coldwater fishery:

- Stream sedimentation from various land use activities limits coldwater aquatic uses. Stream sedimentation from rural subdivisions is an issue with regard to aquatic habitat, especially for salmonids. Logging roads are a concern because of the potential to increase runoff and delivery of sediment to local waterbodies on private and federal lands. The Mad River, Redwood Creek, Freshwater Creek and Elk River are listed on the federal Clean Water Act section 303(d) list for sedimentation affecting salmonid populations. Other waterbodies in the Humboldt Bay watershed may be added to the list for excessive sediment in the near future. Strategies for reduction of erosion and sedimentation are needed.
- The function of Redwood Creek estuary is a concern, because it serves as a nursery for newly hatched salmonids who sometimes stay in the estuary as long as 3 years before leaving to the ocean.
- The function of the riparian corridor in the Redwood Creek basin is a major concern because lack of canopy cover and large woody debris, shallow pools, and high

temperatures impact spawning and rearing habitat for threatened and endangered salmonid species.

- Potential impacts from dairies and grazing need to be evaluated. Dairies should be brought up to Chapter 15 standards. Grazing issues include erosion, sedimentation, and water chemistry.
- Potential ground water contamination, such as nutrient loading via ground water to streams, is of concern. Problem sites should receive progressive enforcement per the Nonpoint Source Pollution Control Program.
- Pesticide and herbicide applications on private and public lands are a water quality concern. Use of pesticides and herbicides along roadways, in agricultural operations, in urban areas, and in lily bulb farming and forestlands in the WMA poses a threat to ground and surface waters.

### **Point Source Issues**

At this point in time we have no specific issues to add for point source beyond those already covered.

### **Nonpoint Source Issues**

#### **Current Activities**

- Conducting education and outreach: The RCAA 319(h) project(s) include educational components for agriculture, timber, and rural/urban issues. We will continue involvement in that effort.
- Maintaining involvement in gravel mining, especially as relates to channel stability impacts.
- Promote watershed analysis of Humboldt Bay tributaries within the scope of the Pacific Lumber Company Habitat Conservation Plan using the Washington State Department of Natural Resources methodology.

#### **Additional needs**

- Promote erosion control educational materials and programs for landowners. Placing educational handouts at local permit offices and performing more outreach was suggested, as well as developing a list of groups/agencies available to assist landowners in a given waterbody or type of problem or situation.
- Tax incentives for erosion control and aquatic restoration activities should be supported and pursued. Decreasing road density on upland slopes and decommissioning problem roads were two potential targets of such an incentive program.
- Implement and enforce best management practices for Nonpoint Source Regulation. This task entails increased inspections and work with construction, agricultural, silvicultural, and urban runoff discharges primarily through grant-funded projects, volunteer monitoring coordination, and public education and outreach to reduce nutrient, sediment, and chemical discharges from nonpoint sources. This task should also address issues associated with land use planning regarding riparian encroachment and flood plain use and encourage local agencies to adopt and enforce local ordinances for such controls. Also, there is a need to increase funding and become more involved in erosion/sedimentation issues in the WMA and perform watershed assessments.
- Require water quality monitoring of THPs by PALCO, and other timer companies, to assess compliance with Basin Plan objectives.

- Address Clean Water Act, section 303(d) - The Mad River, Redwood Creek, Freshwater Creek and Elk River are listed for sediment impairments to anadromous fish resources. Other waterbodies may be listed in the future. The process to establish sediment reduction strategies will involve considerable public outreach, assessment of sources, assessment of impairments, development of quantifiable targets, consideration of feasible solutions to reduce sources, and coordinated monitoring.
- Improve Water Quality Monitoring Activities -See GOAL 3.
- Improve habitat conditions for anadromous fish by assisting and coordinating with CDFG and local agencies and groups in fishery assessment and emerging issues and by promoting grant funding for stream rehabilitation and monitoring.
- Promote enhancement of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups to improve its functions for temperature control, buffering land use impacts, bank stabilization, and habitat.
- Increase time for participation in the CalTrans Vegetation Management Advisory Committee.

#### **GOAL 5: Protection of commercial and recreational shellfish uses**

Humboldt Bay supports a significant commercial oyster industry and is a popular area for recreational shellfishing. Both commercial and sport shellfish resources are impacted by nonpoint source runoff from urban and rural areas and are threatened by point sources. Considerable monitoring is required from the commercial shellfish industry under a conditional harvest regulation to ensure a safe product. Assessment and monitoring over the years has assisted in reducing contamination of the shellfish harvesting areas. Both compliance and special monitoring programs require support and coordination in the future to ensure new sources are addressed and protection of the shellfish resource. Nonpoint sources of pollution can adversely impact commercial and recreational shellfish uses. Water quality monitoring should be expanded to locate pollution sources and monitor the bay for impacts to shellfish resources.

#### **Point Source Issues**

##### **Current Activities**

- Continuing regulation of point sources of pollution to the Bay.

##### **Additional Needs**

- Review and revise existing monitoring programs currently contained in NPDES Permits for the dischargers to Humboldt Bay with specific emphasis on overflows from sewage collection systems.

#### **Nonpoint Source Issues**

##### **Current Activities**

- The Regional Water Board by Resolution established the Humboldt Shellfish Technical Advisory Committee. Staff will continue to support and encourage the TAC to provide coordination with agencies and a forum for the development of any needed water quality investigations or monitoring.
- Continuing investigations and cleanup activities at the Eureka Waterfront area to eliminate petroleum, metals, and organic chemical pollution and threats.

- Continuing the review of land use practices within the Humboldt Bay Watershed to ameliorate impacts from runoff sources, including, but not limited to timber harvest, pesticide use, urban, industrial and agricultural runoff, and individual waste disposal systems (septic tanks).

#### **Additional Needs**

- Bring all dairy operations into compliance with Title 27 to ensure containment of wastes and reduction of runoff generated pollution.
- Support use of the State Mussel Watch Program within the Bay. Review and expand, if appropriate, the scope of the analyses to answer the question, “Are there chemicals in wide use that have not been monitored or assessed with the State Mussel Watch Program?”
- Finalize the report on Bay Protection monitoring activities and findings.
- In cooperation with the Department of Health Services’ Shellfish Program, explore pathogen issues in cooperation with the University of California at Davis.
- Coordinate with the Department of Health Services Shellfish Program, the Humboldt County Health Department, and shellfish harvesters, when appropriate, on all monitoring activities.

#### **BUDGET**

We will attempt to fund the highest priority actions as identified in the Humboldt WMA to the extent funding constraints allow that, and pursue additional funding for those actions we are unable to address. Monitoring and assessment needs are detailed in Appendix 2.4-B.

## Appendix 2.4 - A

### **Partial listing of agencies and groups in the Humboldt Bay WMA with an interest and/or responsibility for water quality.**

#### United States

- Army Corps of Engineers
- Bureau of Land Management
- Environmental Protection Agency
- Fish and Wildlife Service
- Geological Survey
- Humboldt Bay National Wildlife Refuge
- National Biological Service
- National Marine Fisheries Service
- National Park Service
- Natural Resources Conservation Service

#### California State

- California Coastal Conservancy
- College of the Redwoods
- Department of Conservation, Division of Mines and Geology
- Department of Fish and Game
- Department of Forestry and Fire
- Department of Health Services
- Department of Pesticide Regulation
- Department of Toxic Substance Control
- Department of Water Resources
- Humboldt State University
- North Coast Regional Water Quality Control Board
- Office of Environmental Health and Hazard Assessment
- State Environmental Protection Agency
- UC Cooperative Extension

#### Humboldt County

- Agricultural Commissioner's Office
- Department of Environmental Health
- Planning Department

#### Local Agencies

- Humboldt County Resource Conservation District
- Shellfish Technical Advisory Committee
- Humboldt Bay Harbor District
- local water districts - numerous, to be compiled later
- city planning departments
- city public works departments

#### Local Industry and Public Interest Groups

- Farm Bureau
- United Dairymen
- Jacoby Creek Watershed Association
- Humboldt Fish Action Council
- American Fisheries Society

Pacific Coast Restoration  
North Coast Gravel Association  
Trout Unlimited  
Salmon Unlimited  
California Forestry Association  
Redwood Community Action Agency  
Redwood Creek Landowners Association  
Salmon Forever  
Humboldt Watershed Council  
Pacific Lumber Company  
Simpson Timber Company

## Appendix 2.4-B

### Monitoring priorities and need detail for the Humboldt Bay Watershed Management Area

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently not funded.

The estimates are Regional Water Board needs on a per year basis with desired fiscal years identified.

**1. Spatial Assessment of Contamination - \$33,000 (0.3 PY) – FY 01-02**

Sediment contamination identified from the BPTCP should be combined with existing groundwater and stormwater information and spatially organized to provide an overall picture of the extent of contamination and linkages of surface and groundwater contamination, and to guide future monitoring and assessment activities in the WMA. Primary areas of concern are the Eureka Waterfront (metals, petroleum), stormwater drainages (metals, petroleum), and Arcata Bottoms (animal waste, chemicals, petroleum).

**2. Sedimentation - \$376,000 (1.6 PY - 0.5 Redwood, 0.5 Mad, 0.6 F/W & Elk + \$200,000) – FY 01-05**

Redwood and Freshwater creeks and the Mad and Elk rivers are 303(d) listed for sediment impacts. While development of a TMDL by USEPA for the Mad River in the near future will support gathering and assessing existing data to some degree, additional staffing is needed. Implementation of the TMDLs for Redwood Creek and Mad River will require monitoring, as will the development of TMDLs for Freshwater Creek and Elk River.

**3. Water temperature - \$26,000 (0.2 PY + \$4000 supplies) – FY 00-05**

The Mad River is 303(d) listed for water temperature effects on salmonid fisheries. Collection of data will assist in development of TMDL strategies to reduce water temperatures. Will be addressed by SWAMP in FY 2001-02 as indicated below.

**4. Chemicals in POTWs - \$26,000 (0.1 PY + \$15,000) - FY 01-02**

Petroleum products, including solvents, MtBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs.

**5. Bacterial Monitoring - \$42,000 (0.2 PY + \$20,000 lab) – FY 00-02**

Concerns about bacterial quality of Humboldt Bay and other recreational waters (coastal lagoons, Mad River, Redwood Creek) with regard to enteric bacteria and parasites (*Cryptosporidium* and *Giardia*) should be addressed through a monitoring program linked to remediation. Some work was done on Elk River, tributary to Humboldt Bay, but additional sampling is needed.

**6. Log Mill Biological Assessments - \$48,000 (0.3 PY + \$15,000) – FY 01-02, 04-05**

Documentation of conditions and monitoring of the aquatic biota should be conducted to assess the potential problems at historic wood treatment sites at old and existing log mills.

**7. Ruth Lake MtBE - \$26,000 (0.1 PY + \$15,000) – FY 00-02**

MtBE was detected in Ruth Lake on the Mad River, upstream of public and private water supplies. Additional sampling is needed to define the extent of the problem. The monitoring program was begun in FY 00-01 and will continue into FY 01-02.



**Surface Water Ambient Monitoring Program**

The SWAMP will start intensive monitoring in FY 2001-02. Listed below are the planned and proposed monitoring activities under this program.

Long-term monitoring stations

Two long-term stations were established in spring of 2001: Redwood Creek at Orick and Mad River at Blue Lake. Other long-term stations are outlined in the following tables.

Other SWAMP monitoring

Investigation of MTBE concentrations was initiated in Ruth Lake in FY 2000-01 and continues as part of the intensive survey in FY 2001-02.

Intensive survey during the SWAMP rotation in the FY 2001-02

The intensive survey will provide numerous sampling sites in waterbodies in the WMA. Anticipated parameters are general water chemistry, nutrients, metals, and organic chemicals. Evaluation will include temperature conditions in the Mad River and chemicals from POTWs as well as MTBE investigations in Ruth Lake during the intensive survey. To the extent resources allow, concerns at log mill sites and bacterial monitoring during the intensive survey will be addressed.

For FY 01-02, in addition to the two permanent stations, three monitoring stations have been added at Butler Valley downstream of Boulder Creek, at the Ruth Lake outlet, and at the town of Ruth.

**Surface Water Monitoring Program Monitoring Stations for the Redwood Creek Hydrologic Unit (107).**

<b>Redwood Creek Hydrologic Unit (107) - FY 2001-02 Monitoring Activities</b>					
Station (Type) <sup>(1)</sup> HUC	Beneficial Use(s)	Monitoring Objectives <sup>(2)</sup>	Freq <sup>(3)</sup>	Category(s)	Indicator(s) <sup>(4)</sup>
RDWDOR (P) 107.10 (Redwood Creek at Orick)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD	1,2,3,9,10,11,1 2,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature

- Notes:
- Type: P = Permanent, R = Rotating
  - Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)
  - Frequency: N = number of samples per FY, C= Conventional Water Chemistry  
O = Organic Water Chemistry
  - Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

**Trinidad Hydrologic Unit (108)**

The Trinidad Hydrologic Unit comprises a portion of the Humboldt Bay Watershed Management Area as identified in the Watershed Planning Chapter.

**Little River**

Under the Federal Endangered Species Act (ESA), the Little River is wholly contained in the Northern California Evolutionary Significant Unit (ESU) for Steelhead, listed as “threatened” under the ESA in 2000. The National Marine Fisheries Service (NMFS) is currently developing Steelhead critical habitat status and description for this ESU.

Little River is also wholly contained in the California Coastal Evolutionary Significant Unit (ESU) for Chinook salmon. As such, it is designated as critical habitat for Chinook salmon, listed as “threatened” under the ESA in 1999.

<b>Trinidad Hydrologic Unit (108) - FY 2001-02 Monitoring Activities</b>					
Station (Type) (1) HUC	Beneficial Use(s)	Monitoring Objectives (2)	Freq (3)	Category(s)	Indicator(s) (4)
LITCRN (R) 108.20 (Little River at Crannel)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD	1,2,3,9,10,11,1 2,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature

- Notes: 1. Type: P = Permanent, R = Rotating  
 2. Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)  
 3. Frequency: N = number of samples per FY, C= Conventional Water Chemistry  
 O = Organic Water Chemistry  
 4. Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

**Surface Water Monitoring Program Monitoring Stations for the Mad River Hydrologic Unit (109).**

One permanent station and five rotating stations have been established for this HUC. Two stations have been specifically established in Ruth Lake to monitor the extent of MtBE and other fuel by-products including benzene, toluene, ethylbenzene and xylene (BTEX).

<b>Mad River Hydrologic Unit (109). - FY 2001-02 Monitoring Activities</b>					
Station (Type) (1) HUC	Beneficial Use(s)	Monitoring Objectives (2)	Freq (3)	Category(s)	Indicator(s) (4)
MADBLU (P) 109.10	MUN, REC1, REC2, WARM, COLD, SPWN,	1,2,3,9,10,11,1 2	5 C	Contaminant Exposure,	Inorganic Water Chemistry, Chl-

Mad River Hydrologic Unit (109). - FY 2001-02 Monitoring Activities					
Station (Type) (1) HUC	Beneficial Use(s)	Monitoring Objectives (2)	Freq (3)	Category(s)	Indicator(s) (4)
(Mad River at Blue Lake)	MIGR, WILD, RARE			Biological Response, Pollutant Exposure, Habitat	a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature
MADBUT (P) 109.30 (Mad River at Butler Valley, d/s Boulder Creek)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	1,2,3,9,10,11,12, 14, 15	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature Channel Morphology, Macroinvertebrate Assemblage
MADRUT (R) 109.40 (Mad River at Ruth)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	1,2,3,9,10,11,12	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature
MADOUT (R) 109.40 (Mad River at Ruth Lake Outlet Works)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	1,2,3,9,11,12	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, MtBE, BTEX
RL01 (R) 109.40 (Ruth Lake Station #1)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	2, 3, 9	4	Pollutant Exposure, Habitat	MtBE, BTEX, Dissolved Oxygen, Water Temperature
RLO2 (R) 109.40 (Ruth Lake Station #2)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	2, 3, 9	4	Pollutant Exposure, Habitat	MtBE, BTEX, Dissolved Oxygen, Water Temperature

Notes: 1. Type: P = Permanent, R = Rotating  
2. Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)

3. Frequency: N = number of samples per FY, C= Conventional Water Chemistry  
O = Organic Water Chemistry
4. Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

**Surface Water Monitoring Program Monitoring Stations for the Eureka Plain Hydrologic Unit (110).**

A total of nine rotating stations have been established in this HUC They include two in Jacoby Creek, two in Freshwater Creek, three in Elk River, and one in Salmon Creek.

<b>Eureka Plain Hydrologic Unit (110) - FY 2001-02 Monitoring Activities</b>					
Station (Type) (1) HUC	Beneficial Use(s)	Monitoring Objectives (2)	Freq (3)	Category(s)	Indicator(s) (4)
JACBAY (R) 110.00 (Jacoby Creek near Bayside)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,12,13, 14, 15	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Macroinvertebrate Assemblage, Channel Morphology
JACUP (R) 110.00 (Jacoby Creek - Upper Station)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,12,13, 14, 15	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Macroinvertebrate Assemblage, Channel Morphology
FRESHW (R) 110.00 (Freshwater Creek near Freshwater Corners)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,12,13, 14, 15	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Macroinvertebrate Assemblage, Channel

Eureka Plain Hydrologic Unit (110) - FY 2001-02 Monitoring Activities					
Station (Type) (1) HUC	Beneficial Use(s)	Monitoring Objectives (2)	Freq (3)	Category(s)	Indicator(s) (4)
					Morphology
FRESUP (R) 110.00 (Freshwater Creek - Upper Station)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,1 2,13, 14, 15	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl- a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Channel Morphology
ELKRIV (R) 110.00 (Elk River near Elk River)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,1 2,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl- a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature
ELKNFK (R) 110.00 (Elk River - North Fork u/s Jones)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,1 2,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl- a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature
ELKSFK (R) 110.00 (Elk River - South Fork u/s Jones)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,1 2,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl- a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature
SALHY1 (R) 110.00 (Salmon Creek at Highway 1)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,4,9,10,11,1 2,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl- a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature

Notes: 1. Type: P = Permanent, R = Rotating

2. Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)

3. Frequency: N = number of samples per FY, C= Conventional Water Chemistry  
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4. Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

## **SECTION 2.5**

### **EEL RIVER WATERSHED MANAGEMENT AREA**

#### **MANAGEMENT AREA DESCRIPTION**

The Eel River Watershed encompasses roughly 3,684 square miles in highly erodable soils in the steep coastal mountains of the NCR, supporting a variety of water uses including municipal and agricultural supply systems, salmonid fisheries, and recreation. Surface water in many areas is intimately connected with the ground water along the nearby alluvial valleys, thereby having a profound effect on local groundwater supplies. The Eel River Watershed is also a prime recreational area boasting numerous state and private campgrounds along its length with both contact and non-contact uses such as boating and swimming. The Eel River is the third largest producer of salmon and steelhead in the State of California and supports a large recreational fishing industry. The erodable soils, steep terrain, and timber production evoke a high level of concern for the anadromous fishery resource. Coho salmon were listed as endangered under the federal Endangered Species Act in 1997.

It is heavily forested and as such, heavily utilized for timber production. Numerous activities occur within the watershed that may result in potential adverse effects to the beneficial uses of the Eel River Watershed. Municipal, agricultural, and recreational uses may be impaired through discharges to surface water bodies from chemical, biological, and sedimentary materials entering the surface water system. A few of the many activities which, if conducted improperly, are likely to impair surface water beneficial uses include: illegal waste disposal, vehicle and railroad maintenance yard operations, herbicide application, gravel extraction, timber harvesting, road building, dairy operations, automotive wrecking yard activities, wood treatment facilities, publicly owned treatment works, and failing septic systems.

#### **IMPLEMENTATION STRATEGY**

Significant strategy development and implementation for water quality protection and improvement are occurring in the Eel River WMA at the present time by many agencies, interest groups, and individuals. We recognize that the WMA problem identification, watershed assessment, and strategy development are an on-going process, and that further input as we proceed will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. The issues identified in FY 1997-98 and resultant proposed actions are prioritized in recognition of shifting resources. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle, likely with higher priority so that they will be addressed. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc.

A working staff level Watershed Team within the Regional Water Board office developed and prioritized the actions presented in this document.

#### **Institutional framework**

The following is a brief description of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined by the Eel Watershed Team and through the public participation process. A matrix of agency's abilities and jurisdictions with

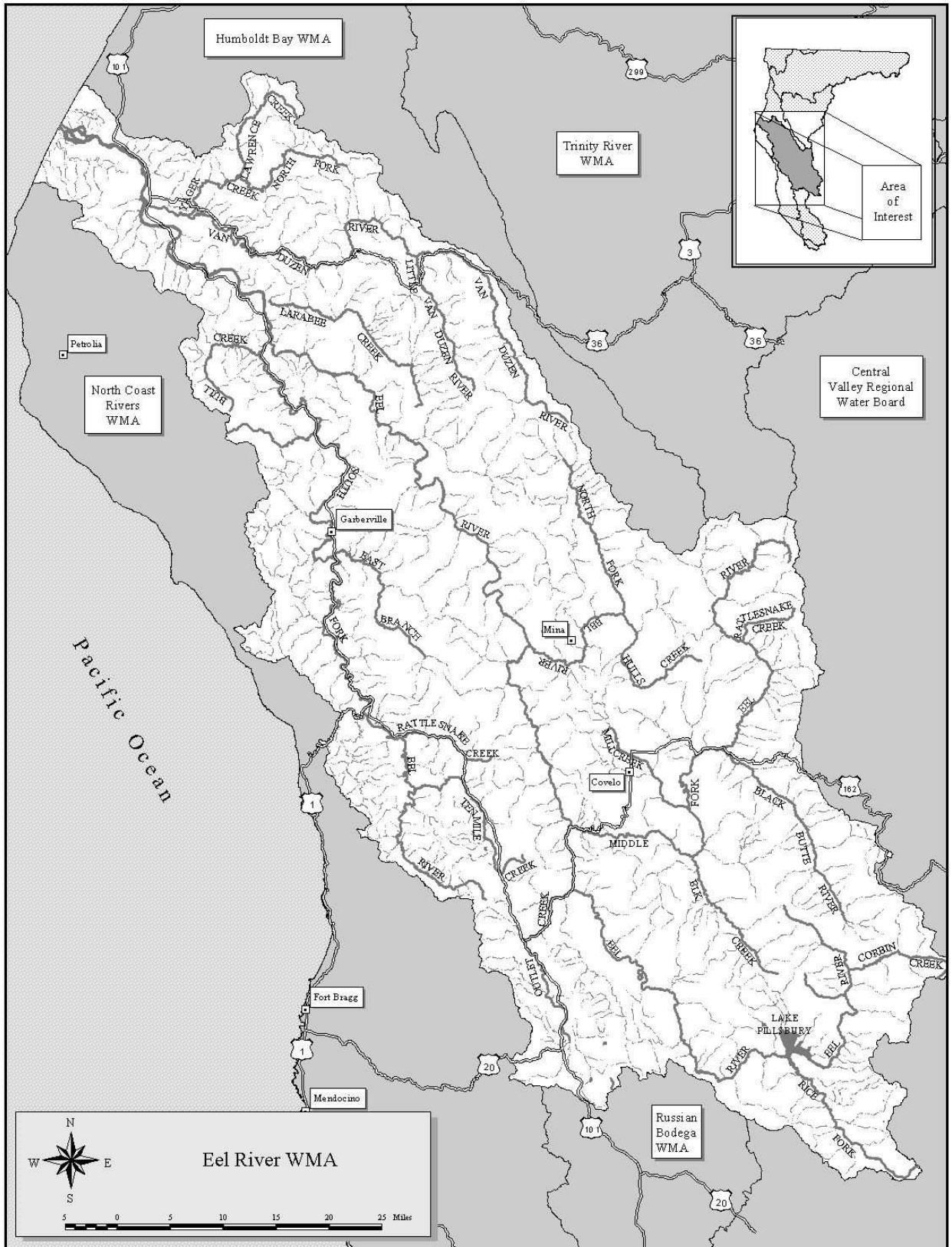


Figure 2.5.1. Eel River WMA



respect to the identified goals will be compiled to provide an overall picture for the management area.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. Over-arching regulatory provisions of the Basin Plan are the discharge prohibitions section, which prohibits direct waste discharge to all freshwater surface waters in this management area except during the winter and at specific dilution rates. The State's Nonpoint Source Pollution Control Program also is referenced in the Basin Plan and forms the basis for addressing non-timber nonpoint source pollution, such as from agricultural operations. Likewise, there are regulations within the implementation section of the Basin Plan addressing waste discharges from logging, road building, and associated construction activities. The policies regarding individual wastewater systems contained in the Basin Plan provide guidelines for local agency jurisdictions to prevent water quality degradation from septic systems.

The state *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* provides water quality guidelines for the prevention of water quality degradation and to protect the beneficial uses of bays and estuaries in the state.

The California Department of Fish and Game developed an *Eel River Salmon and Steelhead Action Plan* (final draft, August 1997) that identified ten general actions to address problems in the Eel River watershed. The primary actions recommended are reducing watershed erosion and improving fish habitat and riparian areas. Additionally, the US Bureau of Land Management and US Forest Service completed watershed analyses for four sub-watersheds (South Fork, North Fork, Middle Fork and Van Duzen River) and compiled information for a preliminary assessment for the main stem Eel River. The State Department of Parks and Recreation also evaluated sediment problems in the Bull Creek watershed. We will use those sources of information in refining our actions and goals, as well as in the development of TMDL waste reduction strategies for sediment in the Eel WMA.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Consistent with that process, a WMA workshop will be held in the WMA, and special task forces or work groups may be formed to help identify water quality issues and strategies. With respect to other agencies and groups in the management area, a list is offered for informational purposes in Appendix 2.5-A. It is our intent to continue to coordinate with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized.

### **Summary of Activities**

The general emphasis in the WMA is to increase assessment activities (including monitoring coordination) and education/outreach, especially regarding erosion control and sedimentation. While maintaining a watchful eye on traditional point source dischargers, forestry related activities are a high priority.

#### Assessment and Monitoring:

Additional assessment needs were identified for erosion/sedimentation and ground water issues. Assessment of existing data was a key element in the TMDLs for the South Fork Eel and Van Duzen rivers. There is a need to organize surface and ground water data to more effectively describe conditions in the WMA and direct future monitoring activities. For instance, additional emphasis should be directed to evaluating the connection between surface and ground waters in urbanized/industrialized areas and the potential for cross-contamination. A system to gather and analyze existing information on a spatial perspective has been suggested.

A monitoring workshop has been suggested to improve coordination, standardize protocols, develop an information bank, and foster a volunteer monitoring program. We will provide some staff assistance and request additional funding to assist the Humboldt RCD in continuing a temperature monitoring and screening program in the watershed. Likewise, the need to monitor both the implementation and effectiveness of watershed enhancement efforts should be addressed, as well as bacterial quality at popular recreation sites in the South Fork Eel and Van Duzen Rivers.

Two new state programs will improve monitoring and assessment in the WMA beginning in FY 2000-01 and continuing:

The North Coast Watershed Assessment Program (NCWAP) is a multi-agency approach to gathering, developing, analyzing and presenting watershed assessments and data for north coast watersheds. In addition to the NCRWQCB, four agencies within the Resources Agency are involved: Department of Fish and Game, Department of Forestry and Fire Protection, Division of Mines and Geology, Department of Water Resources. Each has specific tasks relating to gathering existing data, filling information gaps by collecting new data, analyzing the data, and presenting the resulting watershed assessments in a standardized format for agency, landowners, and watershed groups. NCWAP will be closely coordinated with SWAMP and the outreach functions of the WMI Coordinator in the NCRWQCB. Within this WMA the following watersheds are scheduled for assessment in the next three fiscal years: FY 2001-02—North Fork Eel watershed, middle and lower Eel watersheds; FY 2002-03—upper and middle Eel watersheds.

The Surface Water Ambient Monitoring Program (SWAMP) is a regionwide monitoring program that will monitor permanent stations for long-term trends as well as rotate into WMAs on a five-year basis. Up to five stations are scheduled as permanent stations, sampling began in early 2001: South Fork at confluence, Bull Creek, and near Branscomb; Eel River at Dos Rios; Middle Fork at Dos Rios. The rotation for intensive monitoring is scheduled for FY 2001-02 along with the Humboldt WMA.

Monitoring and assessment needs are detailed in Appendix 2.5-B.

#### Education and Outreach:

Pollution prevention activities were highlighted by the Watershed Team as a high priority activity. Increased education and outreach should be addressed for erosion control, other storm water issues, confined animal facilities, management and disposal of toxics, monitoring and assessment, and the core regulatory program.

#### Coordination:

Tied in closely with education and outreach is the need for enhanced coordination. We participate in a few activities beyond our day-to-day work that are aimed at improving communication and coordination to the benefit of improved water quality. Improving the interaction with other agencies and the public is a goal that will require additional funding or redirection of resources.

#### Core Regulatory:

The Watershed Team proposes maintaining the current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers, while increasing the level of involvement in storm water and confined animal waste management issues. Concern was raised about publicly owned treatment works discharging to infiltration ponds in the floodplain and the potential for recreational use impairment. In addition to core regulatory are the underground storage tanks program and toxic site cleanups. Additional emphasis should be directed to evaluating the connection

between surface and ground waters in urbanized/industrialized areas and the potential for cross-contamination. Involvement in the gravel mining issues in the WMA should continue, especially as regards stream channel geomorphology and potential effects on the anadromous salmonid resources.

Ground water:

Ground water issues center on petroleum and metals contamination and the potential for cross contamination between surface and ground water. As mentioned above, assessment of existing data is needed to provide an overall picture of contamination and to guide future monitoring efforts. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

Nonpoint Source:

Continued involvement in the forestry issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act and the lawsuit against USEPA for TMDL development has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The Team suggests increasing work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Pollution Control Program strategy of first emphasizing “voluntary” self-determined implementation of controls to reduce nonpoint source pollution. An active outreach program will enhance the effectiveness of the program.

Response to section 303(d) requirements for waste load reductions included sediment TMDLs for the South Fork Eel River (adopted in December 1998) and Van Duzen River (adopted in December 1999). Additional information is contained in Section 2.7. Issues of listing additional streams in the WMA will be addressed through the Water Quality Assessment process.

Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We participate in the Timber Harvest review process as a “review team” agency, with the California Department of Forestry and Fire Protection (CDF) as the lead agency for timber harvest plan review and approval. In our role as a review team agency, we review and make recommendations on timber harvesting plans in an effort to ensure protection of water quality and beneficial uses (i.e., Basin Plan compliance). Interim provisions of the Forest Practice Rules require that CDF not approve any plans that do not comply with water quality objectives. We are working both within the timber harvest plan review process as well as under our own authority to require instream water quality monitoring for fine sediments so as to 1) assess long term water quality trends, 2) evaluate effectiveness of timber harvest-related best management practices and prescriptions in ensuring Basin Plan compliance, and 3) provide a feedback loop for timber owner-operators to allow for timely identification and response to sediment discharges from timber harvest and related activities, as well as to provide information to assist with future timber harvest planning. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

An estimated 25% of the timber harvested in the Region occurs in this hydrologic area. The primary water quality issues are discharges of sediment due to surface erosion and mass wasting (landslides). Beneficial uses of primary concern include aquatic habitat, especially the recovery of threatened and endangered species of coho salmon and steelhead trout, and protection of domestic water supplies in small rural communities. Stream temperature is of specific concern in this area. Forest herbicide application is an issue of concern. Mendocino National Forest is located in this area and is the primary federal timber agency.

#### Local Contracts:

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs, the Water Bond (Proposition 13) grant program, as well as promoting other programs like the California Department of Fish and Game restoration programs. We are currently managing a 319(h) grant with the California Coastal Conservancy funding implementation of dairy improvements. Another 319(h) grant with the Humboldt County Resource Conservation District put underway in April 2000 to implement landowner improvement projects that will improve water quality and salmonid habitat.

#### Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Eel River WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures.

Additionally, the water quality attainment strategies for the section 303(d) waterbodies will be incorporated into the Basin Plan.

#### **Evaluation and Feedback**

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. Emerging issues of large magnitude or high priority may cause early re-evaluation and shifting priorities. The final evaluation will feed into the next cycle of assessment and problem identification.

#### **ASSESSMENT AND PROBLEM IDENTIFICATION**

In general, the primary issues associated with water quality in the Eel River WMA are focused on the beneficial uses for drinking water supply, recreation, and the salmonid fishery. Since the watershed is located in steep forested terrain with highly erosive soils and high rainfall, erosion and sediment production and transport are high. For most of the watershed the issues of temperature and sedimentation and their impacts on the salmonid fishery are of high concern, involving the timber and rangeland industries. Other issues include ground water contamination, dairies in the delta area near the ocean, and localized contamination of surface and ground waters.

At Lake Pillsbury, the Regional Water Board has concerns about mercury bioaccumulation in fish and after public hearings will recommend that the lake be placed on the CWA 303(d) list of impaired waterbodies for mercury. The National Marine Fisheries Service has issued no take permits for endangered species in the lake. There are underground tanks in the area that are leaking and have contaminated private domestic wells. There also fueling stations on the dock in the marina and above ground piping in the lake area that are of concern. PG & E and US Forest Service are conducting a restoration project in Soda Creek. A scoping project is being done for logging for fuel reduction on the lakeshore at Summerhome. The Eel River is partly diverted to the Russian River through a PG & E power generation plant at Potter Valley. There is a lumber mill operated by Louisiana Pacific at

Van Arsdale where a cleanup is partially complete, but dioxin and furans are still detected in the mainstem of the river. Sedimentation is also a problem here.

On the North Fork Eel River where the land is owned by the Bureau of Land Management, the US Forest Service and private parties there is still a lot of timber harvesting being done. This is an area of natural instability with highly erodable soils so that erosion and sedimentation of the water ways is a concern. The other major land use is cattle grazing which may also cause soil erosion. The waste water treatment plant in the Covello/Dos Rios area with a daily capacity of about 100,000 gallons is poorly maintained and potentially discharges to the Eel River. Investigation and enforcement needed to be increased on the treatment plant. The Round Valley Reservation uses a septic system that may also have problems. There is an old railroad maintenance yard in this area with hazardous waste issues that need to be addressed. The landfill on Refuse Road is now closed and has been changed to a transfer station, but still needs to be investigated.

At the City of Willits, the treatment plant sometimes discharges to Outlet Creek in excess of the 1 percent discharge rate. The City will be subject to Phase II of the NPDES Storm water permits under which all storm water must be controlled. The Remco plant in Willits continues control discharges of VOCs to prevent spills to Baechtel Creek and the ground water plume contaminated with VOCs and hexavalent chrome continues to be cleaned up. The Page chrome pits that were used by Remco in the past and have contaminated ground water and soil are being monitored. In addition, the City has several above ground and under ground tanks that are potential problems.

At Laytonville, there are septic systems that are failing and the town wants to connect these systems to the sewer system that is in place. West of town there is a new vineyard that may be failing and needs investigation. At the Laytonville dump the local indian tribe has obtained a grant from USEPA to conduct ground water monitoring and they have detected arsenic which is also being detected in local private drinking water wells. The Northwestern Railroad has a rail line that runs parallel to the Eel River through highly erodable, unstable land where landslides are common. This railroad has been closed and there is an effort under way to open the line between Willits and Eureka. The Department of Toxic Substance Control, the Department of Fish and Game and the Regional Water Quality Control Board are all concerned with slide issues, fish issues, and debris cleanup issues involved with reopening the railroad line. Near Island Mountain there has been extensive sliding, and there are cleanup problems and a poor sewage system that needs investigation. The railroad has an old storage area here where hazardous wastes are contained in drums and tanks. The iron mine on Island Mountain is still discharging heavy metals to the river. Action is needed on these issues.

In the town of Garberville there is a gas station with leaking underground tanks and a bulk oil tank that is also leaking. In the surrounding areas private growers have problems with fuel tanks on electrical generators leaking and contaminating soil and possibly surface and ground water. Unical has a Waste Discharge Requirement for sparging ozone. The dam at Benbow may present fish passage problems that will have to be addressed by the Department of Fish and Game. At Humboldt Redwoods State Park near Weott there has been considerable restoration work done, especially in Bull Creek. The California Department of Transportation is also involved in restoration, erosion control and runoff projects in this area. The area along Highway 36 has soil stability problems and there is concern about the small communities along the highway that may have waste disposal problems.

In the lower Eel River area, the town of Scotia has a municipal runoff problem and Pacific Lumber Company has a permitted ash dump where Regional Water Board staff is currently taking enforcement action. There are also upland and in-stream quarries near Scotia that need investigation. At Rio Dell there are discharge problems from the municipal treatment plant in the summer and a

sludge disposal problem. Eel River Saw Mill, which is being sold, has a NPDES storm water permit. The towns of Scotia, Ferndale, and Rio Dell will get Phase II NPDES storm water permits. At the town of Redcrest there is an underground tank that is leaking MTBE to the river and a failing onsite disposal system that needs investigation. In the Ferndale and Fortuna areas there are about 85 dairies many with manure management problems and some where cows have direct access to streambanks.

Pacific Lumber Company (PALCO) is harvesting heavily, above quantities in the Sustained Yield Plan, in the lower Eel River and Van Duzen River watersheds including Bear, Stitz and Jordan Creeks. PALCO is currently conducting a watershed analysis in this area and there is extensive Regional Water Board oversight. However, since harvesting is so heavy the Regional Board will be issuing an enforcement order to stop harvesting in Bear Creek. There is also cattle grazing on PALCO land and many roads that are poorly maintained and are contributing sediment to local creeks which are aggrading and causing flooding and domestic water supply problems. The Regional Water Board is conducting a watershed analysis in the lower Eel River area and conducting effectiveness monitoring downstream of where PALCO has installed BMPs.

### **WATER QUALITY GOALS AND ACTIVITIES**

The four goals for the Eel River WMA are related through the beneficial uses they address:

- **GOAL 1: Protect and enhance the salmonid resources (COLD)**
- **GOAL 2: Protect other surface water uses (MUN, AGR, REC 1, REC-2)**
- **GOAL 3: Protect ground water uses (MUN, IND. AGR, REC-1, REC-2)**
- **GOAL 4. Protect warm water fishery resources**

Protection of surface water (GOAL 2) for the primary beneficial uses MUN, AGR, REC-1 and REC-2 will in most cases protect all other beneficial uses. The MUN (municipal and domestic supply) beneficial use designation is for uses of water for community, or individual water supply systems including, but not limited to, drinking water supply. It demands, therefore, the highest quality of water. The REC-1 (water contact recreation) beneficial use designation is for uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. This beneficial use also demands a high degree of water quality. If MUN and REC-1 beneficial uses are protected then it follows that agricultural and industrial supplies are also protected which relates GOAL 2 to GOAL 3. The protection of cold and warm water fisheries (GOALS 1 and 4) requires the protection of surface and ground waters (GOALS 2 and 3) along with additional concerns for siltation, habitat loss, low tributary flows and water temperature. Therefore, by protecting the beneficial uses that demand the highest quality waters most components supporting the other beneficial uses also will be protected.

#### **GOAL 1: Protect and enhance the salmonid resources (COLD)**

The cold water fishery, specifically trout, steelhead, and salmon, is of concern regarding sedimentation and other potential impacts to habitat and water quality. The following Nonpoint Source issues were identified by the Regional Water Board staff and relate directly to concerns about the cold water fishery:

- **Stream Sedimentation:** A large portion of the watershed supports commercial timberlands, and concern has been raised regarding the past and present impacts of timber harvest. Logging roads are a concern due to increased runoff and delivery of sediment to local waterbodies on private and federal lands. There is a need to provide a clear linkage between numerous small upland or upslope activities and larger problems downstream in the waterways. Changes in the morphology of channels have occurred from increased sedimentation rates; shallower, wider channel form increases insolation, decreases low flow

velocity, increases deposition of very fine material. Sedimentation of small streams in the Eel River delta has caused localized flooding and accelerated erosion in some cases from redirected stream channels. Gravel extraction increasing in the upper Eel watershed is a concern. The regulation of gravel extraction is primarily through a US Army Corps and California Department of Fish and Game process.

- Past and current timber harvest practices have decreased the canopy cover over tributaries and the mainstem of the river. Lack of canopy cover increases the solar radiation reaching the water and increases water temperature. High water temperatures are detrimental to cold water fisheries' reproduction.
- Potential impacts from dairies and grazing have not been fully evaluated. Concern has been raised regarding dairy industry and grazing impacts to the watershed from direct discharges of waste and/or whey, animals in the creeks and waterways, trampling of stream banks, and other erosion mechanisms. Dairies should be brought up to Title 27 standards. Grazing issues include erosion and sedimentation, and water chemistry issues.
- Ground water contamination concerns, as well as erosion and sedimentation issues should be included in outreach and education activities. Problem sites should receive progressive enforcement per the State's Nonpoint Source Pollution Control Program.
- Herbicide application on private and public lands is a water quality concern.
- Interbasin transfers of water and regulated flows from dams affect sediment, flow, and temperature dynamics. These activities may contribute to the impairment of the beneficial uses.
- The seasonal erection of Benbow Dam has raised temperature and migration issues for anadromous salmonids.

### **Point Source Issues**

#### **Current Activities**

- Continue regulation of point sources.

### **Nonpoint Source Issues**

#### **Current Activities**

- Implement and enforce best management practices for nonpoint source regulation. These actions include inspection of nonpoint source dischargers, joint participation among landowners, government agencies, and other stakeholders to develop and implement better land-use practices, and follow road construction and maintenance standards that minimize soil disturbance and erosion throughout the watershed.
- Work with the timber industry to address timber harvest impacts and issues (i.e., erosion, herbicides and riparian management). Work with USFS regarding timber harvest related activities, including road building and road abandonment, in the upper Eel River Basin.
- The North Fork, Middle Fork, and upper mainstem Eel are scheduled for sediment and temperature TMDLs in 2002, 2003, and 2004, respectively. The process to establish sediment reduction strategies will involve considerable public outreach, assessment of sources, assessment of impairments, development of quantifiable targets, consideration of feasible solutions to reduce sources, and coordinated monitoring. We will work with EPA on TMDL development and implementation/outreach, and prepare for Basin Plan amendments.
- Investigate herbicide impacts to surface and ground water.

- Implement and enforce best management practices for nonpoint source regulation for herbicide applications, increase interagency coordination and use task force to target bad operators. Investigate herbicide impacts to surface and ground water. Work with CalTrans on NPS discharges from roadwork.
- Promote grants for nonpoint source studies and implementation.
- Manage funded 319(h) projects, including the new project for dairy outreach and pollution control activities.
- The NCWAP will begin assessment activities in the WMA in FY 2002-03. We will be part of the effort that will satisfy a number of assessment concerns and provide the assessment and data in a computerized database that can be housed in the watershed.

### **Additional Needs**

- Develop strategies for erosion prevention and reduction of sedimentation to support implementation of the TMDL process. These actions include joint participation among landowners, government agencies, and other stakeholders to develop and implement better land-use practices, and follow road construction and maintenance standards that minimize soil disturbance and erosion throughout the watershed.
- Promote erosion prevention and sediment control educational materials and programs for small and rural landowners by placing educational handouts at local permit offices, performing more outreach, developing a road map of responsible groups/agencies to assist an individual landowner in a given waterbody or type of problem or situation, and promoting erosion prevention and sediment control regulations. Existing information needs to be identified so that we can assess impacts to the system and address problem areas such as comparing new air photos with historical air photos and noting changes in the morphology of channels. This will give us the locations of "hot spots". Meet with agencies responsible for issuance of permits to discuss their process and BMP's for water quality.
- Inspect construction sites for erosion prevention and sediment control measures, encourage local agencies to adopt and enforce local ordinances for erosion prevention and sediment control measures. Increase storm water program resources.
- Fund PYs for coordinating our functions with other agencies on a watershed basis. This activity includes work with agricultural, silvicultural, and urban runoff discharges, primarily through grant-funded projects, volunteer monitoring coordination, and public education and outreach to reduce sediment discharges from nonpoint sources. This activity could include issues associated with land use planning regarding riparian encroachment and flood plain use.
- Promote Tax Incentives for Erosion Controls. Tax incentives for erosion control and aquatic restoration activities should be supported and pursued. Decreasing road density on upland slopes and decommissioning problem roads were two potential targets of such an incentive program.
- Promote enhancement of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups to improve its functions for shading, buffering land use impacts, bank stabilization, and habitat.
- Improve habitat conditions for anadromous fishes by assisting and coordinating with CDF&G and local agencies and groups in fishery assessment and emerging issues and by promoting grant funding for stream rehabilitation. Discuss instream removal of "sinker" logs with CDF&G to aid in developing better standards through 1600 series permits process. Obtain any data available on stream temperatures in this area. Provide comments to CDF&G on the *Eel River Action Plan*. Identify process steps involved in gravel extraction permitting. Coordinate with Army Corps and Fish &



Game to identify most sensitive areas for fishery habitat. Collect information from County public works departments and CalTrans on road repairs (locations, work needed, etc.) for tracking in watershed database.

- Increase coordination with RCDs and agricultural community to deal with rangeland and confined animal problems; erosion, bank erosion, animal waste in streams.
- Seal waste pits and ponds. RCD/Regional Board and other agencies to host watershed group meetings to receive input, and provide education on BMP's. Develop Regional Board approach to implementation of Rangeland Management Planning process. (Tied to coordination with RCDs). Irrigate agronomically. Nutrient budget for spreading waste (not disposal, but agronomic use). Coordinate closely with County Health and other local agencies that see the problems every day. Conduct outreach and education along the lines of the SF Bay area effort by Region 2.
- Continue active participation in the CalTrans Vegetation Management Advisory Committee and increase time commitment. Work more closely with CDF and timber industry on NPS herbicide issues.
- Coordinate water rights/dams issues with SWRCB and other agencies.
- Staff should be part of the process and decision criteria regarding amounts, locations, and seasonality of gravel extractions.
- Coordinate with CDFG in the evaluation of the effects of Benbow Dam.
- Encourage the local planning agencies to endorse the concept of a riparian corridor reserve and develop a model erosion control ordinance for all grading and building projects less than 5 acres in size due to the sensitive nature of the watershed. Coordinate with local agencies, CalTrans, and the Railroad Authority to develop and implement best management practices for erosion control.
- Develop and implement a focused sampling program for temperature, sediment loading, geomorphology changes and water quality in upper mainstem Eel River. These issues will be addressed largely by the NCWAP in FY 2001-02 and 2002-03, and to a degree in the FY 2001-02 SWAMP intensive survey, depending on resources
- Support CDFG efforts to identify the extent of squawfish predation on salmon and steelhead populations and evaluate management strategies to eliminate squawfish predation and/or population within the river and Lake Pillsbury.
- Coordinate with CDFG to evaluate removal of railroad debris

**GOAL 2: Protect other surface water uses (MUN, AGR, REC-1, REC-2)**

Approximately 86% of the watershed area is privately owned and coordination between regulatory agencies and private groups within the watershed is poor. Communication and coordination is an over-arching, non-hierarchical issue and represents a fundamental component of all specific issues and actions identified within the watershed. The compliance rate for existing WDR/NPDES programs is high. Existing regulatory programs related to point source discharges should be continued and increased emphasis placed on identifying and inspecting traditionally low priority and unregulated point source sites. Mercury in largemouth bass from Lake Pillsbury has been measured at concentrations exceeding FDA action levels for human consumption and the state Office of Health Hazard Assessment has issued a fish consumption advisory. Discharge from Lake Pillsbury may be contributing mercury to the Eel River watershed as well. Interbasin transfer of water between the Eel River and the Russian River may affect sediment budgets, flow rates, temperature dynamics and chemical concentrations within the Eel River. Lake Pillsbury may be acting as a source for squawfish found in the upper Eel River affecting recreational uses of the River.

## **Point Source Issues**

### **Current Activities**

- Continue point source regulatory programs.

### **Additional Needs**

- Increase funding for identification and inspection of municipal, industrial and construction storm water facilities and traditionally unpermitted facilities such as junkyards, steam cleaners and maintenance yards.
- Increase inspections and develop general permits for lower priority land application facilities, recycling and composting facilities.
- Encourage improvements to publicly owned treatment plants adjacent to the river to reduce incidents of upsets and eliminate disposal of wastewater to gravel bars within the river channel.
- Coordinate and assist, as needed, during upcoming FERC permit reconsideration for Scott Dam. Negotiate flow releases and diversion schedules that enhance salmon and steelhead populations.

## **Nonpoint Source Issues**

### **Current Activities**

- Develop a sediment and temperature TMDL in conjunction with EPA in 2002-2004.
- Increase coordination with RCD and agricultural community to address rangeland issues and confined animal problems related to nutrient runoff and erosion.
- Reduce erosion associated with timber harvest and road systems.
- Continue grant programs for watershed assessment, planning, and restoration.
- Continue the current Toxic Substance Monitoring Program and the new SWAMP activities to develop and implement a focused sampling plan to assess water quality, sediment and bioaccumulation potential of mercury in upper mainstem Eel River.

### **Additional Needs**

- Fund and implement a watershed-based sampling program that is prioritized and focused on specific issues/problems within the watershed. This will be addressed to a large degree by the NCWAP and SWAMP in FY 2001-02.
- Identify existing information and develop a central repository for information including database and possibly GIS capabilities. The NCWAP will begin development of a computerized database with GIS components in FY 2001-02 that should be available in 2003.
- Investigate the feasibility and impacts to beneficial uses if Eel River estuary and lower mainstem are dredged to remove well documented sediment clogging in watershed.
- Streamline 401 water quality certification program for small dischargers and encourage better use of existing BMP's for erosion.
- Endorse the concept of establishing a "river corridor". Encourage local and state agencies to evaluate appropriate land uses and industrial activities within a "river corridor". Coordinate with local planning agencies to review existing zoning and reevaluate incompatible land uses along the "river corridor".
- Increase coordination with timber companies to monitor herbicide application and pre- and post application chemical handling and disposal.

- Establish and fund a watershed coordinator position to develop outreach programs that include joint participation among landowner, government agencies and other stakeholders.

**GOAL 3: Protect ground water uses (MUN, IND. AGR, REC-1, REC-2)**

Activities that occur in the Eel River Watershed may result in the contamination and degradation of ground water. Beneficial uses identified for ground water in this watershed include, municipal, industrial, and agricultural water supply, and recreation. These uses may be impaired through discharges to ground water from chemical and biological materials. A few of the many activities which, if conducted improperly, are likely to impair ground water beneficial uses include: illegal disposal sites (including illegal landfills), vehicle and railroad maintenance yard operations, herbicide application, dairy operations, automotive wrecking yards or metal recycling activities, wood treatment facilities, underground tank operations, landfill operations, and other industrial facilities operations, publicly owned treatment works, and private septic systems.

Information needs to be gathered and placed into a database system. to help with the following: (1) identify the location of the problem areas of the watershed, (2) identify the location of the sensitive areas of the watershed, and (3) identify restoration areas and activities associated with the watershed.

In order to protect the beneficial uses of ground water in the Eel River WMA, the following list of issues and actions has been identified by Regional Water Board staff to be addressed:

**Point Source Issues**

**Current Activities**

- Continue the point source regulation program.

**Nonpoint Source Issues**

**Current Activities**

- Continue on-going activities associated with known ground water contamination.
- Prevent access to waste pits and ponds.
- Continue to coordinate with the County to review septic system situations to avoid ground water contamination. This includes enforcement of the Basin Plan requirement to ensure that the County reports septage disposal.
- Continue active participation in the Vegetation Management Advisory Committee and increase monitoring of the implementation of best management practices for herbicide applicators.
- Conduct follow-up activities.

**Additional Needs**

- Pursue additional Regional Water Board funding (PYs) for development of a database system (and possible GIS) to store, analyze, and assess existing information.
- Outreach and coordination as in other goals above.
- Pursue additional Regional Water Board funding (PYs) for staff and laboratory services to assess and address the illegal disposals and assess ground water quality.
- Prepare, develop, and implement a program to educate the public, local, city, and state agencies, along with private industry, on discharges of toxic chemicals.

- Encourage the agricultural community to advance to Chapter 15 requirements in order to avoid ground water contamination.
- Promote agronomic irrigation and agronomic disposal of wastes.

#### **GOAL 4: Protect warm water fishery resources**

The warm water fishery exists only in Lake Pillsbury, in the upper Eel River basin. Lake Pillsbury is a favored recreation area for residents of the North Coast. Contamination of the fisheries from naturally occurring mercury is a concern for sport fishing. Erosion of sediment above the dam exacerbates the level of mercury contaminated sediments entering the lake. Erosion of sediment from the upper portion of the basin may also be filling Lake Pillsbury, which may threaten the life of the reservoir. Existing information needs to be identified and collected so that we can assess impacts to the system and address problem areas. There is a need for a database system to help with identifying the location of the problems areas, sensitive areas, and areas for restoration activities. For the warm water fishery, information gathering and assessment should be confined to Lake Pillsbury. Discharges are a concern and may contribute to the impacts to the warm water fishery of Lake Pillsbury. These include discharges due to boating activities, such as MTBE in gasoline, septic systems, industrial/construction site runoff, etc.

#### **Point Source Issues**

We know of no specific point source issues in this part of the WMA.

#### **Nonpoint Source Issues**

##### **Current Activities**

Due to funding constraints, we have little involvement in issues other than timber harvesting activities and mercury accumulation in fish species.

##### **Additional Needs**

- The actions for above goals regarding data gathering and assessment, coordination, and outreach all apply to this issue.
- Coordinate more closely with the local watershed group, as well as the USFS, County Health and other local agencies that see the problems every day. Work with the county to ensure county controls are implemented.

#### **BUDGET**

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Monitoring and assessment needs are detailed in Appendix 2.5-B.

## Appendix 2.5-A

### Partial listing of agencies and groups in the Eel River WMA with an interest and/or responsibility for water quality.

#### United States

- Environmental Protection Agency
- Army Corps of Engineers
- Forest Service
- Bureau of Land Management
- Geological Survey
- National Biological Service
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### Native American

- Round Valley Indian Reservation

#### California State

- California Environmental Protection Agency
- Resources Agency
- Department of Fish and Game
- Department of Health Services
- Department of Parks and Recreation
- Department of Pesticide Regulation
- Office of Environmental Health and Hazard Assessment
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy
- UC Agricultural Extension
- Humboldt State University
- College of the Redwoods

#### Humboldt and Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health
- Agricultural Commissioner's Office

#### Local Agencies

- Resource Conservation Districts
  - Mendocino County RCD
  - Humboldt County RCD
- local water districts - numerous, to be compiled later
- city planning departments
- city public works departments

#### Public Interest Groups

- Farm Bureau
- United Dairymen

Cattlemen's Association  
Eel/Russian Commission  
Trout Unlimited  
Salmon Unlimited  
California Forestry Association  
Eel River Watershed Improvement Group  
Eel River Watershed Protection & Restoration Association  
Environmental Protection Information Center  
Elk River Watershed Conservancy  
Friends of the Eel River  
Humboldt Bay Watershed Advisory Committee  
Institute for Sustainable Forestry  
Redwood Community Action Agency  
Round Valley Resource Center  
Willits Watershed Group  
Salmon Forever  
Humboldt Watershed Council  
Pacific Lumber Company

## Appendix 2.5-B

### Monitoring priorities and needs detail for the Eel River Watershed Management Area

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently not funded.

The estimates are Regional Water Board needs on a per year basis with desired fiscal years identified.

- 1. Water temperature - \$15,000 (0.1 PY + \$4,000 supplies) – FY 00-05 (on going for five years)**  
High water temperatures affect coldwater salmonid species such as the coho and chinook salmon that are listed as threatened under the federal Endangered Species Act). The Humboldt RCD has completed a 205(j) project to provide a broad picture of water temperatures in the basin. Their continuing efforts focus on specific problem areas, but need assistance. SWAMP and NCWAP will address this to a large degree in FY 2001-02, 2002-03, and 2003-04.
- 2. Sedimentation - \$188,000 (0.8 PY + \$100,000) – FY 02-03, 03-04, every 5 years thereafter**  
The entire Eel River watershed is section 303(d) listed for sediment impacts. The USEPA is developing TMDL waste reduction strategies, which will support gathering and assessment of existing information. Additional monitoring for the effectiveness of the actions is needed in the phased TMDL approach. The SWAMP and NCWAP will address this to some degree.
- 3. Bacterial studies - \$32,000 (0.2 PY + \$10,000 lab) – FY 01-02**  
Contact recreation may be at risk in the Van Duzen and South Fork Eel. Absence of data on bacterial and parasitic (*Cryptosporidium*, *Giardia*) presence is lacking.
- 4. Basic Assessment - \$180,000 (1.0 PY + \$70,000 lab) – FY 01-02**  
No specific body of recent (last 10 years) water quality data exists for the watershed as a whole. A check on basic water quality attendant to the focused assessments and monitoring proposed herein is needed to ensure no new problems are going unnoticed. Likewise, coordination of monitoring and assessment efforts and a compilation of existing data (a watershed atlas) are needed, but will be supported to a degree by TMDL activities. Sampling of POTWs for MtBE, other petroleum products, and metals is needed, both influent and effluent. The NCWAP will assess the Middle Fork Eel River in calendar year 2002.
- 5. Groundwater Data Assessment - \$33,000 (0.3 PY) – FY 01-02**  
A spatial organization of existing information is needed to first assess the extent of known problems. That will guide future focused monitoring and assessments and overall assessment of groundwater in the watershed.
- 6. Groundwater/Stormwater Data Collection - \$75,000 (0.5 PY + \$20,000) – FY 01-02**  
Surface water and groundwater are contiguous in much of the watershed. Stormwater drainages are contributing animal waste products, gasoline, MtBE, metals (mostly Pb, Cr, Ni, Zn, Cu), solvents, and other petroleum products to the surface and ground waters to an unknown extent. We know there are problems in the Garberville and Fortuna areas, and suspect problems in the Willits, Carlotta, and Hydesville areas.

**Surface Water Ambient Monitoring Program**

**Surface Water Ambient Monitoring Program Monitoring Stations**

The SWAMP has addressed some monitoring issues in the WMA in FY 2000-01, and will investigate more intensively in FY 2001-02. Listed below are the planned and proposed monitoring activities under that program.

Long-term monitoring stations:

Five long-term stations were for setup in spring of 2001: South Fork at confluence, Bull Creek, and near Branscomb Creek; Eel River at Dos Rios; Middle Fork at Dos Rios; and North Fork at Mina. Other long-term stations in the WMA will be proposed if appropriate from the rotation in FY 2001-02.

The intensive survey:

will provide sampling sites in waterbodies in the WMA. Anticipated parameters are general water chemistry, nutrients, metals, organic chemicals, and sediment related parameters. We will address temperature and bacterial issues in the WMA during the intensive survey. For this rotation, stations have been added at Benbow, Elder Creek, Hearst and Alder Point.

<b>Eel River Hydrologic Unit (111) - FY 2001-02 Monitoring Activities</b>					
Station (Type) ( <sup>1</sup> ) HUC	Beneficial Use(s)	Monitoring Objectives ( <sup>2</sup> )	Freq ( <sup>3</sup> )	Category(s)	Indicator(s) ( <sup>4</sup> )
VAN101 (R) 111.11 (Van Duzen River at Highway 101)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,9,10,11,12,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
EELHOL (P) 111.12 (Eel River at Holmes)	MUN, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,11,12,13	3 C 3 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
YAGCAR (R) 111.12 (Yager Creek at Carlotta)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,,9,10,11,12,13, 14, 15	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Channel Morphology
VANBRG (R)	MUN, REC1, REC2,	1,2,3,9,10,11,12,13	5 C	Contaminant	Inorganic Water



<b>Eel River Hydrologic Unit (111) - FY 2001-02 Monitoring Activities</b>					
Station (Type) ( <sup>1</sup> ) HUC	Beneficial Use(s)	Monitoring Objectives ( <sup>2</sup> )	Freq ( <sup>3</sup> )	Category(s)	Indicator(s) ( <sup>4</sup> )
111.22 (Van Duzen River at Bridgeville)	COLD, SPWN, MIGR, WILD, RARE	1,12,13		Exposure, Biological Response, Pollutant Exposure, Habitat	Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
VANBRG (R) 111.22 (Van Duzen River near Dinsmore)	MUN, REC1, REC2, COLD, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
EELSFK (R) 111.30 (Eel River – South Fork d/s of Bull Creek)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, PCP/TCP, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature
EELBEN (R) 111.32 (Eel River – South Fork near Benbow)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
EELBRN (P) 111.33 (Eel River – South Fork near Branscomb)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	3 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Channel Morphology, Vitellogenin
ELDRCR (R) 111.33 (Elder Creek at	MUN, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C	Contaminant Exposure, Biological	Inorganic and Organic Water Chemistry, Chl-

<b>Eel River Hydrologic Unit (111) - FY 2001-02 Monitoring Activities</b>					
Station (Type) ( <sup>1</sup> ) HUC	Beneficial Use(s)	Monitoring Objectives ( <sup>2</sup> )	Freq ( <sup>3</sup> )	Category(s)	Indicator(s) ( <sup>4</sup> )
Eel River)				Response, Pollutant Exposure, Habitat	a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
EELMDV (P) 111.41 (Eel River above Dyerville)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	3 C 3 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, PCP/TCP, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
EELMAN (P) 111.41 (Eel River above Dos Rios)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13,	3 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin
EELALD (R) 111.42 (Eel River near Alder Point)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
NFELMI (R) 111.50 (Eel River – North Fork near Mina)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature,
EELHST (R) 111.62 (Eel River near Hearst)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C 3 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, PCP/TCP, Chl-a, Nutrients, Total Organic Carbon, Dissolved

Eel River Hydrologic Unit (111) - FY 2001-02 Monitoring Activities					
Station (Type) (1) HUC	Beneficial Use(s)	Monitoring Objectives (2)	Freq (3)	Category(s)	Indicator(s) (4)
					Oxygen, Water Temperature, Vitellogenin
LP01 (R) 111.63 Lake Pillsbury, Station #1	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	2, 3, 9	4	Pollutant Exposure, Habitat	MtBE, BTEX, Dissolved Oxygen, Water Temperature
LP02 (R) 111.63 Lake Pillsbury, Station #2	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	2, 3, 9	4	Pollutant Exposure, Habitat	MtBE, BTEX, Dissolved Oxygen, Water Temperature
LPOUT (R) 109.40	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C	Contaminant Exposure, Biological Response, Pollutant Exposure Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, MtBE, BTEX
EELVAN (R) 111.63 (Eel River at Van Arsdale Reservoir)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	5 C 3 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin
MFKEEL (P) 111.70 (Eel River – Middle Fork at Dos Rios)	MUN, AGR, REC1, REC2, COLD, WARM, SPWN, MIGR, WILD, RARE	1,2,3,9,10,1 1,12,13	3 C	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature

- Notes: 1. Type: P = Permanent, R = Rotating  
2. Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)  
3. Frequency: N = number of samples per FY, C= Conventional Water Chemistry  
O = Organic Water Chemistry  
4. Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

### **Other Monitoring Programs**

The North Coast Watershed Assessment Program (NCWAP) is a multi-agency approach to gathering, developing, analyzing and presenting watershed assessments and data for north coast watersheds. In addition to the NCRWQCB, four agencies within the Resources Agency are involved: Department of Fish and Game, Department of Forestry and Fire Protection, Division of Mines and Geology, Department of Water Resources. Each has specific tasks relating to gathering existing data, filling information gaps by collecting new data, analyzing the data, and presenting the resulting watershed assessments in a standardized format for agency, landowners, and watershed groups. NCWAP will be closely coordinated with SWAMP and the outreach functions of the WMI Coordinator in the NCRWQCB. Within this WMA the following watersheds are scheduled for assessment in the next three fiscal years: FY 2001-02—Redwood Creek; FY 2002-03— middle Eel watersheds.

As mentioned above, the Humboldt RCD coordinates a temperature monitoring network in the WMA. We support and will assist that effort to the extent resources allow.

We continue to address concerns about mercury bioaccumulation in and below Lake Pillsbury through the Toxic Substance Monitoring Program and in coordination with the state Office of Health Hazard Assessment. Lake sediment analysis was performed during the spring of 2001 to supply data to Office of Environmental Health and Hazard Assessment. A food consumption advisory was issued in 2000.

## SECTION 2.6

### TRINITY RIVER WATERSHED MANAGEMENT AREA

The following draws upon information obtained through public input, agency contacts, and the personal experience of Regional Water Board staff. What is presented in this document is a summary of our knowledge regarding water quality issues and the existing and planned actions at this date in time based on current Regional Water Board staff knowledge. The USEPA developed and adopted a TMDL for sediment in the South Fork Trinity River in 1998. Implementation of that TMDL is dependent on funding at the Regional Board level. At this point, there is not sufficient funding for the Regional Board to develop an implementation plan to accompany the TMDL, nor to accomplish any hillslope or in-stream monitoring of watershed streams. The Regional Board is in the process of developing a region-wide TMDL sediment implementation plan that will be modified for each watershed that has a TMDL for sediment. This implementation will become a Basin Plan Amendment for control of sediment discharges. The remainder of the Trinity River watershed (Upper, Middle and Lower) is scheduled for sediment TMDL adoption by USEPA in December 2001.

#### **MANAGEMENT AREA DESCRIPTION**

##### **General Description**

The Trinity River, a wild and scenic river located in northwestern California, is the largest tributary to the Klamath River. Its basin drains an area of about 2900 square miles of mountainous terrain, with its headwater streams originating in the Klamath and Coast Ranges. From its headwaters, the river flows 172 miles south and west through Trinity County, then north through Humboldt County and the Hoopa Valley and Yurok Indian reservations. The confluence with Klamath River at Weitchpec is about 43 miles upstream from the Pacific Ocean. In the early 1950's two major water-development features: Lewiston Dam and its reservoir and related facilities and Trinity Dam and its reservoir, known as Trinity Lake, which are jointly known as the Trinity River Division of the Bureau of Reclamation's Central Valley Project (CVP) were installed above River-Mile 112 and the community of Lewiston. Water stored and released from the Trinity Dam reservoir is used for power-generation and diverted to out-of-Basin multiple uses throughout the Central Valley of California.

Lewiston Dam is, since installation of the Trinity River Division (TRD) works, the uppermost limit of natural salmon and steelhead fish-migration. A fish hatchery and rearing facilities were constructed and operate, as part of the TRD, to mitigate for the loss of upstream habitat. Trinity Lake has been stocked with a variety of non-native fish, including warmwater, Smallmouth and Largemouth bass and Kokanee (landlocked Sockeye salmon). Trinity River downstream of TRD is habitat for not only the anadromous salmonids and other native species, but also has populations of Brown trout.

The public lands that adjoin the TRD facilities are managed for multiple uses as part of the Whiskeytown-Shasta-Trinity National Recreation Area; those in upper portions of the basin are managed as components of the US Shasta-Trinity and Six Rivers National Forests. Private timberlands, ranches and residential properties are mostly near the Highway 3-Highway 299 corridors in the southeastern part of the basin. The Hoopa Valley Reservation occupies about 170 square miles on both sides of the lowest 15 miles of the river.

This WMA is mostly rural with human population centered near Trinity Center, Weaverville, Lewiston, Hayfork and Hyampom. The only large-scale agriculture is cattle grazing. Timber harvest continues but at a much reduced level than in the past on Federal lands. However, the



Figure 2.6.1. Trinity River WMA

intensity and scope of logging appears to be increasing in private lands. Toxicity concerns center around acid mine drainage (AMD) from abandoned mines and past mining activities, sediment release from subdivision development and eroded roads in areas with unstable soil and decomposed granite (DG), septic tank use, aboveground and underground tanks, and lumber mills. The U.S. Forest Service and the Bureau of Land Management federally manage approximately 80 percent of the land in the Trinity WMA. Of the remaining 20 percent of the basin, which is privately owned, approximately half are industrial timberlands. Old existing access roads that are not maintained or properly decommissioned are a continual source of sedimentation into the Trinity River and its tributaries. Tourism including rafting, especially on the lakes, is part of the economy of this area.

### **Geology**

The western portion of the Trinity WMA is underlain by rocks of the Franciscan Complex within the Coast Ranges Geologic Province. The eastern portion of the Trinity WMA is underlain by rocks belonging to the Klamath Mountains Geologic Province. Geologic and topographic structure within the Trinity WMA is generally controlled by several northwest trending faults. Elevations range from 9,000 feet in the Trinity Alps to 250 feet at the confluence of the Trinity and Klamath Rivers near Weitchpec. Rock types include sedimentary and volcanic-both of which are highly metamorphosed locally, and intrusive rocks ranging from ultra basic to granitic. Much of the Trinity WMA is prone to seismically induced landslides due to rapid ground acceleration from local and coastal seismic activity, especially during winter months when slope soils are saturated. Additional slope stability hazards include active landslides, dormant landslides with the potential for re-activation, and soil creep. Key unstable areas include the South Fork Trinity watershed, steep canyon lands along the main fork of the Trinity River, Grass Valley Creek, and lands on the west side of Trinity Lake. In addition, valley inner gorges, which are those over steepened slopes adjacent to stream courses, are considered highly unstable. These inner gorges, formed through mass wasting in response to channel down cutting and stream bank undercutting, occur commonly throughout most of the Trinity WMA. Ground water resources are relatively plentiful throughout the geologic systems, but are not well defined.

Most of the soils are developed from peridotite. Both acid and basic igneous rocks form the remaining soils. The latter soils are slightly more stable and productive than the peridotite soils. Areas underlain by peridotite are considered potentially unstable.

Areas of granitic soils are productive but highly erosive. A typical example of these soils is the Shasta Bolly Batholith in the upper Grass Valley watershed that consists of a deeply weathered granitic rock that breaks down to decomposed granite. Soils in the hillside areas are characterized as slopewash overlying weathered quartz diorite with an abundance of small slumps. Soils derived from granitic rocks are sandy and have no profile development. Thus, erosion hazards are high when soils are disturbed and parent material (weathered quartz diorite) is exposed. Mineral potential is considered good for asbestos, chrome and cinnabar. In the past gold mining has been pursued.

### **Vegetation**

The highest elevations of the Trinity WMA are steep, treeless mountains. Below about six thousand feet elevation the landscape is dominated by mixed conifer forests with some Red Fir and Douglas Fir stands with some hardwoods present. The lower elevations contain complex riparian vegetation, evergreen brush and some rangeland and chaparral.

Water quantity and quality regimes. Annual precipitation averages 57 inches/year with a low of 37 inches in Weaverville and Hayfork and a higher rainfall of 75 inches in Trinity center and 85 inches in the Hoopa Mountains. On a year-to-year basis in the basin rainfall is, highly variable; the driest recorded water year (1977) provided less than one-tenth the wettest (1983) year of record. There are

occasional summer thunderstorms that produce extensive runoff to streams and the river and can set off wild fires. The TRD project, since its completion in 1965, has diverted a majority (ranging from about 65% to about 90%) of the upper-basin's yield at Lewiston. This diversion supplements the water resources of the Sacramento River watershed and generates significant hydroelectric power assets for the CVP.

The quality of water in the basin ranges from the highest-quality pristine waters that emerge from the Trinity alps wilderness into the north-of-mainstem tributaries, to various degrees of human-caused impairment in the mainstem and southern tributaries. Logging, road construction and associated activities are recognized as sources of stream-impairing sediments and related summertime water temperature extremes. The hydrologic changes wrought by the TRD project and the geologic conditions of the basin have resulted in altered stream-channel conditions and fish habitats for many miles below Lewiston. These conditions and the precipitous drop in salmon and steelhead populations, which followed completion of the TRD projects in 1965, are commanding attention by US Congress, Secretary of Interior, Bureau of Reclamation, Native American tribes, and a broad collection of stakeholders (such as the Trinity River Task Force, Trinity County, and the South Fork Trinity CRMP).

### **PROBLEM IDENTIFICATION AND ASSESSMENT**

Seven sub-basins are recognized in the Trinity WMA.

#### **North Fork Trinity River**

The North Fork Trinity River is a largely undeveloped 10,145-acre forested watershed that drains into the main Trinity River near the community of Helena. Most of this area is designated as wilderness and therefore, little timber harvesting is conducted. A portion of the North Fork is designated as a wild and scenic river, and is refugia for summer steelhead. The watershed was hydraulically mined during the California Gold Rush and the Great Depression. Some mining still takes place in the lower part of the watershed, however an assessment of the old and current mining sites on public lands remains to be conducted. Wild fires are also of concern in this subwatershed.

#### **New River**

The New River is a largely undeveloped 47,472-acre forested watershed that drains into the main Trinity River near the community of Hawkins Bar. Approximately half of the area is designated as wilderness and half as U.S. Forest Service land. The New River is designated as a wild and scenic river and is refugia for summer steelhead. The watershed was hydraulically mined during the California Gold Rush and the Great Depression. Some mining still takes place, however an assessment of the old and current mining sites on public lands remains to be conducted. There is a history of lightning-caused wild fires in the area. For example, in 1999 the "Big Bar Complex Fire" burned approximately 140,00 acres in New River, Tish Tang, Horse Linto, Red Cap, and Mill Creek drainages, with over 150 miles of fireline constructed and subsequent salvage logging. On the Forest Service land there are limited timber sales and roads that contribute to erosion and sedimentation. Logging generally takes place on the "Matrix" lands as designated in the Northwest Forest Plan. Matrix lands are defined as federal lands outside of reserves and withdrawn areas. A burnt dump at Denny was operated for years and closed. It needs to be investigated and assessed for hazardous materials and impacts on water quality.

#### **Lower Trinity/Humboldt Section**

This portion of the Trinity River is designated as a wild and scenic river. This area has experienced hydraulic mining in the past. Current mine practices consist of small placer sluicing and hard rock milling operations. An assessment of abandoned mines, past and present mining activities needs to be conducted. A formal inventory needs to be compiled with exploratory site information on the



disposition of acid mine drainage, sedimentation, waste handling and remediation as appropriate, to meet long-term water quality standards.

The Hoopa Tribe's governing body, The Hoopa Valley Tribal Council, has been recognized by the United States with sovereignty similar to that of a State. One element of that sovereignty is the Tribe's authority and duty to administer the Clean Water Act (CWA) within its reservation's borders. Trinity River flows across the southern border of the Tribal land and remains within the Tribe's jurisdiction until the confluence with Klamath River. The Tribe has prepared and adopted its CWA-based Water Quality Management Plan and submitted it to US EPA for review and approval. The tribe conducts timber harvesting without state or federal oversight. Logging in the Lower Trinity by private industry is moderate.

There are several contaminated sites in the area. The Copper Bluff Mine continues to emit toxins. Celtor chemical works, located on the Hoopa Valley Reservation, is a US EPA Superfund site. A remedial action plan has been implemented. Twelve sites are being investigated in the Hoopa/Willow Creek area where known releases from underground storage tanks occurred. A possible release from underground fuel tanks located at a closed gas station in Salyer needs to be investigated. There are PG&E electrical substations in Hoopa and Willow Creek. These are being investigated for historic releases of mineral oil that may have contained PCB's. Storm water discharges from these facilities are also being investigated. An unknown number of aboveground storage tanks exist in the area. There are also a number of lumber mills (such as the Burnt Ranch Mill) that have a history of using wood preservatives including pentachlorophenol that may be the source of soil and groundwater contamination. These sites need to be investigated. A burn dump at Burnt Ranch was operated for years and closed. It needs to be investigated and assessed for hazardous materials and impacts on water quality.

### **Canyon Area**

This portion of the Trinity River is designated as a wild and scenic river. The Canyon Area lies along both sides of the mainstem from Junction City west to the Trinity/Humboldt County line. Most of this area is under the jurisdiction of the U.S. Forest Service. The flow of the river keeps sediment from depositing on the streambed. Along this corridor there are homes, mills, the ranger station and Highway 299. Timber harvest is limited. But there are chronic landslides that block the highway and create the problem of soils deposition. Logging and roads create erosion hazards and potential sedimentation to the streams and the river. This area has experienced placer and hydraulic mining in the past. A burn dump at Big Bar was operated for years and closed. It needs to be investigated and assessed for hazardous materials and impacts on water quality. The Trinity River Task Force is modifying the stream channel to lay back the banks. This requires a section 404 permit from the Army Corps of Engineers, a section 401 Water Quality certification from the Regional Board, and compliance with the General Construction Storm Water Permit provisions.

### **Weaverville Area**

This area extends from Junction City to the Lewiston Dam and is the area of highest human population in the Trinity WMA (Weaverville). The terrain in this area is relatively flat and as such is an area of deposition. Logging operations and road building and use have caused erosion, sedimentation and elevated turbidity of streams (especially Reading, Browns and Indian Creeks) and the river. One of the principle causes of anadromous fisheries decline is the degradation of spawning riffles and the filling of resting pools with decomposed granite sand. Grass Valley Creek is the major contributor of this sand to the Trinity River, mostly as a result of logging. The Grass Valley Creek watershed encompasses an area of approximately 23,000 acres. Past work and recently construction of Buckhorn Sediment Debris Dam (early 1990's) has helped control the sedimentation of the stream, but it is still a major source of sediment. The BLM has a management plan for their part of Grass

Valley Creek watershed. Access roads associated with construction of Buckhorn Dam were built in areas with raveling DG soil. These roads need to be inspected for maintenance and erosion control measures of ongoing roadside and upslope slumping.

Twenty-one sites are being investigated in this area where known releases from underground storage tanks occurred. Releases from underground tanks and bulk storage facilities have resulted in significant gasoline contaminant plumes, some containing MtBE, in Weaverville. A possible release from underground fuel tanks located at a closed gas station in Weaverville needs to be investigated. There is a PG&E electrical substation located in Weaverville. This site is being investigated for historic releases of mineral oil that may have contained PCB's. Storm water discharges from this facility are also being investigated. An unknown number of aboveground storage tanks exist in the area. These sites need to be investigated. The possible discharge of wood treatment chemicals from the Trinity River Lumber Co. in Weaverville needs to be evaluated. There is a dump one mile up Highway 3 that has been closed and converted to a transfer station. County wide solid waste is collected at the transfer site and hauled out of the area to Anderson Landfill (LF). The Weaverville LF needs final closure plans developed per Chapter 15, Title 27 and assessed for release of hazardous waste to ground water as part of final closure. Burn dumps at Dedrick, Douglas City, and Junction City were operated for years and closed. They need to be investigated and assessed for hazardous materials and impacts on water quality.

Domestic wastes generated by the sewered community of Weaverville is treated and disinfected to secondary levels at the Weaverville Sanitary District POTW. Final effluent is disposed to land. Historically, developed, unincorporated areas are unsewered with onsite disposal systems in marginal soils for subsurface disposal of septic tank effluent. These areas need to be investigated and assessed for compliance with the Individual Disposal System policy.

#### **Upstream of Weaverville (including Trinity and Lewiston Lakes)**

This area, about half of which is designated as wilderness area, was hit hard by the 1996-97 floods that delivered massive amounts of sediment to the lakes. It took almost two years for the lakes to recover from this sediment load. The U.S. Forest Service controls the wilderness area where some grazing is still allowed. Logging on both private and U.S. Forest Service land has and is causing erosion and subsequent sedimentation of the streams and lakes. This area has experienced hydraulic mining in the past. Twelve sites are being investigated in this area where known releases from underground storage tanks occurred. The discharge of heavy metals, fuels and wood treatment chemicals from an abandoned mill site near Douglas City is currently under investigation. Trinity and Lewiston Lakes are heavily used for recreational boating and personal watercraft. An investigation concerning releases of fuels and fuel oxygenates, especially MtBE, needs to be conducted. There are resorts and private housing around the lakes that use septic tank systems for wastewater disposal. Similarly, in the Lewiston Valley below Lewiston Dam and downstream along the banks of the Trinity River there are existing RV parks and residential sites with marginal performance of onsite systems and wastewater treatment systems being at hydraulic capacity due to excessive infiltration/inflow to their collection systems. These need to be investigated and assessed for compliance and appropriate enforcement. Burnt dumps at Carrville, Lewiston and Trinity Center were operated for years and closed. They need to be investigated and assessed for hazardous materials and impacts on water quality.

An unknown number of aboveground storage tanks exist in the area. These sites need to be investigated. The Trinity River Diversion not only decreases the amount of water in the system by sending water to the Sacramento Valley and the Central Valley Project, but also creates a temperature elevation problem in the remaining water in the river and disrupts physical cues for migration and spawning of salmon. The Trinity River Fish Hatchery was constructed at the base of Lewiston Dam

to help mitigate the loss of fisheries habitat resulting from the project, but the hatchery has not been effective in sustaining fish populations. [need more info on fish populations]

### **South Fork Trinity**

The South Fork Trinity has not been dammed and is a Key Watershed in the U.S. Forest Service's Northwest Forest Plan. A Key watershed is a watershed with 1) habitat for potentially threatened species or stocks of anadromous salmonids or other potentially threatened fish, or 2) greater than 6 square miles with high quality water and fish habitat (Six River National Forest). The South Fork Trinity is primarily mountainous, forested land, with two broad agricultural valleys occupied by the towns of Hayfork and Hyampton. Elevations in the basin range from more than 7,800 feet above sea level in the headwater areas of the North Yolla Bolly Mountains, to less than 400 feet at the confluence with the Trinity River. This 604,000-acre area which is a mix of private and U.S. Forest Service administered public land, has experienced extensive timber harvesting in the past. The logging operations and road building and use have caused erosion and sedimentation of streams and the river. In addition, the area is susceptible to naturally occurring landslides and other mass-wasting events because of steep terrain, loosely consolidated soils and heavy precipitation. A sediment source analysis determined that sediment delivery to the stream averaged 1,053 tons/mi<sup>2</sup>/yr over the period 1944-1990. Sixty-four percent of that sediment was from mass wasting. There is a history of wild fires and the subsequent erosion and salvage logging issues. The South Fork Trinity CRMP is very active in this watershed.

Hayfork Creek is the largest tributary to the South Fork and historically has been the spawning area for steelhead and spring and fall chinook salmon. For example, in the South Fork Trinity spring chinook salmon populations have decline by 90 percent. Cattle grazing is the main agricultural activity in the South Fork Trinity subwatershed which has had impacts on soil and stream bank stability and stream sedimentation. The South Fork has been declared impaired by sediment and placed on the CWA 303(d) list, and a TMDL was completed in December 1998 by USEPA. Four other reaches of the mainstem of the Trinity River are also listed as impaired by sediment. These include the reach from the headwaters to Lewiston Reservoir, the reach from Lewiston Reservoir to Junction City, the reach from Junction City to the confluence of the South Fork Trinity, and the reach from the confluence of the South Fork Trinity to the confluence of the Klamath River.

This area, as in the past, has abandoned mines and small placer sluicing and hard rock milling operations that need to be investigated and assessed for release of toxic pollutants and compliance with Basin Plan waster discharge prohibitions and General Storm Water permit provisions for industrial activity. The Kelly Mine on McCovey Gulch in Hayfork has drainage discharges containing chromium and arsenic. Several residences take potable water from McCovey Gulch and Hayfork Creek downstream. The Trinity County Health Department has posted the creek for metals contamination and has notified homeowners not to drink the water.

Fourteen sites where known releases from underground storage tanks occurred are being investigated in this area. In the Hyampom area, several domestic wells were contaminated with MtBE from an underground fuel tank release. There are PG&E electrical substations in Hyampom and Wildwood. These sites are being investigated for historic releases of mineral oil that may have contained PCB's. Storm water discharges from these facilities are also being investigated. An unknown number of aboveground storage tanks exist in the area. These sites need to be investigated. Several former mill sites remain open in the area, and need to be investigated to verify that any threat to water quality has been abated. Burnt dumps at Forest Glen, Hyampom and Wildwood were operated for years and closed. They need to be investigated and assessed for hazardous materials and impacts on water quality. In the Hayfork area the LF needs final closure plans developed per Chapter 15, Title 27 and assessed for release of hazardous waste to ground water as part of final closure.

## **WATER QUALITY GOALS AND ACTIONS**

The Regional Water Board Trinity Watershed Team, composed of staff members familiar with our activities in the WMA, prioritized goals and actions to address issues associated with the goals. The goals and actions, and their priority rankings reflect the desire to address certain issues in a priority fashion. However, the realities of funding constraints and program related priorities may override the priorities developed by the Team. The broad goals for the WMA include improving the anadromous fishery through sediment reductions and habitat enhancements and maintaining the other high beneficial uses of both surface and ground water. The three goals for the Trinity River are related through the beneficial uses they address:

- **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)**
- **GOAL 2: Protect and enhance ground water resources and attendant beneficial uses**
- **GOAL 3: Protect all other surface water uses**

The protection of cold water fisheries (GOAL 1) requires the protection of surface water (GOAL 3) and ground water (GOAL 2) along with additional concerns for siltation, habitat loss, temperature and low tributary flows. Actions for protecting the beneficial uses for GOAL 1 (COLD) largely serve to protect all other uses, except MUN.

### **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)**

The anadromous fishery has experienced severe decline in the last 40 years. Most notable is the destruction of fish habitat. Natural events and multiple land uses are responsible to varying degrees for sediment contributions through accelerated erosion and mass wasting and include timber production and harvest, road construction and maintenance, grazing, and gravel mining. Increased water temperatures in some parts of the watershed, are an issue. Additional upslope erosion controls are needed to reduce sediment delivery to waterways in the Trinity watershed. We must promote and develop considerations for the stability of stream channels and maintenance of channel form consistent with a functioning hydrologic channel. The riparian and instream habitat components must be enhanced. Instream temperatures for cold-water habitat and adequate stream flows to protect and enhance salmonid resources and COLD will be managed.

### **GOAL 2: Protect and enhance ground water resources and attendant beneficial uses**

The underground storage tanks and toxics remediation programs are aimed at addressing the issues associated with this goal. While pollution/contamination issues are site specific and localized, ground water in those areas is an important resource and supports beneficial uses.

### **GOAL 3: Protect all other surface water uses**

The actions above for GOAL 1 largely serve to protect all other uses, however additional issues with regard to beneficial use impairment may arise in the future. If issues do arise, we will address them through this process.

## **IMPLEMENTATION STRATEGY**

### **Institutional Framework**

Water Resources-development and Water Quality-protection Programs in the Basin

The Trinity River has water and habitats that are highly valued by two conflicting interests, fisheries and wildlife, and water supplies for human use. The beneficiaries of these resources are the Hoopa, and Yurok Tribes, Pacific coast fisheries users, Trinity River sports fishers, CVP water and hydro-power customers throughout California, local ranchers, residents, rafters, swimmers, and tourists. In the belief that conflicts can and should be resolved via public-agency processes, Congress created the

Trinity River Task Force (TRTF) in 1971. Its mandate is to formulate and implement a management program to restore fish and wildlife populations in the Trinity River Basin. The TRTF seeks to achieve temperature objectives that meet the life cycle needs of the fish. Congress has also funded numerous water-resource and fishery studies and directed that US Secretary of Interior (SOI) require actions by the relevant federal agencies to restore the river's fisheries.

The current status of the TRTF and SOI implementation of the mandates is that the federal government (Secretary of Interior) is currently considering a recent EIR for which the preferred alternative for below the dam is 1) introduction of gravel, 2) removal or flushing of sediment, 3) decreased flow to the Central Valley, and 4) increase flows to the mainstem of the Trinity River. The increased flows will be based on five water-year types (flow into the Trinity Reservoir before April) and could be 255,000 acre-feet per year. The final EIR was approved in November 2000, with the federal Record of Decision at the end of 2000. Trinity County is the lead agency for CEQA and certified the EIR in the summer of 2000. The Regional Water Board will issue 401 water quality certifications for restoration projects and Waste Discharge Requirements for the bank feathering projects. Trinity County may be asking the State Water Board to modify the water right permits held by the Bureau of Reclamation to validate the increased flows and attempt to meet the temperature objectives in the Basin Plan. In addition, four bridges along the river will have to be raised to accommodate the increased flows, but funding for the bridge work has not been appropriated by any agency.

Restoration and habitat enhancement projects in the watershed need to be reviewed for implementation of best management practices (BMPs); and regulated in conformance with these permits to protect water quality objectives and beneficial uses. Those activities which pose a significant threat to water quality will necessitate prescription of waste discharge requirements (Non-Chapter 15 WDR) for protection of water quality objectives and compliance with Basin Plan Waste Discharge Prohibitions. Finally, these types of projects will require staff to investigate and assess the management practices and controls that are being followed to minimize adverse effects to waters from the activities.

Both the Trinity River (mainstem) and the South Fork of the Trinity River have been declared as impaired by sediment and placed on the Clean Water Act section 303(d) list for impaired waters. Pursuant to a consent decree produced in response to a citizen's lawsuit, USEPA has begun establishing Total Maximum Daily Loads (TMDLs) in the Trinity River Basin. The USEPA developed and adopted a TMDL for sediment in the South Fork Trinity River in 1998. Implementation of that TMDL is dependent on funding at the Regional Board level but is currently scheduled for adoption in June 2005. The Regional Board is in the process of developing a region-wide TMDL sediment implementation plan that will be modified for each watershed that has a TMDL for sediment. This region-wide sediment plan will be incorporated into the Basin Plan as an amendment. This Basin Plan Amendment will contain revised prohibition of discharge of controllable sediment from all sources. It will also require landowners (including industry and government) to inventory sediment delivery sites and correct them, and develop land management plans to avoid future erosion. The remainder of the Trinity River watershed is scheduled for sediment TMDL adoption by USEPA in December 2001.

In 1981 the State Water Resources Control Board (SWRCB) established a Management Agency Agreement with the U.S. Forest Service. The SWRCB certified the plan entitled "Water Quality Management for National Forest System Lands in California" (this is essentially the USFS 208 plan), designated USFS as the management agency, and executed the MAA with USFS. This Water Quality Management (WQM) plan sets forth process standards as BMPs and addresses timber management, road and building site construction, mining, recreation, vegetative manipulation, fire suppression and

fuels management, watershed management, and range management. USEPA approved all these actions. Under this agreement the Regional Board waives direct regulation on Forest Service-maintained land except under special conditions. The Regional Board maintains the responsibility of oversight for implementation of the WQM plan. The Forest Service evaluates and monitors BMP implementation. (Similarly, in 1988, SWRCB certified a WQMP for Timber Operations on Nonfederal Lands in California, designated BOF and CDF as joint management agencies, and executed the MAA. USEPA accepted the designation of CDF/BOF, but did not act on the WQM Plan or MAA. Pursuant to Public Resources Code 4514.3, RWQCBs would be generally prohibited from directly regulating nonfederal timber operations if USEPA were to approve this WQM plan. Each WQMP specified additional improvements to be pursued by the management agencies.) USFS developed a Best Management Practice Evaluation Program and began implementation in 1992. (BOF/CDF developed a similar program and began implementation in 1996. Numerous changes in statute and BOF Forest Practice Rules have been made to pursuant the WQM plan for nonfederal lands.)

Under more-conventional circumstances, the Regional Board's mandate for a watershed-based initiative in a basin would be to assess water quality impairments and develop a protection/restoration strategy which regulates degrading factors and promotes protective practices; there would be a "regulated community" and a host of cooperating governmental agencies to implement the strategy. The Trinity is subject to superior powers: The federal Secretary of Interior, the Central Valley Project, the Tribal Trust powers, the State of California's appropriative water rights via the SWRCB and the Hoopa Tribe's sovereign status. This does not follow the conventional model. Their authorities should be employed to protect/restore water quality but they must be exercised in concert with RWQCB's.

## **SUMMARY OF WATERSHED ACTIVITIES AND NEEDS**

### Assessment and Monitoring

Assessment of existing information was used in the development of the TMDL strategy. The TRTF has been funding assessment and monitoring activities and will likely continue to do so in the future. Focused monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and lower temperatures, and determining trends towards the desired future condition. In-stream monitoring will be necessary to keep track of cross-section changes, thalweg profiles, embedment, turbidity, dissolved oxygen, gravel quality, riparian function, and fish productivity. Water quality characteristics will be monitored at two permanent stations under the SWAMP: Trinity River at Lewiston and Weitchpec. The intensive survey in FY 2003-04 will provide significantly more information on the WMA. The RCD and CRMP in this WMA are very active, and their help may be the best avenue to collect new data that is not now being collected by others. Also, both the U.S. Forest Service and Bureau of Land Management have local expertise and experience in assessment and monitoring that should be utilized in cooperative efforts. Timber companies are also collecting new data.

The North Coastal Watershed Assessment Program (NCWAP) is currently scheduled to focus on watershed assessment in the WMA in FY 2001-02. That program will gather existing data and collect new data on private and state lands in the WMA. The final product will be an interactive computerized format including the data and watershed assessment.

### Education and Outreach

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

### Watershed Coordination

We currently coordinate with local agencies, CRMPs and watershed groups, State and federal agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process, especially with the Division of Water Rights. We also need more coordination with the Trinity River Task Force and the South Fork Trinity CRMP for the TMDL process. The NCWAP also will require more coordination with landowners and agencies in the WMA.

### Core Regulatory

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers is anticipated and covers above ground tanks, underground tanks, Department of Defense sites, waste discharge requirements, NPDES, storm water pollution control, landfills, as well as construction related pollution, gravel management, and placer mining.

### Water Quality Certification

The Clean Water Act section 404 permitting (and associated section 401 Water Quality Certification required of the Regional Water Board) have been streamlined significantly for salmonid stream habitat restoration activities that follow the California Department of Fish and Game *California Salmonid Stream Habitat Restoration Manual*. Adequate staff funding is needed to completely implement the 404/401 program. Staff continues to pursue innovative approaches to assure appropriate review and certification of all projects. High priority projects (those with a potential for adverse impacts) will continue to receive a complete review.

### Ground water

Ground water issues center on petroleum contamination and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

### Nonpoint Source Program

Continued involvement in forestry, grazing, and county road issues is necessary to ensure protection of aquatic resources. The Regional Board continues implementation of the MAA with U.S. Forest Service for non-timber nonpoint source issues on a very limited basis due to a lack of staff resources. However, this issue is becoming more important as we further evaluate sediment sources in this WMA. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Pollution Control Program strategy of first emphasizing self-determined implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program.

### Timber Harvest

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We currently have resources to oversee, per the USFS MAA, timber sale activities associated with USFS lands. Non-timber

nonpoint source activities on USFS land are an unfunded need as noted above. We are unable to implement this portion of the USFS MAA except for responding to public complaint issues. This is a significant issue for future oversight by the Regional Board for these activities.

#### Local Contacts

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game programs.

#### Water Quality Planning

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Trinity WMA. The top priority issues are:

- Review the Nonpoint Source Control Measures
- Adopt an implementation plan for sediment reduction

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

#### Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. The final evaluation once the Trinity River TMDL is developed (2001) will feed into the next cycle of assessment and problem identification.

TMDL Category: South Fork Trinity sediment TMDL completed December 1998 by USEPA. The TMDL for sediment on the mainstem Trinity was due May 2001.



## Appendix 2.6-A

### Partial list of agencies and groups with jurisdiction and/or interest in water quality in the Trinity River WMA.

#### United States

- Trinity River Basin Fisheries Task Force
- Bureau of Reclamation
- Forest Service
- Bureau of Land Management
- Environmental Protection Agency, Regions IX & X
- Army Corps of Engineers
- Geological Survey
- National Biological Service
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

#### Native American

- Hoopa Tribe
- Yurok Tribe
- Karuk Tribe

#### California State

- Department of Fish and Game
- Department of Health Services
- Department of Pesticide Regulation
- Office of Environmental Health and Hazard Assessment
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy
- UC Agricultural Extension

#### County and Local Agencies

- Trinity County Resource Conservation District
- County Agricultural Commissioners
- city planning departments
- city public works departments

#### Companies, Organizations, and Public Interest Groups

- American Fisheries Society, Humboldt Chapter
- Timberland owners
- Farm Bureaus
- South Fork Trinity River CRMP
- Friends of Trinity River
- Simpson Timber Company
- Sierra Pacific Lumber Company

### **Surface Water Monitoring Program**

The Surface Water Monitoring Program (SWAMP) will rotate intensive surveys into the Trinity River WMA in FY 2001-02 where one permanent and five rotating sampling stations will be established. That information will be placed in this section when those locations and parameters are identified.

## **SECTION 2.7**

### **CLEAN WATER ACT SECTION 303(d) (TMDLs)**

Section 303(d) of the Clean Water Act requires biennial listing of waterbodies not meeting water quality standards and prioritization of those waterbodies for waste reduction activities (TMDLs). The North Coast Regional Water Quality Control Board adopted its latest section 303(d) list on April 23, 1998.

A citizen's lawsuit against US Environmental Protection Agency produced a consent decree scheduling a number of north coast rivers for development of TMDLs, primarily for sediment and temperature. The Regional Water Board has accepted responsibility for developing and implementing waste reduction strategies in compliance with the Clean Water Act in a number of WMAs. Descriptions of the planned activities appear in this section.

In some areas, organizing and activism by citizens involved in economic enterprises that depend on access to and use of natural resources, such as agriculture and forestry, gives rise to local watershed groups. Other watersheds have seen conservation and restoration efforts that are central to a citizen' watershed group. Some watersheds are held in major part by large commercial timber enterprises or the U.S. Forest Service. In these cases, direct interagency conferring with the timber interests is often the forum of first resort. Still other cases involve a combination of any or all of these elements into a dynamic community oriented resource management planning group. Considering the variety of potentials for watershed efforts, including but not limited to the examples noted above, Regional Water Board staff must be attentive to the local, adaptive nature of all these approaches. Consequently, the formation of a "watershed group" may or may not be the primary concern of the Regional Water Board staff.

The list and target analysis completion and adoption dates are presented in Table 2.7-1. The table contains references to Technical Support Documents (TSDs). TSDs contain the technical elements needed for USEPA establishment of TMDLs where the State cannot fully adopt and approve a TMDL prior to any consent decree deadline. For consent decree TMDLs scheduled to be completed by the Regional Board, a TSD will be submitted to USEPA according to dates negotiated between these agencies, prior to Regional Water Board adoption of a TMDL and Implementation Plan.

The detail for TMDL activities from July 2002 through June 2006 appears as Table 2.7-2. This includes development of a Regional Implementation Plan for Sediment Reduction.

**TABLE 2.7-1 NORTH COAST REGION  
TMDL PROJECTS AND SCHEDULE**

Watershed Management Area	Waterbody(s)	Pollutant(s) / Stressor(s)	Projected Start Date	Current Projected Completion Dates	
				TSD or TMDL Report	Basin Plan Amendment
<b>Russian River/ Bodega</b>	Russian River (RB)*	Sediment	July 2009	July 2011 RB TMDL	2013
	Americano Creek (RB)	Nutrients	July 2004	July 2006 RB TMDL	2008
	Estero Americano (RB)	Nutrients Sediment	July 2004	July 2006 RB TMDL	2008
<b>North Coast Rivers</b>	Garcia River (RB)	Sediment		December 1998	December 1998
	Garcia River (RB)	Temperature	2007	2009 RB TMDL	2011
	Noyo River (RB)	Sediment	1998	1999 RB TSD	June 2003
	Navarro River (RB)	Sediment	July 1999	July 2000 RB TSD	December 2004
	Navarro River (RB)	Temperature	July 1999	July 2000 RB TSD	December 2004
	Gualala River (RB)	Sediment	July 2000	August 2001 RB TSD	December 2004
	Mattole River (RB)	Sediment	July 2001	July 2002 RB TSD	December 2004
	Mattole River (RB)	Temperature	July 2001	July 2002 RB TSD	December 2004
	Big River (EPA)	Sediment	January 2001	December 2001	June 2003
	Ten Mile River (EPA)	Sediment	January 2000	December 2000	June 2003
	Albion River (EPA)	Sediment	January 2001	December 2001	June 2003
	<b>Humboldt</b>	Redwood Creek (RB)	Sediment	1997	1998
Mad River (EPA)		Sediment	July 2005	July 2007	December 2008
Mad River (EPA)		Turbidity	July 2005	July 2007	December 2008

**TABLE 2.7-1 NORTH COAST REGION  
TMDL PROJECTS AND SCHEDULE**

Watershed Management Area	Waterbody(s)	Pollutant(s) / Stressor(s)	Projected Start Date	Current Projected Completion Dates	
				TSD or TMDL Report	Basin Plan Amendment
	Elk River (RB)	Sediment	July 2007	July 2009 RB TMDL	2011
	Freshwater Creek (RB)	Sediment	July 2008	July 2010 RB TMDL	2012
<b>Trinity</b>	Trinity River (EPA)	Sediment	July 2000	December 2001	June 2005
	South Fork Trinity River (EPA)	Sediment	1997	December 1998	June 2005
<b>Klamath</b>	Klamath Basin, Upper Lost River (RB)	Nutrients	January 2001	July 2003 RB TSD	June 2008
	Klamath Basin, Lost River/Tule Lake (RB)	Nutrients	January 2002	July 2004 RB TSD	June 2008
	Klamath Basin, Salmon River (RB)	Nutrients	January 2002	July 2003 RB TSD	June 2008
	Klamath River, Mainstem (RB)	Nutrients	January 2001	July 2006 RB TSD	June 2008
	Klamath Basin, Upper Lost River (RB)	Temperature	January 2001	July 2003 RB TSD	June 2008
	Klamath Basin, Lost River/Tule Lake (RB)	Temperature	January 2002	July 2004 RB TSD	June 2008
	Klamath Basin, Salmon River (RB)	Temperature	January 2002	July 2003 RB TSD	June 2008
	Klamath River, Mainstem (RB)	Temperature	January 2001	July 2006 RB TSD	June 2008
	Klamath River (RB)	Temperature	July 2004	June 2006 RB TSD	June 2008
	Klamath River (RB)	Dissolved Oxygen	July 2004	June 2006 RB TSD	June 2008
	Shasta River (RB)	Dissolved Oxygen	June 2002	July 2005 RB TSD	June 2007
	Shasta River (RB)	Temperature	June 2002	July 2005 RB TSD	June 2007
	Scott River (RB)	Sediment	June 2002	July 2005	June 2007

**TABLE 2.7-1 NORTH COAST REGION  
TMDL PROJECTS AND SCHEDULE**

Watershed Management Area	Waterbody(s)	Pollutant(s) / Stressor(s)	Projected Start Date	Current Projected Completion Dates	
				TSD or TMDL Report	Basin Plan Amendment
				RB TSD	
	Scott River (RB)	Temperature	June 2002	July 2005 RB TSD	June 2007
<b>Eel River</b>	Eel River, South Fork (EPA)	Sediment	1997	1999	December 2006
	Eel River, South Fork (EPA)	Temperature	1997	1999	December 2006
	Eel River, North Fork (EPA)	Sediment	2001	December 2002	December 2006
	Eel River, North Fork (EPA)	Temperature	2001	December 2002	December 2006
	Eel River, Middle Fork (EPA)	Sediment	2001	December 2003	December 2006
	Eel River, Middle Fork (EPA)	Temperature	2001	December 2003	December 2006
	Eel River, Upper Main, Tomki (EPA)	Sediment	2002	December 2004	December 2006
	Eel River, Upper Main, Tomki (EPA)	Temperature	2002	December 2004	December 2007
	Eel River, Middle Main (EPA)	Sediment	2003	December 2005	June 2008
	Eel River, Middle Main (EPA)	Temperature	2003	December 2005	June 2008
	Eel River Delta (EPA)	Sediment	2004	December 2006	June 2008
	Eel River Delta (EPA)	Temperature	2004	December 2006	June 2008

Notes:

In watershed column, notations of EPA (US Environmental Protection Agency) and RB (North Coast Regional Water Quality Control Board) identify the lead agency for developing the technical analysis for the TMDL.

In the TSD or TMDL Date column, TSD refers to Technical Support Document and is the document prepared by the North Coast RWQCB staff to satisfy the deliverable requirement under the Consent Decree for Consent Decree watersheds. TMDL refers to a technical TMDL that is prepared by EPA for EPA-lead Consent Decree watersheds, and by North Coast RWQCB staff for non-consent decree watersheds.

Basin Plan Amendment refers to the estimated date of Regional Board adoption of the TMDL and Implementation Plan. The dates assume that the Regional Board will adopt the Implementation Plan at the Board meeting at which the Plan is first presented to them.

**Table 2.7-2. Detailed schedule of TMDL activities (2001-06).**

<b>Redwood Creek</b>		
<b>Watershed name</b>	Redwood Creek	
<b>Hydrologic unit</b>	107.00	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP	
<b>Interagency Coordination</b>	National Park Service, CDF, DFG, DMG, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	2-97	12-98
<b>Implementation Planning</b>	5-98	6-05
<b>Basin Plan Amendment</b>	9-98	6-05
<b>Implementation Oversight and Tracking</b>	6-00	Ongoing

<b>S. Fork Trinity River</b>		
<b>Watershed name</b>	Trinity River	
<b>Hydrologic unit</b>	106.20	
<b>Stressor</b>	Sediment (EPA)	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, USFS, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	9-97	12-98
<b>Implementation Planning</b>	12-03	6-05
<b>Basin Plan Amendment</b>	12-03	6-05
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Van Duzen River</b>		
<b>Watershed name</b>	Eel River	
<b>Hydrologic unit</b>	111.20	
<b>Stressor</b>	Sediment (EPA)	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, USFS, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	9-98	12-99
<b>Implementation Planning</b>	7-99	12-06
<b>Basin Plan Amendment</b>	6-05	12-06
<b>Implementation Oversight and Tracking</b>	12-06	Ongoing

<b>Noyo River</b>		
<b>Watershed name</b>	Noyo River	
<b>Hydrologic unit</b>	113.20	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	1-99	12-99
<b>Implementation Planning</b>	7-99	6-03
<b>Basin Plan Amendment</b>	12-01	6-03
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing



<b>Garcia River</b>		
<b>Watershed name</b>	Garcia River	
<b>Hydrologic unit</b>	113.70	
<b>Stressor</b>	Temperature	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	Unknown	
<b>Implementation Planning</b>	Unknown	Unknown
<b>Basin Plan Amendment</b>	Unknown	Unknown
<b>Implementation Oversight and Tracking</b>	Unknown	Ongoing

<b>Ten Mile River</b>		
<b>Watershed name</b>	Ten Mile River	
<b>Hydrologic unit</b>	113.13	
<b>Stressor</b>	Sediment (EPA)	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	1-99	12-99
<b>Implementation Planning</b>	7-99	6-03
<b>Basin Plan Amendment</b>	12-01	6-03
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Navarro River</b>		
<b>Watershed name</b>	Navarro River	
<b>Hydrologic unit</b>	113.50	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	9-99	7-00
<b>Implementation Planning</b>	2-97	12-04
<b>Basin Plan Amendment</b>	6-03	12-04
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Navarro River</b>		
<b>Watershed name</b>	Navarro River	
<b>Hydrologic unit</b>	113.50	
<b>Stressor</b>	Temperature	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	9-99	7-00
<b>Implementation Planning</b>	2-97	12-04
<b>Basin Plan Amendment</b>	6-03	12-04
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Gualala River</b>		
<b>Watershed name</b>	Gualala River	
<b>Hydrologic unit</b>	113.80	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-00	8-01
<b>Implementation Planning</b>	7-99	12-04
<b>Basin Plan Amendment</b>	6-03	12-04
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Big River</b>		
<b>Watershed name</b>	Big River	
<b>Hydrologic unit</b>	113.30	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-00	12-01
<b>Implementation Planning</b>	7-99	6-03
<b>Basin Plan Amendment</b>	12-01	6-03
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Albion River</b>		
<b>Watershed name</b>	Albion River	
<b>Hydrologic unit</b>	113.40	
<b>Stressor</b>	Sediment (EPA)	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-00	12-01
<b>Implementation Planning</b>	7-99	6-03
<b>Basin Plan Amendment</b>	12-01	6-03
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Trinity River</b>		
<b>Watershed name</b>	Trinity River	
<b>Hydrologic unit</b>	106.10, 106.30	
<b>Stressor</b>	Sediment (EPA)	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest	
<b>Interagency Coordination</b>	CDF, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-99	12-01
<b>Implementation Planning</b>	7-99	6-05
<b>Basin Plan Amendment</b>	12-03	6-05
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Mattole River</b>		
<b>Watershed name</b>	Mattole River	
<b>Hydrologic unit</b>	112.30	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-00	7-02
<b>Implementation Planning</b>	6-02	12-04
<b>Basin Plan Amendment</b>	6-03	12-04
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Mattole River</b>		
<b>Watershed name</b>	Mattole River	
<b>Hydrologic unit</b>	112.30	
<b>Stressor</b>	Temperature	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-00	7-02
<b>Implementation Planning</b>	6-01	12-04
<b>Basin Plan Amendment</b>	6-03	12-04
<b>Implementation Oversight and Tracking</b>	9-03	Ongoing

<b>Eel River *</b>		
<b>Watershed name</b>	Eel River	
<b>Hydrologic unit</b>	111.00	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	9-98	12-02 to 12-06
<b>Implementation Planning</b>	7-99	12-06 to 12-08
<b>Basin Plan Amendment</b>	6-05 to 6-07	12-06 to 12-08
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Eel River *</b>		
<b>Watershed name</b>	Eel River	
<b>Hydrologic unit</b>	111.00	
<b>Stressor</b>	Temperature	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, Timber Harvest, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	9-98	12-02 to 12-06
<b>Implementation Planning</b>	7-99	12-06 to 12-08
<b>Basin Plan Amendment</b>	6-05 to 6-07	12-06 to 12-08
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

<b>Scott River</b>		
<b>Watershed name</b>	Scott River	
<b>Hydrologic unit</b>	105.00	
<b>Stressor</b>	Temperature and Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	1-02	7-04
<b>Implementation Planning</b>	1-06	6-07
<b>Basin Plan Amendment</b>	1-06	6-07
<b>Implementation Oversight and Tracking</b>	9-03	Ongoing

<b>Shasta River</b>		
<b>Watershed name</b>	Shasta River	
<b>Hydrologic unit</b>	105.00	
<b>Stressor</b>	Temperature, Low DO	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	1-02	7-04
<b>Implementation Planning</b>	1-06	6-07
<b>Basin Plan Amendment</b>	1-06	6-07
<b>Implementation Oversight and Tracking</b>	9-03	Ongoing

<b>Klamath River **</b>		
<b>Watershed name</b>	Klamath River	
<b>Hydrologic unit</b>	105.00	
<b>Stressor</b>	Temperature	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA, ODEQ	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-01	7-03 to 7-06
<b>Implementation Planning</b>	7-05	6-07 to 6-08
<b>Basin Plan Amendment</b>	7-05	6-07 to 6-08
<b>Implementation Oversight and Tracking</b>	9-03	Ongoing

<b>Klamath River **</b>		
<b>Watershed name</b>	Klamath River	
<b>Hydrologic unit</b>	105.00	
<b>Stressor</b>	Nutrients	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA, ODEQ	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-01	7-03 to 7-06
<b>Implementation Planning</b>	7-05	6-07 to 6-08
<b>Basin Plan Amendment</b>	7-05	6-07 to 6-08
<b>Implementation Oversight and Tracking</b>	9-03	Ongoing



<b>Klamath River</b>		
<b>Watershed name</b>	Klamath River	
<b>Hydrologic unit</b>	105.00	
<b>Stressor</b>	Dissolved Oxygen (low)	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA, ODEQ	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-01	7-03 to 7-06
<b>Implementation Planning</b>	7-05	6-07 to 6-08
<b>Basin Plan Amendment</b>	7-05	6-07 to 6-08
<b>Implementation Oversight and Tracking</b>	9-03	Ongoing

<b>Region 1 ***</b>		
<b>Watershed name</b>	Region 1	
<b>Hydrologic unit</b>	100	
<b>Stressor</b>	Sediment	
<b>Stakeholder Participation</b>	Medium	
<b>Program Integration</b>	NPS, NCWAP, SWAMP	
<b>Interagency Coordination</b>	CDF, DFG, DMG, USFS, EPA, NMFS	
<b>Activity dates</b>	Start	End
<b>TMDL Development</b>	7-99	7-03
<b>Implementation Planning</b>	7-99	7-03
<b>Basin Plan Amendment</b>	7-99	7-03
<b>Implementation Oversight and Tracking</b>	9-02	Ongoing

\* Eel River listings include North Fork Eel, Middle Fork Eel, Upper Mainstem Eel, Middle Mainstem Eel, Tomki Creek, and Eel River Delta.

\*\* Klamath listings for temperature and nutrients include Lost River segments in California, Salmon River, and other areas tributary to the Klamath except the Scott, Shasta, and Trinity.

\*\*\* Development of Region-wide Implementation Plan for Sediment Reduction





## SECTION 3

### REGIONAL ACTIVITIES

As introduced previously, some programs are regional (not prioritized on a watershed basis) or are occurring in WMAs not currently targeted. For instance, some mandated non-discretionary activities, such as core regulatory and underground tank cleanups, are carried out throughout the region. Targeting of a WMA is for the purposes of identifying issues and problems and developing an implementation strategy with public involvement. To the extent possible, we have folded all activities into individual WMA plans. The following explanation of individual programs addresses those activities occurring outside of WMAs where the process of individual prioritizing by WMA has not occurred yet.

Assessment: Our intent for the future is to develop or promote the development of a watershed restoration action plan for every watershed in the Region, building upon true watershed assessments. Due to resource constraints, assessments of waterbody condition outside of targeted WMAs is on a case-by-case basis and generally associated with specific pollution events or localized concerns. Current assessments generally are mostly qualitative and in association with the regional Water Quality Assessment and Clean Water Act section 303(d) listings. Assessment of watersheds as ecological and economic units is essential to planning and resource allocation. At this time, such assessments are partially addressed in TMDL implementation plans, habitat conservation plans, and by local watershed groups and local agencies. A new program spearheaded by the California Resources Agency, called the North Coast Watershed Assessment Program, will provide data from multiple sources for watershed assessment in targeted waterbodies. The local efforts are sometimes supported by NPS planning grants through section 205(j) of the CWA.

The North Coast Watershed Assessment Program is a multi-agency approach to gathering, developing, analyzing and presenting watershed assessments and data for north coast watersheds. In addition to the NCRWQCB, four agencies within the Resources Agency are involved: Department of Fish and Game, Department of Forestry and Fire Protection, Division of Mines and Geology, Department of Water Resources. Each has specific tasks relating to gathering existing data, filling information gaps by collecting new data, analyzing the data, and presenting the resulting watershed assessments in a standardized format for agency, landowners, and watershed groups. NCWAP will be closely coordinated with SWAMP and the outreach functions of the WMI Coordinator in the NCRWQCB. Activities associated with the NCWAP are detailed in individual WMA sections of this document.

Monitoring: The new Surface Water Ambient Monitoring Program (SWAMP) for the NCRWQCB consists of permanent sites with routine monitoring of core metrics for long-term trend detection and roving or rotating stations that will provide more detailed monitoring on a by-watershed basis, returning to each WMA on a five-year basis.

The permanent stations' data will be applicable to a trend analysis as well as testing differences within stations, among stations, and between watersheds. Selection of the metrics is based on a standard suite to provide a broad view of water quality and watershed health.

The rotating approach will be a stratified random design, with the major stratification being at the WMA scale. Selection of the metrics for this component of the program will be based on specific watershed characteristics, such as geology, hydrology, water supply, and land use patterns, drawing heavily from monitoring needs identified in the individual WMA sections in the WMI Chapter.

The 1.2 PY staffing will be used to coordinate the monitoring effort and assist in data collection, data analysis, and dissemination of data.

Specific objectives of the program are:

1. Develop baseline data for long-term trend detection of ambient water quality conditions in the Region
2. Identify and characterize water quality problem areas
3. Identify and characterize reference streams/stream reaches
4. Document water quality improvements
5. Make water quality information available to the public

Monitoring activities are detailed for each WMA in the individual sections of this document. Coordination with other monitoring programs is essential, including: State Mussel Watch, Toxic Substances Monitoring, Coastal Fish Consumption Monitoring, the Resources Agency North Coast Watershed Assessment Program, other agency programs and special studies.

The rotation of the program began in the north coastal WMA in FY 2000-01, and is moving into the Humboldt Bay and Eel WMAs in FY 2001-02, Klamath WMA in FY 2002-03, Trinity WMA in FY 2003-04, and Russian/Bodega WMA in FY 2004-05 with some exceptions. Screening for vitellogenin (xenobiotic estrogen surrogate) will begin in FY 2000-01 in the Russian/Bodega WMA as a special study to test its efficacy elsewhere. Stream gages were installed or existing gages funded where most needed to support the long-term stations in FY 2000-01, these will be modified as the rotation through WMAs occurs. Staff and contract expenditures for the entire SWAMP for FY 2000-01 are 1.2 PY and \$420,000 in contract funds. Station locations and monitoring categories are detailed in Table 3-1 in Appendix E.

During the winter of 1996/97 significant volumes of sediment discharged from landslides and road networks into Freshwater Creek, Elk River, Jordan Creek, Bear Creek and Stitz Creek. The Regional Water Board received a great deal of public complaint of logging activities by the Pacific Lumber Company resulting in degradation of these streams. The Regional Board staff has attempted to require PALCO to conduct monitoring in these watersheds but have been unsuccessful. Freshwater Creek and Elk River are specifically listed under Section 303(d) as sediment impaired. Bear Creek, Jordan Creek and Stitz Creek are tributaries to the Eel River that are listed as sediment impaired. We would like to have at least one station in each watershed that monitors turbidity, suspended sediment and flow. There is a citizens group that is monitoring but they have limited funds to conduct adequate monitoring.

Tracking: As an adjunct to our monitoring efforts we will be utilizing a comprehensive set of databases to track trends in water quality, compliance with waste discharge requirements, and determine the effectiveness of restoration projects and installation of BMPs including applied NPS management measures and practices. These databases will include SWIMS, SINC, self-monitoring reports, THPs post-harvest inspections, and grant project reports via a survey form submitted to the State Water Resources Control Board (SWRCB). The SWRCB has a contract with the Information Center for the Environment (ICE) at U.C. Davis to track the effectiveness of management measures addressed in grant projects. This information will be available to us through the CERES database. The databases will also include data from volunteer monitoring efforts. Each regional board has the benefit of one-third of a PY to help implement volunteer monitoring in the region. Local Resource Conservation Districts are actively promoting volunteering monitoring and gathering of data. Any information from these data sources that is appropriate will be incorporated into the developing GIS system. For a discussion of the Geographic Information System see the end of this section.

In addition to the database work, the NCR through the reorganization process will be forming “watershed teams” that will meet on a regular basis to track all activity and efforts in each WMA, document changes and trends, and formulate new strategies. [Can we say we will have an information management team?]

Core Regulatory: Waste discharger permit issuance/updates and compliance inspections occur on a scheduled basis per the SWRCB Administrative Procedures Manual. Internally within the NCR dischargers are prioritized by category, those of highest priority receiving attention first (see Appendix A). As resources allow, staff will work through the priority list. Storm water program activities are targeting the highest priorities as well. Enforcement occurs on an as-needed basis, regardless of location.

Ground water: Significant efforts are occurring in the Underground Tank Program and other ground water programs. Though considerable work is done within the targeted WMAs, the prioritization of activities is not necessarily on a watershed basis. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient

resources exist to address this historical toxic chemical problem. To the extent such activities are, they have been incorporated into the WMA sections.

Water Quality Certification: Certification pursuant to Clean Water Act sections 401 and 404 occur on an as-needed basis as well. Anticipated resource expenditures are detailed in the *Budget* section. Currently staff are attending program managers roundtables for 401 certifications for the lower Russian River watershed, finalizing new 401 certification application package, and coordinating with the Army Corps of Engineers and CDFG regarding the Santa Rosa Plains wetlands. Projects potentially involving wetlands in all watersheds are reviewed. Funding does not currently exist for the following needed activities: inspections and enforcement of wetland related activities, and development of an integrated permitting program to streamline the permitting process.

Nonpoint Source: Non-timber nonpoint source activities occur entirely within the targeted WMAs. See Appendix D *Nonpoint Source Tables*, Tables 2 and 3 for short-term NPS objectives and education and outreach activities in each WMA. Table 7 outlines resource allocations for NPS activities. Timber harvest related nonpoint source activities are receiving increased attention in CWA section 303(d) listed waterbodies and are detailed in the individual WMA sections. Some timber harvest and timber sale related activities are occurring outside of the targeted WMAs, and the resources are identified in the *Budget* section.

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

The North Coast Region has 85% {check percentage, not all the Klamath is sediment impaired} of its watershed area designated as impaired by excess sediment from nonpoint sources under 303(d) of the CWA. The primary impaired beneficial uses are cold freshwater habitat, estuarine habitat, spawning, reproduction, and/or early development the salmonid species are listed as threaten or candidate species under the Federal Endangered Species Act and municipal water supply. The Regional Water Board is required to develop Total Maximum Daily Load (TMDL) plans to recover the beneficial uses. A primary net of monitoring stations are needed to document the recovery of streams due to effects of sediment. Possible approaches include measuring cross sections in depositional reaches of major streams. Measure width/depth ratios on depositional reaches over time. Repeat the Chris Knopp's study of 60 third order watersheds or a subset of the 60 and include turbidity, suspended sediment and flow as additional parameters.

### Wetlands

The North Coast Region (NCR) contains many different variations of wetland habitat including but not necessarily limited to coastal freshwater and estuarine wetlands, seasonal wetlands, vernal pools, and prior converted or altered wetland habitat. Many of these wetland areas provide habitat for rare and endangered species as well as species of special concern. In the northern portion of the region the dominant wetlands are seasonal and coastal while in the southern portion of the region vernal pools and seasonal wetlands are the dominant types of wetland habitat present. The majority of these habitats are threatened throughout the region by increasing development and land conversion activities such as housing and commercial developments and vineyard production. In the Santa Rosa Plain, an area of 55,000 acres in Sonoma County, which extends from the Town of Windsor south to the City of Cotati, and from Santa Rosa west to Sebastopol, projects proposing the filling of vernal pools and seasonal wetlands are increasing.

Long-term goals are directed toward wetland protection, mitigation of necessary impacts, restoration and enhancement and overall resource management. These goals are consistent with the California Wetlands Conservation Policy that emphasizes the following:

- “Ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property.”
- “Reduce procedural complexity in the administration of State and Federal wetlands conservation programs.”

- “Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetland conservation and restoration.”

Short-term (1-5 year) objectives that are linked to the long-term goals include the following:

- Creation of a detailed application package for proposed projects that have the potential to impact wetland habitat. The application is referred to as a Clean Water Act section 401 Water Quality Certification and/or Waiver of Waste Discharge Requirements (Dredge/Fill Projects). The application was finalized during the spring of 2001, and will be continually updated as regulatory changes occur that affect wetland regulations.
- Updating the NCR website to include expanded information on the Clean Water Act section 401 Water Quality Certification process and the Waiver of Waste Discharge Requirements for fill activities that have the potential to adversely impact wetland habitat. The website will contain detailed information outlining what types of activities will require a permit from the NCR, an overview of the application process, mitigation requirements for wetland impacts, information regarding the California Environmental Quality Act (CEQA), and related links to additional websites. This task is expected to be complete by January of 2002.
- Identification of the Beneficial Uses associated with wetland habitat in the NCR, which will be added to the Basin Plan for the NCR. This task is planned to be complete by December of 2002.
- Creation of a wetlands protection and management policy specific to the NCR, which will be added to the Basin Plan for the NCR through a Basin Plan Amendment. No completion date has been determined yet.
- Continue to review projects proposing to conduct dredge or fill within wetlands in order to ensure full protection of beneficial uses. This is an ongoing activity.

The NCR’s Water Quality Certification Program (Clean Water Act section 401) has become more developed over the past two years as a result of regulatory changes to the overall CWA section 401 program in July 2000. These changes to the program resulted in two major changes to the CWA section 401 program including: 1) the elimination of the ability to waive a water quality certification, and 2) the delegation of certification rights from the State Water Resources Control Board (SWRCB) to the Regional Water Quality Control Boards. Since July of 2000, the NCR has taken a very active role in administering the CWA section 401 program, and has also used it’s Porter-Cologne Authority in conjunction with the 401 authority, to insure the protection and proper management of the wetland resources in the NCR. Proposed projects potentially involving wetlands in all watersheds within the NCR are reviewed and appropriate actions are taken. The CWA section 401 program in the NCR is grossly under-funded. This leaves the protection and management of the NCR’s wetland resources at jeopardy.

Funding does not currently exist for the following important activities: 1) thorough inspections and enforcement for all projects potentially affecting wetland habitat, 2) follow-up of mitigation projects to insure success criteria, 3) thorough review of wetland mitigation monitoring reports to insure success criteria have been met, and 4) development of an integrated permitting program or Regional General Permit to streamline the permitting process.

Currently staff at the NCR that work on CWA section 401 permit applications hold monthly in-house meetings to discuss all the pertinent issues of the program, exchange successes and problems, and outline needed changes to the program. In addition, staff attend the Statewide CWA section 401 roundtable held by the SWRCB, Regional Exchange meetings, and other Resource Agency meetings. The NCR has also become involved in the Interagency Mitigation Banking Review Team (MBRT), made up of the U.S. Army Corps of Engineers (ACOE), California Department of Fish and Game (DFG), U.S. Fish and Wildlife (USFWS), and the U.S. Environmental Protection Agency (USEPA), and has recently become a signatory agency in the review and approval of proposed mitigation banks. Lastly, the NCR staff have improved coordinating with the ACOE, DFG, USFWS, USEPA and affected municipalities and residents regarding the permit activities that affect wetlands on the Santa Rosa Plain and the northern portion of the region. Increased coordination among the regulatory and local agencies has led to an increased streamlining of the permitting process as well as insuring that appropriate mitigation measures were required on numerous projects.

Wetlands Planning Activity Group:

- **Wetlands Identification:**  
 In the NCR the wetland identification relies primarily on the ACOE wetland delineations on a project by project basis. Staff at the NCR rely on the ACOE to verify wetland delineation's prepared by wetland consultants, which are then used during the permitting process at the NCR. To date there is no comprehensive database or Global Information System (GIS) to help NCR staff identify wetland features within the region. This holds true for other regulatory agencies as well. To address this problem, the ACOE, DFG, USFWS, and the NCR are working together to produce a series of GIS overlays that identify wetland habitat features on the Santa Rosa Plain. This undertaking is one of the many tasks being performed by the MBRT group, of which the NCR is a signatory agency.
  
- **Wetlands Assessment:**  
 For the most part, the wetland habitats in the NCR are not assessed on a proactive basis to determine function, habitat suitability, and overall condition. Rather wetlands are generally assessed by wetland consultants who are hired by developers who want develop a site. Therefore most of the wetland assessments conducted in the NCR are those conducted as part of the requirements for site development, and are not conducted by the NCR staff directly. The assessments are reviewed by staff at the NCR to determine accuracy and thoroughness.
  
- **Wetlands Monitoring:**  
 Wetland monitoring in the NCR occurs primarily as a result of regulations and conditions set forth by the regulatory agencies, which must be followed by project applicants who have created wetland mitigation projects, impacted wetland habitat, or performed wetland restoration on a site. Staff at the NCR review wetland monitoring reports to determine whether the information is accurate, whether the wetlands are achieving desired functions, and whether success criteria have been met. In addition, site inspections are performed to verify information presented in the wetland monitoring reports.
  
- **Wetlands Total Maximum Daily Loads (TMDLs):**  
 The NCR does not have any wetland TMDLs at this time.
  
- **Wetland Best Management Practices (BMPs):**  
 For the protection of wetland habitat within or adjacent to an impacted site, general erosion control type BMP measures are required by the NCR. Specific BMPs may be required on a project by project basis, depending on the situation, and those measures would be determined by line staff and upper management.
  
- **Wetlands Standards:**  
 To date the NCR has not designated the beneficial uses of wetlands, and has not developed narrative and/or numerical water quality objectives specifically for wetlands. One of the short-term goals of the NCR is to designate the beneficial uses of wetlands and also update the Basin Plan for the NCR to include both the beneficial uses and narrative and numerical water quality objectives. The goal is to have both of these items complete within the next two years. While a formal list of the beneficial uses has yet to be created for the NCR, staff use their best professional judgement and refer to peer reviewed literature to help determine the beneficial uses of wetland habitat within the region.
  
- **Coordination with Regulatory Agencies:**  
 Staff at the NCR routinely coordinate with numerous regulatory agencies and non-governmental organizations as part of the daily tasks associated with regulating activities related to wetland protection and management. Staff at the NCR are involved with several interagency groups, including the MBRT group, which reviews and approves wetland



mitigation banks. The involvement with the MBRT group requires extensive coordination between staff of several regulatory agencies, and non-governmental organizations and individuals. Through NCR staff involvement in coordination groups such as the MBRT, the wetland protection and management activities performed by the NCR are much more valuable and successful.

- **Wetlands Permit Activities:**  
For non-CWA section 401 certification permitting activities that involve wetland impacts, the NCR uses its Porter-Cologne Authority through the issuance of Waste Discharge Requirements or Waiver of Waste Discharge Requirements. A prime example of when this situation would arise is for “isolated” wetland habitat which is no longer ACOE jurisdictional habitat as a result of the Supreme Court Decision, *Solid Waste Association of Northern Cook Counties v. United States Corps of Engineers* (SWANCC), issued on January 9, 2001. The Regional Water Quality Control Boards regulate isolated wetlands determined to be non-ACOE jurisdictional under their Porter-Cologne Authority. The ACOE still verifies wetland delineations for proposed projects, which the NCR then uses to determine the extent of wetland habitat and required mitigation measures for any incurred impacts to that habitat.
- **Wetlands Mitigation:**  
To insure that the policy of “no-net-loss” is met, all impacts to wetland habitat must be mitigated through a mitigation project of at least equal function, value, and overall area. In addition, all impacts to wetland habitat on the Santa Rosa Plain must be mitigated through wetland creation and wetland preservation at an approved wetland mitigation bank or wetland restoration site, at a minimum of a 1:1 ratio, with higher ratios depending on the quality of the existing wetland habitat proposed for filling. Project applicants are required to perform mitigation monitoring for a minimum of 5 years to insure that success criteria have been met. Monitoring reports are generally sent to the NCR staff on a yearly basis.
- **Wetlands Training:**  
Most staff at the NCR who work in the wetlands permitting programs have some form of academic and/or professional background in wetlands ecology and management. Formal training opportunities in wetland delineation, wetland ecology and function, wetland management, wetland mitigation and so on have been very scarce for NCR staff. There is a real need to increase the training opportunities available to line staff who have the responsibility of protecting California’s wetland habitat.

#### Water Quality Certification Activity Group:

- **Project review:**  
Staff at the NCR review CWA section 401 permit applications on a project by project basis to determine thoroughness of the application projected wetland impacts, proposed wetland mitigation measures, and a host of other items. The staff member then determines whether the project can be approved as proposed. If the impacts are too extensive to be mitigated the project will likely be denied. In deciding whether to issue a permit for a project or what conditions are placed in the permit, the NCR staff must consider all potential impacts from the project to wetlands. Typically, the NCR requires that applications clearly discuss the feasibility of alternatives that would completely avoid or would minimize potential impacts to wetlands. If these types of alternatives are found not to be feasible, all existing and potential beneficial uses of the wetland habitat that may be lost or impacted as a result of the proposed project must be replaced by a mitigation project of at least equal function, value and overall area.
- **Inspections:**

Staff members at the NCR perform inspections at as many proposed project sites as is feasible. Not all sites are visited due to staff and funding limitations, but the high profile projects or those with higher levels of potential detrimental impacts are targeted for inspections before, during, and post- construction of the project. This helps to insure that the project will be constructed as proposed, and that the impacts to wetland habitat will be mitigated according to the proposal.

- **Enforcement:**

Regulatory enforcement for the Water Quality Certification Program at the NCR is performed by staff members who are in the North and South Core Regulatory Units. Staff at the NCR issue CWA section 401 Water Quality Certifications and Waiver of WDRs in one permit, which enables the NCR to enforce the conditions placed in the permit through either its CWA section 401 authority or Porter-Cologne Authority. Therefore staff have a variety of regulatory tools at their disposal to insure compliance with the conditions outlined in Water Quality Certifications/Waiver of WDRs including Cleanup and Abatement Orders, 13267 Orders Requesting a Technical Report, and Administrative Civil Liabilities. Recently staff in the southern Corps Regulatory Unit enforced against a developer for filling of wetlands without a permit. The developer was required to fund a wetland restoration project. Unfortunately, staff in the Core Regulatory Units typically have extensive workloads, which reduces the opportunities to perform effective enforcement tasks. Other Regional Water Quality Control Boards have entire units dedicated to enforcement activities, which helps to insure that all necessary enforcement activities are completed. Additional staffing and program funding at the NCR in the CWA section 401 program is necessary to help increase the detection and subsequent enforcement actions taken for non-compliance of permit conditions.

Wetlands Grant Project Management Activity Group:

Currently there are no wetland grants managed by staff at the NCR. However, staff at the NCR would like to secure grant funding for wetland restoration, creation, management, and monitoring activities in the future. Securing grant funds would allow staff at the NCR to design and implement wetland projects in the region that would be beneficial to the overall wetland management activities performed by staff at the NCR. In addition, projects could be contracted to local consultants, who would be responsible for performing the tasks of the project, and the staff at the NCR would oversee the projects.

Resource Needs For Wetland Management Activities

The SWRCB has prepared a needs analysis that quantified program needs for each Regional Board. Due to the rapid growth in some areas of the Region, the estimated needs are increasing over time.

Local Contracts: Clean Water Act sections 205(j) and 319(h), state Water Bond (Proposition 13) and other funding sources provide grant funds for projects in the NCR. All grants are targeted by WMA. Priority is given to 205(j) grant proposals that are for watershed assessments and for watershed enhancement plans. Priority is given to 319(h) grant proposals that are for TMDL activities, fish habitat restoration and riparian enhancement, and for erosion and sediment control. See Appendix for targeted implementation and planning projects for FY 01-02.

Water Quality Planning: Completed in August 2001, the 2001 Triennial Review of the Basin Plan resulted in a Priority List of Planning Issues which describes the planning efforts the Regional Water Board intends to address. The following table describes the proposed near and long-term resource allocations for Basin Planning activities and includes all the issues from the Priority List. Priority numbers 1 – 7 are anticipated to be completed during the present triennial review period (2001-2004).

**2001 Triennial Review: Proposed Priority List of Planning Issues**

Priority/ Rank	Issue #	Project	Est. Staff Effort	Est. Staff Resources Available
1 (H)	8	Amend Table 2-1 & Beneficial Uses Section	0.5*	0.5
2 (H)	18	Develop Regionwide Action Plan for Control of Sediment Discharges	2.0*	2.0
3 (H)	9	Amend Section IV. Implementation Plans To Include TMDL Implementation Strategies for 303(d) Listed Waterbodies	0.5*/ TMDL	2.0
4 (H)	13	Develop Basin Plan to Recognize the California Toxics Rule	1.0*	1.0 (0.5 PY planning)
	14	Consider Revision to the Water Quality Objective For Toxicity		
	17	Review Policy Regarding Water Quality-Based Effluent Limitations and Mixing Zones		
	16	Review Chemical Objectives in Section 3 Water Quality Objectives- Title 22 Reference		
	15	Compliance Schedule Issues		
5 (H)	12	Update Section IV. Implementation Plans, Nonpoint Source Measures with Regard to Logging, Construction, and Associated Activities and Herbicide Wastes from Silvicultural Applications	1.0*	1.0 (0.5 PY planning)
6 (H)	32	Update the Water Quality Objectives for Groundwater to Include All Objectives Applicable to Identified Groundwater	0.2	0.5
7 (H)	26	Add Water Quality Objectives for Bacteria	0.5*	0.5
8 (H)	5	Consider Revisions to the Water Quality Objectives for DO and Temperature	1.0*	0
9 (H)	6	Consider Specific Water Quality Objectives for Nutrients	1.0*	0
10 (H)	27	Add Water Quality Objectives for Ammonia and Total Residual Chlorine	0.4*	0
11 (H)	24	Update Trinity River Water Quality Objectives for Temperature	0.5*	0
12 (M)	31	Review Basin Plan For Consistency With Statewide Plans and Policies	0.2**	0
13 (M)	3	Review the Policy on the Control Of Water Quality with Respect to On-Site Waste Treatment and Disposal Practices	0.2**	0
14 (M)	23	Review the Water Quality Problems Resulting from Gravel Mining	0.5**	0
15 (M)	10	Review The Seasonal Waste Discharge Prohibitions in Section IV. Implementation Plans	0.4**	0
16 (M)	36	In-Stream Flows- Participate in Regionwide Discussions and Consider a BP Amendment	0.4**	0
17 (M)	35	Editorial Revisions and Minor Clarifications or Corrections to Text and Reference to New Laws, Plans and Regulations	0.2*	0
18 (M)	4	Update the Policy on the Disposal of Solid Wastes	0.4*	0
19 (M)	33	Review Policy For Waivers of WDRs for Specific Types of Discharges (Basin Plan Appendix II)	0.5*	0
20 (M)	7	Amend Section IV, Implementation Plans, Nonpoint Source Measures	0.5**	0

21 (M)	25	Expand Antidegradation Policy Implementation Discussion	0.2*	0
22 (M)	11	Amend Section IV. Implementation Plans to Recognize California's Source Water Assessment Program	0.5*	0
23 (M)	29	Work with Environmental or "Green" Incentive Programs (such as Fish Friendly Farming) To Explore Adding Applicable Action Plans into the Basin Plan	1.0**	0
24 (M)	N/A	Consider Revising the Action Plan for the Santa Rosa Area	0.5**	
25 (L)	34	Add Biocriteria Objectives	1.0*	0
26 (L)	30	Consider Updating The Policy On Pesticide Application	0.4**	0
N/P	28	Update Water Quality Objective for pH	N/A	
<u>N/P</u>	2	Review Water Quality Problems In The Klamath, Scott, And Shasta Rivers	N/A	

\* The estimated staff effort assumes completion of a Basin Plan Amendment through Board adoption

\*\* Does not include time to complete a Basin Plan Amendment only staff review and discussion

H=high priority, M=medium priority, L=low priority

Coastal and Beach Areas: The North Coast Region has 340 miles of ocean beaches and numerous miles of fresh water beaches along rivers. These areas are sites of many beneficial uses including wildlife, estuarine, aquatic, marine and wetland habitats, protection of rare and endangered species, contact and noncontact recreation, commercial and sport fishing, shellfish harvesting, and navigation. Land use adjacent to these areas impacts these beneficial uses. For example, urbanization, agriculture or timber harvesting alters water flows, decreases water quality, and promotes the filling of bays and estuaries by sediment. Some of the main concerns are pollution from pathogens, nutrients, toxics including metals, pesticides and sediment. Issues in these areas are storm water runoff, dry weather urban runoff, oils seeps and spills, vessel traffic, pollution from marinas, sediment resuspension, low dissolved oxygen, flooding and failing septic systems. Both acute health risks from pathogens and chronic health risks from contaminated fish consumption are issues that must be addressed.

Control of nonpoint source pollution and monitoring are two methods of controlling the risks to the public and the environment. Monitoring must include monitoring of the water column and sediment, tissue analysis of fish and shellfish, and assessment of the benthic invertebrate community. This monitoring is partially covered by the State Mussel Watch and Toxic Substances Monitoring Programs, but there is a lack of proper resources for the concentrated monitoring effort that is needed at beaches, both ocean and fresh water beaches. The North Coast Region needs to increase monitoring, assessment, and reporting, and improve interactions with public health agencies about data coordination and when to post warning signs at beaches. A concerted effort needs to be done on public education, resource stewardship and habitat protection.

### **Water Quality Legislation**

The Porter-Cologne Water Quality Control Act (California Water Code) was enacted by the State of California in 1969 and became effective January 1, 1970. This legislation authorizes the State Board to adopt, review, and revise policies for all waters of the state (including both surface and ground waters) and directs the Regional Boards to develop regional Basin Plans. The California Water Code (§13170) also authorizes the State Board to adopt water quality control plans on its own initiative. In the event of inconsistencies among various State and Regional Board plans, the more stringent provisions apply.

The Clean Water Act (CWA), enacted by the federal government in 1972, was designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. One of the national goals states that wherever attainable water quality should provide for the protection and propagation of fish, shellfish, and wildlife, and provide for recreation in and on the water (i.e., fishable, swimmable). The CWA (§303[c]) directs states to establish water

quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Other provisions of the CWA related to basin planning include Section 208, which authorizes the preparation of waste treatment management plans, and Section 319 (added by 1987 amendments) which mandates specific actions for the control of pollution from nonpoint sources. The 1987 amendments to the CWA (§307[a]) also mandate that states adopt numerical standards for all priority pollutants.

The USEPA has delegated responsibility for implementation of portions of the CWA to the State and Regional Boards, including water quality planning and control programs such as the National Pollutant Discharge Elimination System (NPDES). The Code of Federal Regulations (Title 40, CFR) and USEPA guidance documents provide direction for implementation of the CWA.

Besides state and federal laws, several court decisions provide guidance for basin planning. One decision reaffirmed the public trust doctrine, holding that the public trust is "an affirmation of the duty of the state to protect the people's common heritage in streams, lakes, marshlands, and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust." Public trust encompasses uses of water for commerce, navigation, fisheries, and recreation.

### **Basin Plans**

Regional Board Basin Plans are designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, Basin Plans (i) designate beneficial uses for surface and ground waters, (ii) set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and (iii) describe implementation programs to protect all waters in the Region. In addition, Basin Plans incorporate (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations.

Basin Plans are resources for the Regional Boards and others who use water and/or discharge wastewater. Other agencies and organizations involved in environmental permitting and resource management activities also use Basin Plans. Finally, Basin Plans provide valuable information to the public about local water quality issues.

Basin Plans are reviewed and updated as necessary. Following adoption by Regional Boards, the Basin Plans and subsequent amendments are subject to approval by the State Board, the State Office of Administrative Law (OAL), and the United States Environmental Protection Agency (USEPA).

As part of the State's Continuing Planning Process, components of Basin Plans are reviewed as new data and information become available or as specific needs arise. Comprehensive updates of Basin Plans occur in response to state and federal legislative requirements and as funding becomes available. State Board and other governmental entities' (federal, state and local) plans, that can affect water quality, are incorporated into the planning process. In addition, Basin Plans provides consistent long-term standards and program guidance for the Region.

### *Beneficial Uses*

Beneficial uses form the cornerstone of water quality protection under Basin Plans (see Appendix B for beneficial use definitions). Once beneficial uses are designated, appropriate water quality objectives can be established and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses. The designated beneficial uses, together with water quality objectives (referred to as criteria in federal regulations), form water quality standards. Such standards are mandated for all waterbodies within the state under the California Water Code. In addition, the CWA mandates standards for all surface waters, including wetlands.

Beneficial uses can be designated for a waterbody in a number of ways. Those beneficial uses that have been attained for a waterbody on, or after, November 28, 1975, must be designated as "existing" in the Basin Plans. Other uses can be designated, whether or not they have been attained on a waterbody, in order to implement either federal or state mandates and goals (such as fishable and swimmable) for regional waters. Beneficial uses of streams that have intermittent flows are designated as intermittent. During dry periods, however, shallow ground water or small

pools of water can support some beneficial uses associated with intermittent streams; accordingly, such beneficial uses (e.g., wildlife habitat) must be protected throughout the year and are designated "existing." In addition, beneficial uses can be designated as "potential" for several reasons, including:

- implementation of the State Board's policy entitled "Sources of Drinking Water Policy" (State Board Resolution No. 88-63),
- plans to put the water to such future use,
- potential to put the water to such future use,
- designation of a use by the Regional Board as a regional water quality goal, or
- public desire to put the water to such future use

The Sources of Drinking Water Policy states that "All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic waters supply and should be so designated by the Regional Boards ...[with certain exceptions which must be adopted by the Regional Board]."

#### *Water Quality Objectives*

The CWA (§303) requires states to develop water quality standards for all waters and to submit to the USEPA for approval all new or revised water quality standards which are established for inland surface and ocean waters. Water quality standards consist of a combination of beneficial uses and water quality objectives, as well as an antidegradation policy. Water quality objectives may be expressed as either numeric limits or a narrative statement.

In addition to the federal mandate, the California Water Code (§13241) specifies that each Regional Board shall establish water quality objectives. The Water Code defines water quality objectives as "the allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." Thus, water quality objectives are intended (i) to protect the public health and welfare and (ii) to maintain or enhance water quality in relation to the designated existing and potential beneficial uses of the water. Water quality objectives are achieved through Waste Discharge Requirements and other programs. These objectives, when compared with future water quality data, also provide the basis for identifying trends toward degradation or enhancement of regional waters.

#### *Triennial Review Process*

The California Water Code, (§13240), directs the State and Regional Boards to periodically review and update Basin Plans. Furthermore, the CW A (§303 [c]) directs states to review water quality standards every three years (triennial review) and, as appropriate, modify and adopt new standards.

In the Triennial Review Process, basin planning issues are formally identified and ranked during the public hearing process. These and other modifications to the Basin Plan are implemented through Basin Plan amendments as described below. In addition, the Regional Board can amend the Basin Plan as needed. Such amendments need not coincide with the Triennial Review Process.

#### *Basin Plan Amendments*

Amending Basin Plans involves the preparation of an amendment, an environmental checklist, and a staff report. Public workshops can be held to inform the public about planning issues before formal action is scheduled on the amendments. Following a public review period of at least 30 days, the Regional Boards respond to public comments. Subsequently, the Regional Boards can take action on the draft amendments at a public hearing.

The California Environmental Quality Act (as codified in the California Public Resources Code, §21080.5[d][2][i]) provides that the Secretary of Resources can exempt regulatory programs of state agencies from the requirements of preparing environmental impact reports, negative declarations, and initial studies should such programs be certified as "functionally equivalent." The Basin Planning process has been so certified.

Following adoption by Regional Boards, Basin Plan amendments and supporting documents are submitted to the State Board for review and approval. All Basin Plan amendments approved by the State Board after June 1, 1992 must also be reviewed and approved by the State Office of Administrative Law (OAL). All amendments take effect upon approval by the OAL. In addition, the USEPA must review and approve those Basin Plan amendments that involve changes in state standards to ensure such changes do not conflict with federal regulations.

#### *Site-Specific Objectives*

If a priority pollutant or criterion is inappropriate for a particular water (i.e., it does not protect the beneficial uses or, based on site-specific conditions, a less stringent standard may be warranted), a water quality objective that differs from the applicable criterion or objective may be developed for the site. Scientifically-defensible methods appropriate to the situation must be used to derive the objectives.

### **State of Policy with Respect to Maintaining High Quality of Waters in California**

A key element of California's water quality standards is the state's Antidegradation Policy. This policy, formally referred to as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Board Resolution No.68-16), restricts degradation of surface or ground waters. In particular, this policy protects waterbodies where existing quality is higher than is necessary for the protection of beneficial uses.

Under the Antidegradation Policy, any actions that can adversely affect water quality in all surface and ground waters (i) must be consistent with the maximum benefit to the people of the state, (ii) must not unreasonably affect present and anticipated beneficial use of such water, and (iii) must not result in water quality less than that prescribed in water quality plans and policies. Furthermore, any actions that can adversely affect surface waters are also subject to the federal Antidegradation Policy (40 CFR 131.12), developed under the CWA. The USEPA, Region IX, has also issued detailed guidance for the implementation of federal antidegradation regulations for surface waters within its jurisdiction.

### **State Board Plans**

§303(c)(2)(B) of the Federal Clean Water Act requires that states adopt numeric criteria for priority pollutants as part of the states' water quality standards.

#### *Ocean Plan*

The State Board adopted the *Water Quality Control Plan for Ocean Waters of California* in 1974 and amended this plan in 1988, 1990, and 1997. This amended plan, which is referred to as the *Ocean Plan*, establishes beneficial uses and water quality objectives for waters of the Pacific Ocean adjacent to the California coast outside of enclosed bays, estuaries, and coastal lagoons. The Ocean Plan also prescribes effluent quality requirements and management principles for waste discharges and specifies certain waste discharge prohibitions. Prohibitions include discharges of specific hazardous substances and sludge, bypasses of untreated waste, and discharges that impact Areas of Special Biological Significance (ASBS).

#### *Estuaries and Inland Waters Plan*

In 1991, the State Board adopted the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan; these plans were amended in 1993. In 1994, the State Board rescinded both plans in response to a court ruling invalidating the plans. California has been without statewide water quality standards for the majority of the priority pollutants since then (for non-ocean waters).

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase 1 of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan) was adopted by State Board on March 2, 2000. The Policy is subject to review and approval by the USEPA, Region IX; meanwhile, the Policy went into effect upon the California Toxics Rule (CTR) being published in the Federal Register on May 18, 2000. In addition, the Policy was effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the National Toxics Rule (NTR) and to the priority pollutant objectives established by Regional Boards in their Basin Plans.

The Policy represents the first phase in developing a new Inland Surface Waters Plan and Enclosed Bays and Estuaries Plan. In this phase, the USEPA promulgated numeric water quality criteria for priority pollutants for California in accordance with CWA §303(c)(2)(B) and the State Board adopted statewide measures to implement those criteria in a statewide policy. In Phase 2, State Board will consider the adoption of appropriate statewide water quality objectives for toxic pollutants. Like Basin Plans, the Policy provisions are subject to triennial reviews, which include public participation. In addition to the triennial review process, State Board intends to consider whether the policy should be revised upon the USEPA's promulgation of a final TMDL rule. The proposed rule was published in the Federal Register on August 23, 1999.

### **"Alaska Rule"**

Previously, USEPA's water quality standards regulations provided that a State's and Tribal's water quality standards were in effect once adopted by the State or Tribe. USEPA had 60 days to approve or 90 days to disapprove such standards. A State or Tribal water quality standard remained in effect, even if USEPA disapproved it, until the State or Tribe revised it or USEPA promulgated a Federal rule to supersede the State or Tribal standard. Following a lawsuit in 1996 involving USEPA and a coalition of environmental groups, and a subsequent settlement agreement, USEPA revised its regulations concerning when State and Tribal water quality standards become effective for CWA purposes. Any State or Tribal water quality standards which went into effect under the old rule and was submitted to USEPA prior to March 30, 2000, remain in effect for CWA purposes, whether or not approved by USEPA, until replaced by federal water quality standards or approved State or Tribal standards. Any State or Tribal water quality standards that were submitted to USEPA after March 30, 2000, do not become "applicable" water quality standards for CWA purposes until approved by USEPA.

### **Geographic information systems discussion**

#### *Technical and Administrative Aspects of the Activity*

GIS has proven to be a very effective tool for use by staff of the SWRCB and RWQCB's in preparing TMDL's and implementing the Watershed Management Initiative. SWRCB funding has gone to support integration of the GEOWBS (developed for USEPA 305(b) reporting) into a desktop data management tool.

Many kinds of information currently in use at the Regional Water Board are well suited to the kinds of analysis made possible by GIS. Some more familiar topics include: 1) the identification of sources of pollution, especially diffuse (non point) sources of pollution, through analysis of temporal and spatial data sets; 2) calculation of road density, coupled with predictive erosion potential estimates and prioritization of probable sources; 3) analysis of past, present and potential landslide areas; 4) assessment of trends in water temperature variations and analysis of their causes; 5) analysis of the singular and cumulative effects of water diversions on multiple other beneficial uses of water in the watershed; 6) studies of ground water contamination plumes, their sources, extent and interaction with surface waters, and; 7) the ability to integrate multiple issues within a watershed at one time. Rather than treating each issue individually, for example, site mitigation effects and studies of diffuse pollution can be integrated to both mitigate and protect resources. While existing program-focused database sets provide for some of these analyses to be performed now, the communication and prediction of effects of multiple aspects at the same time is best facilitated through GIS displays of relational database interactions.



*Current Activity Staffing and Cost*

Existing GIS resources represent a powerful and cost-effective tool to assist State and Regional Board staff in implementing the Watershed Management Initiative and preparing TMDL's for impaired water bodies. The TMDL development efforts at the NCRWQCB rely heavily on in-house and contract-based.

GeoWBS Program: The GIS-enhanced Water Body System database (GeoWBS) is designed to accomplish CWA Section 305 (b) assessment and Section 303 (d) reporting requirements. For the 2000 CWA Section 305 (b) water quality assessment update, the Regional Board entered the 1998 CWA Section 303 (d) listed water bodies and water bodies from watersheds identified in the 1999 WMI Chapters for review this year into the GeoWBS system. In addition, the GeoWBS will be used for the next CWA Section 305(b) and 303 (d) updates and for on going TMDL status reporting.

**APPENDIX A**  
**Partial Inventory of Work Activities**

**TABLE OF CONTENTS**

- SECTION 1: NPDES MAJOR AND MINOR REVIEW/REISSUANCE  
Including Stormwater Permits
- SECTION 2: Chapter 15 Waste Discharge Requirements Review/Reissuance
- SECTION 3: Non-Chapter 15 Waste Discharge Requirements Review/Reissuance
- SECTION 4: NPDES Pretreatment Inspections (PCIs/Audits)
- SECTION 5: NPDES Compliance Inspections

## SECTION 1

### Regional Water Quality Control Board 1 NPDES Permits to be renewed/reviewed Reporting Period 7/1/1997 to 6/30/2006

Discharger	Facility	City	NPDES#	WDID#	Order #	TTWQ	Order Type	Adoption Date	Exp/Rev Date	Waste Type	Review Quarter
<b>MAJOR</b>											
FORT BRAGG, CITY OF	FORT BRAGG CITY WWTP	FORT BRAGG	CA0023078	1B840830MEN	95-047	2A	NPD	06/22/95	06/22/95	DDOMIND	4
CLOVERDALE, CITY OF	CLOVERDALE CITY WWTP	CLOVERDALE CITY	CA0022977	1B840320SON	96-009	1A	NPD	05/23/96	05/22/01	DDOMIND	4
EUREKA, CITY OF	EUREKA CITY ELK RIVER WWTP	EUREKA	CA0024449	1B821510HUM	98-009	1A	NPD	02/26/98	02/25/03	DDOMIND	3
ARCATA, CITY OF	ARCATA CITY WWTF	ARCATA	CA0022713	1B821140HUM	98-013	1A	NPD	02/26/98	02/25/03	DDOMIND	3
SANTA ROSA DEPT OF PUBLIC WORK	SANTA ROSA CITY WWTP, LAGUNA	SANTA ROSA	CA0022764	1B830990SON	98-084	1A	NPD	08/26/98	08/25/03	DDOMIND	1
MASONITE CORPORATION	MASONITE CORP. UKIAH MILL	UKIAH	CA0005606	1B830300MEN	00-006	1A	NPD	01/27/00	12/10/03	DPROCES	2
UKIAH, CITY OF	UKIAH CITY WWTP	UKIAH CITY	CA0022888	1B840290MEN	99-065	1A	NPD	99-065	09/21/0	DDOMIND	1
RIO DELL, CITY OF	RIO DELL CITY WWTF	RIO DELL	CA0022748	1B831340HUM	00-015	2A	NPD	02/24/00	02/24/05	DDOMEST	3
MENDOCINO REDWOOD COMPANY	MENDOCINO FOREST PRODUCTS CO	FORT BRAGG	CA0005886	1B800540MEN	00-070	2B	NPD	09/22/00	09/22/05	HCNWTR	1
CRESCENT CITY, CITY OF	CRESCENT CITY WWTP	CRESCENT CITY	CA0022756	1A840060DN	00-071	1A	NPD	09/22/00	09/22/05	DDOMIND	1
FERNDALE, CITY OF	FERNDALE CITY POTW	FERNDALE	CA0022721	1B831360HUM	00-092	2A	NPD	11/29/00	11/29/05	DDOMEST	2
FORTUNA, CITY OF	FORTUNA CITY WWTP	FORTUNA	CA0022730	1B831350HUM	01-041	2A	NPD	04/26/01	04/26/06	DDOMEST	4
PACIFIC GAS &	PG&E	EUREKA	CA0005622	1B820850HUM	01-045	2A	NPD	04/26/01	04/26/06	DNONCO	4





WWTS											
CA DEPT OF FISH & GAME REDDING	CDF&G TRINITY RIVER HATCHERY W	LEWISTON	CA0006696	1A80077OTRI	00-018	2B	NPD	02/24/00	02/24/05	DPROCES	3
REDWAY CSD	REDWAY POTW	REDWAY	CA0022781	1B83147OHUM	00-019	2B	NPD	02/24/00	02/24/05	DDOMEST	3
UC DAVIS	UC BODEGA MARINE LAB	BODEGA BAY	CA0024333	1B84035OSON	00-023	3C	NPD	03/23/00	03/23/05	DPROCES	3
CA DEPT OF FISH & GAME REDDING	CDF&G MAD RIVER HATCHERY	BLUE LAKE	CA0006670	1B80073OHUM	00-033	2B	NPD	03/23/00	03/23/05	DPROCES	3
FULTON PROCESSORS, INC.	FULTON PROCESSORS, INC.	FULTON	CA0006955	1B80179OSON	00-045	2B	NPD	06/22/00	06/22/05	DPROCES	4
COLLEGE OF THE REDWOODS	COLLEGE OF THE REDWOODS, POTW	EUREKA	CA0006700	1B80121OHUM	01-008	2B	NPD	01/26/01	01/26/06	DDOMEST	3
GEORGIA PACIFIC CORPORATION	GP FORT BRAGG SAW	FORT BRAGG	CA0005304	1B84089OMEN	01-022	1B	NPD	03/22/01	03/22/06	HPROCES	3
LOLETA CSD	LOLETA POTW	LOLETA	CA0023671	1B80081OHUM	01-059	2B	NPD	06/28/01	06/28/06	DDOMIND	4
MCKINLEYVILLE CSD	MCKINLEYVILLE WWTP	MCKINLEYVILLE	CA0024490	1B82084OHUM	01-060	2A	NPD	06/28/01	06/28/06	DDOMEST	4
WILLITS, CITY OF	WILLITS CITY WWTP	WILLITS	CA0023060	1B80078OMEN	01-071	2A	NPD	06/28/01	06/28/06	DDOMIND	4

## SECTION 2

### Regional Water Quality Control Board 1 SUB15Permits to be renewed/reviewed Reporting Period 7/1/1997 to 6/30/2006

Discharger	FACILITY	City	WDID#	Order#	TTWQ	Order Type	Adoption Date	Exp/Rev Date	Waste Type	Review Quarter
WEED DEPT OF PUBLIC WORKS	WEED SWDS	WEED	1A801680SIS	89-070	3B	WDR	05/24/89	05/24/89	NSLDWST	4
SIMPSON TIMBER COMPANY	SIMPSON TIMBER CO KLAMATH WWDS	KLAMATH	1A770500DN	87-106	3C	WDR	08/26/87	08/26/87	NSLDWST	1
MENDOCINO CO SOLID WASTE DIV.	MENDOCINO CO LAYTONVILLE SWDS	LAYTONVILLE	1B750500MEN	93-08302	3B	WDR	09/22/93	09/20/03	NSLDWST	1
YREKA, CITY OF	YREKA, CITY OF	YREKA	1A751500SIS	93-08315	2B	WDR	09/22/93	09/20/03	NSLDWST	1
WEED DEPT OF PUBLIC WORKS	WEED SWDS	WEED	1A801680SIS	93-08314	3B	WDR	09/22/93	09/20/03	NSLDWST	1
YREKA, CITY OF	YREKA CITY SWDS	YREKA	1A751500SIS	89-068	2B	WDR	05/24/89	09/22/03	NSLDWST	1
MENDOCINO CO SOLID WASTE DIV.	MENDOCINO CO LAYTONVILLE SWDS	LAYTONVILLE	1B750500MEN	75-050	3B	WDR	03/27/75	03/24/05	NSLDWST	3
LOUISIANA PACIFIC CORPORATION	LP YORK RANCH WWDS #3	UKIAH	1B761300MEN	95-016	3B	WDR	04/27/95	04/24/05	NSLDWST	4
WILLITS, CITY OF	WILLITS CITY SWDS	WILLITS	1B751730MEN	93-08301	2B	WDR	09/22/93	06/19/05	NSLDWST	4
WILLITS, CITY OF	WILLITS CITY SWDS	WILLITS	1B751730MEN	95-03602	2B	WDR	06/22/95	06/19/05	NSLDWST	4
NORANDA GREY EAGLE MINES, INC	NORANDA-GREY EAGLE MINE	HAPPY CAMP	1A841420SIS	00-049	1A	WDR	07/27/00	07/27/05	HPROCES	1
TRINITY CO DEPT OF PUBLIC WORK	TRINITY CO SWDS OF WEAVERVILLE	WEAVERVILLE	1A801930TRI	93-08306	1B	WDR	09/22/93	09/21/98	NSLDWST	1
TRINITY CO DEPT OF PUBLIC WORK	TRINITY CO SWDS OF WEAVERVILLE	WEAVERVILLE	1A801930TRI	80-193	1B	WDR	12/04/80	09/21/98	NSLDWST	1
UKIAH, CITY OF	UKIAH CITY SWD	UKIAH	1B750430MEN	94-123	1A	WDR	10/27/94	10/26/99	NSLDWST	2
SONOMA CO DEPT OF PUBLIC WORKS	SONOMA CO HEALDSBURG SWDS	HEALDSBURG	1B750180SON	90-089	3B	WDR	05/23/90	05/20/00	NSLDWST	4
DEL NORTE SOLID	DEL NORTE CO	CRESCENT	1A770020DN	97-09001	1B	WDR	09/25/97	09/24/02	NSLDWST	1

WASTE AUTHORITY	SWDS, CRESCENT CITY	CITY							
HUMBOLDT WASTE MANAGEMENT AUTH	CITY GARBAGE COMPANY-SWDS	EUREKA	1B79133OHUM	93-046	1A	WDR	04/22/93	04/21/03	NSLDWST 4
HUMBOLDT WASTE MANAGEMENT AUTH	CITY GARBAGE COMPANY-SWDS	EUREKA	1B79133OHUM	93-08304	1A	WDR	09/22/93	04/21/03	NSLDWST 4
TULELAKE, CITY OF	TULELAKE CITY OF SHEEPY RIDGE SW	TULELAKE	1A7414IOSIS	93-08313	2B	WDR	09/22/93	09/20/03	NSLDWST 1
TULELAKE, CITY OF	TULELAKE CITY OF SHEEPY	TULELAKE	1A7414IOSIS	89-074	2B	WDR	05/24/89	09/22/03	NSLDWST 1
MENDOCINO REDWOOD CO LLC	LP CASPAR WWDS	CASPAR	1B77033OMEN	94-020	3B	WDR	03/24/94	03/21/04	NSLDWST 3
SONOMA CO DEPT PUBLIC WORKS	SO CO CENTRAL SWDS	PETALUMA	1B99011RSON	00-062B	1A	WDR	08/25/00	08/25/00	HSLDWST 1
SONOMA CO DEPT OF PUBLIC WORKS	SONOMA CO CENTRAL SWDS	PETALUMA	1B80149OSON	00-062	1A	WDR	08/25/00	08/25/05	NSLDWST 1
EEL RIVER SAWMILLS INC.	MOZZETTI WWDS #2	FORTUNA	1B85023RHUM	01-064	3B	WDR	06/28/01	06/28/06	NSLDWST 4
PACIFIC LUMBER COMPANY	PL TANK GULCH SWDS	SCOTIA	1B92019RHUM	01-061	2B	WDR	06/28/01	06/28/06	NSLDWST 4
SONOMA CO DEPT OF PUBLIC WORKS	SONOMA CO KORBEL MAINTENANCE S	GUERNEVILLE	1B88046RSON	89-045	2C	WDR	04/26/89	04/24/99	IMISCEL 4



### SECTION 3

**Regional Water Quality Control Board 1  
NON15 Permits to be renewed/reviewed  
Reporting Period 7/1/1997 to 6/30/2006**

Discharger	Facility	City	WDID#	Order#	TTWQ	Order Type	Adoption Date	Exp/Rev Date	Waste Type	Review Quarter
SIMPSON TIMBER COMPANY	ARCATA REDWOOD CO-ORICK SAWMIL	ORICK	1B87006CHUM	87-105	2C	WDR	08/26/87	08/23/97	DSTORMS	1
BLUE LAKE FOREST PRODUCTS	BLUE LAKE FOREST PRODUCTS	ARCATA	1B82002OHUM	87-011	2B	WDR	01/22/87	01/22/98	01/22/98	3
IRON HORSE VINEYARDS	IRON HORSE RANCH & VINEYARDS	SEBASTOPOL	1B791210SON	88-032	2B	WDR	03/24/88	03/22/98	DWNWAS	3
WINDSOR OAKS ASSOCIATES	WINDSOR OAKS ASSOCIATES	WINDSOR	1B820800SON	88-067	2B	WDR	05/25/88	05/23/98	DWNWAS	4
FORD GRAVEL COMPANY, INC.	FORD GRAVEL COMPANY	UKIAH	1B830760MEN	83-076	3C	WDR	07/28/83	07/24/98	NWSHWT	1
GUALALA AGGREGATES INC.	GUALALA AGGREGATES INC.	GUALALA	1B830780SON	83-078	3C	WDR	07/28/83	07/24/98	NWSHWT	1
KLEIN FAMILY VINTNERS	KLEIN FAMILY VINTNERS	HEALDSBURG	1B810350SON	88-054	2B	WDR	04/28/88	08/27/98	DWNWAS	1
REDWOOD VALLEY GRAVEL PRODUCTS	REDWOOD VALLEY GRAVEL PRODUCTS	CALPELLA	1B830890MEN	83-089	3C	WDR	09/22/83	09/18/98	IWSHWTR	1
BOHAN & CANELIS INC.	BOHAN & CANELIS	CAZADERO	1B831380SON	83-138	3C	WDR	11/29/83	11/25/98	IWSHWTR	2
AMERICAN AIRCRAFT PAINTING	AMERICAN AIRCRAFT PAINTING	HEALDSBURG	HEALDSBURG	88-145	2C	WDR	12/01/88	11/29/98	HSW/SHWT	2
PIOMBO CORPORATION	PIOMBO CORP.- WINDSOR RIVER PIT	HEALDSBURG	1B840130SON	84-013	3C	WDR	03/29/84	03/26/99	DW/SHWT	3
REDWOOD EMPIRE PAC STAT	REDWOOD EMPIRE	CLOVERDALE	1B89014RSON	89-076	2B	WDR	05/24/89	05/22/99	DDOMEST	4
WILLITS REDWOOD COMPANY	WILLITS REDWOOD COMPANY	WILLITS	1B89031RMEN	89-101	2B	WDR	08/24/89	08/22/99	DSTORMS	1

CRESCENT CITY HARBOR DISTRICT	CC HARBOR SPILL PREVENTION	CRESCENT CITY	1A89048RDN	89-130	2A	WDR	10/26/89	10/24/99	HMISCEL	2
DUNCANS MILLS TRADING CO.	DUNCANS MILLS CAMPGROUND	DUNCANS MILLS	1B831260SON	85-024	3C	WDR	03/27/85	03/23/00	DDOMEST	3
MANZANA PRODUCTS COMPANY, INC.	MANZANA PRODUCTS COMPANY, INC.	SEBASTOPOL	1B781410SO	85-079	2B	WDR	05/23/85	05/23/00	DPROCES	4
DE LORIMIER WINERY	DE LORIMIER WINERY	GEYSERVILLE	1B85014RSON	85-095	3C	WDR	07/25/85	07/21/00	DWNWAS	1
ANNAPOLIS MILLING COMPANY, INC.	ANNAPOLIS MILLING COMPANY	ANNAPOLIS	1B85027RSON	90-216	2C	WDR	12/06/90	12/03/00	DSTORMS	2
HENRIE, PATRICK AND JO ANN	MEADOWS MOBILEHOME PARK	REDWOOD VALLEY	1B81217OMEN	86-006	3C	WDR	01/30/86	01/26/01	DDOMEST	3
WESTBROOK-SHIP ASHORE RESORT	SHIP ASHORE RESORT	SMITH RIVER	1A77009ODN	91-019	2B	WDR	02/28/91	02/25/01	DDOMEST	3
BOY SCOUTS OF AMERICA	CAMP ROYANEH	CAZADERO	1B761010SON	86-047	3B	WDR	04/10/86	04/06/01	DDOMEST	4
US ARMY CORPS OF ENGINEERS SF	USCOE NOYO HARBOR DREDGING	FORT BRAGG	1B761150MEN	86-051	3C	WDR	04/10/86	04/06/01	DDREDGS	4
CA DEPT OF TRANSPORTATIO N-EUR	CDOT WILLOW CREEK MTN STATION	WILLOW CREEK	1B90017RHUM	91-064	2C	WDR	04/25/91	04/22/01	HW SHWT	4
CA DEPT OF TRANSPORTATIO N-PETA	CDOT MATN STA	BODEGA BAY	1B91005RSON	91-066	2C	WDR	05/23/91	05/20/01	HPROCES	4
CA DEPT OF TRANSPORTATIO N-PETA	CDOT MATN STA, SEBASTOPOL	SEBASTOPOL	1B91004RSON	91-067	2C	WDR	05/23/91	05/23/91	HPROCES	4
CHATEAU FELICE	CHATEAU FELICE WINERY	HEALDSBURG	1B00163RSON	01-056	2B	WDR	05/24/01	05/24/01	NWNWAS	4
SCHARFFENBERG CELLARS INC.	SCHARFFENBERG R CELLARS INC	PHILO	1B90003RMEN	91-087	2B	WDR	06/27/91	06/24/01	DWNWAS	4
GEORGIA PACIFIC CORPORATION	GP LITTLE VALLEY/MCGUIRE RANCH	FORT BRAGG	1B85030RMEN	91-121	2C	WDR	08/22/91	08/19/01	NSLDWST	1
USDA SIX RIVERS NATIONAL FOR.	USFS ORLEANS R.S. STP	ORLEANS	1A731180HUM	86-164	3C	WDR	09/24/86	09/20/01	DDOMEST	1
MOBILE ESTATES	MOBILE ESTATES	EUREKA	1B841280HUM	91-14001	2C	WDR	09/26/91	09/23/01	DDOMEST	1
BODEGA BAY PUD	BODEGA BAY WASTEWATER	BODEGA BAY	1B750280SON	91-130	1B	WDR	09/26/91	09/24/01	DDOMEST	1

REC.FAC.	WILLITS	91-164	3C	WDR	11/13/91	11/10/01	DCNSOIL
BERGLUND FAMILY VINEYARDS	BERGLUND, INC.	91-164	3C	WDR	11/13/91	11/10/01	DCNSOIL
NACO WEST	CLOVERDALE	86-197	3C	WDR	12/04/86	11/30/01	DDOMEST
CA DEPT OF WATER RESOURCES	CDWR GEO-RORABAUGH LEASE	87-004	3B	WDR	01/22/87	01/18/02	DDRILLS
WALLACE & JONES	INDIANOLA MHP(WALLACE)	92-022	2C	WDR	02/26/92	02/23/02	DDOMEST
CA DEPT OF TRANSPORTATIO N-EURE	CDOT BRACUT MATN STA	92-027	2C	WDR	02/26/92	02/23/02	NCNWTR
GEORGIA PACIFIC CORPORATION	GP UKIAH RESIN PLANT	87-061	1C	WDR	05/28/87	05/26/02	HPROCES
BERINGER WINE ESTATES	CHATEAU SOUVERAIN	87-060	2B	WDR	05/28/87	05/28/02	DWNWAS
NORTH MARIN COUNTY WATER DIST.	OCEANA MARIN (NORTH MARIN CWD)	92-057	2B	WDR	06/25/92	06/23/02	DDOMEST
ROBERT PETERS DBA E-Z LIVIN' CCPA NO. 1	E-Z LIVIN' MOBILE HOME PARK	92-076	2C	WDR	06/25/92	06/23/02	DDOMEST
HEALDSBURG, CITY OF	HEALDSBURG CITY WWTP	92-075	2B	WDR	06/25/92	06/23/02	DDRILLS
SCHMIDBAUER LUMBER COMPANY	SCHMIDBAUER EUREKA MILL	88-016	2C	WDR	02/25/88	06/24/02	DDOMIND
WEED TREATMENT PL	BAXTER, I.P., ROSEBURG	93-088	1A	WDR	10/27/93	06/30/02	HSTORMS
ROSEBURG FOREST PRODUCTS	ROSEBURG FOREST PRODUCTS	93-086	1B	WDR	10/27/93	07/01/02	HCNWTR
BAXTER, J.H., & COMPANY	BAXTER, J. H.	94-088	1A	WDR	06/23/94	07/01/02	HCNWTR
CASPAR SOUTH WD	CASPAR SOUTH WATER DISTRICT	82-076	2C	WDR	07/22/82	07/19/02	DDOMEST
SHILOH ASSOCIATES	SHILOH WASTEWATER RECLAM PROJ	97-080	1B	WDR	08/27/97	08/26/02	DDOMEST
GRENADA	GRENADA SD STP	87-12101	3B	WDR	09/24/87	09/20/02	DDOMEST

SANITARY DISTRICT										
GUALALA CSD	GUALALA WWTF	GUALALA	IB89005RMEN	92-120	2B	WDR	09/22/02	DDOMEST	1	
SEA RANCH VILLAGE INC.	SEA RANCH GOLF LINKS	THE SEA RANCH	IB92020RSON	92-121	2B	REC	09/24/92	DDOMEST	1	
INDUSTRIES INC.	SYAR INDUS. INC., DOYLE PLANT	WINDSOR	IB830700SON	87-109	3C	WDR	10/29/87	I PROCES	2	
SHAMROCK MATERIALS INC.	SHAMROCK MAT.OF CLOVERDALE,INC	CLOVERDALE	IB840120SON	87-110	3C	WDR	10/29/87	DW'SHWT	2	
INDUSTRIES INC.	SYAR INDUS. INC., HEALDSBURG	HEALDSBURG	IB830660SON	87-123	3C	WDR	10/29/87	10/25/02	2	
NORTH COAST RAILROAD AUTHORITY	NORTH COAST RAILROAD AUTHORITY	EUREKA	IB85007RHUM	92-128	2A	WDR	10/29/92	I EROSHN	2	
USDOT COAST GUARD TRAINING CEN	USDOT COAST GUARD TRAINING CEN	PETALUMA	IB720330SON	85-162	2B	WDR	12/05/85	DDOMEST	2	
SONOMA COUNTY WATER AGENCY	SCWA MIRABEL/WOHLER RIVER DIV	HEALDSBURG	IB92025RSON	92-139	2A	WDR	12/10/92	DCNWTR	2	
CADGENE, VYUOVICH, & CARTER	PARKSIDE ESTATES MHP	WILLITS	IB831420MEN	93-003	2C	WDR	01/28/93	DDOMEST	3	
HOPLAND PUD	HOPLAND PUBLIC UTILITIES DIST.	HOPLAND	IB801540MEN	93-011	2B	WDR	01/28/93	DDOMEST	3	
JUSTIN MEYER/RAY DUNCAN	SILVER OAK CELLARS, ALEX. VALL	GEYSERVILLE	IB92029RSON	93-009	2B	WDR	01/28/93	IWNWAST	3	
REDWOOD PARK CSD	REDWOOD PARK STP	REDWOOD PARK	1A88030RDN	93-023	2C	WDR	02/25/93	DDOMEST	3	
LEWISTON PARK MUTUAL WATER CO.	LEWISTON PARK WATER CO., POTW	LEWISTON	1A830520TRI	83-052	2B	WDR	04/28/83	D PROCES	4	
MABRY, WILLIAM B., III	LANDMARK VINEYARDS	KENWOOD	IB770170SON	88-069	3C	WDR	05/25/88	05/22/03	4	
SONOMA WEST HOLDINGS INC	VACU DRY COMPANY	SEBASTOPOL	IB781420SON	88-071	3C	WDR	05/25/88	D PROCES	4	
STEMMLER, ROBERT	STEMMLER WINERY	HEALDSBURG	IB770110SON	88-072	3C	WDR	05/25/88	05/25/88	4	
PRESTON, LOUIS D.	PRESTON WINERY	HEALDSBURG	IB751300SON	88-085	3C	WDR	06/23/88	DWNWAS	4	
CA DEPT OF PARKS & REC MENDOCI	CDPR VAN DAMME STATE PARK	MENDOCINO	IB710260MEN	88-086	3C	WDR	06/23/88	DDOMEST	4	

SEA RANCH ASSOCIATION	SC, SEA RANCH, #6, THE SEA RANCH	1B89051RSON	93-067	2B	WDR	06/24/93	06/22/03	IDOMEST	4
MAZZOCCO FAMILY REVOCABLE TRUS	MAZZOCCO VINEYARDS INC.	1B88048RSON	88-109	3B	WDR	08/24/88	08/21/03	DWNWAS	1
CA DEPT OF FORESTRY	CDF HIGH ROCK CAMP HUMBOLDT	1B83084OHUM	83-084	2B	WDR	09/22/83	09/19/03	09/19/03	1
SANTA ROSA	C								
FERRARI-CARANO VINEYARD & WINE	CARANO WINERY	1B85063RSON	93-099	2B	WDR	10/27/93	10/27/93	DWNWAS	2
NEW COLLEGE OF CALIFORNIA	CAMP MAACAMA	1B78185OSON	88-148	3C	WDR	12/01/88	11/28/03	DDOMEST	2
SANTA ROSA MEAT & POULTRY	SANTA ROSA MEAT & POULTRY	1B79019OSON	79-019	3C	WDR	01/25/79	01/21/04	DW'SHWT	3
KENDALL-JACKSON WINERY, LTD.	VINWOOD CELLARS, INC.	1B86007CSON	94-002	2B	WDR	01/27/94	01/27/94	DWNWAS	3
SONOMA COUNTY WATER AGENCY	SCWA OCEANIC PROP. NORTH RANCH	1B72019OSON	94-004	2B	WDR	01/27/94	01/25/04	DDOMEST	3
US ARMY CORPS OF ENGINEERS SAC	USCOE LIBERTY GLEN CAMPGROUND	1B87004RSON	94-003	2B	WDR	01/27/94	01/25/04	DDOMEST	3
CALPINE CORPORATION	GEYSERS POWER CO. AIDLIN PP	1B80188OSON	94-014	2B	WDR	02/24/94	02/22/04	DDRILLS	3
WEOTT CSD	WEOTT WWTP	1B87042NHUM	94-032	2B	WDR	02/24/94	02/22/04	DDOMEST	3
BLUE LAKE, CITY OF	BLUE LAKE CITY POTW	1B81129OHUM	94-028	2B	WDR	02/24/94	02/22/04	DDOMEST	3
TIMBER CREST FARMS	TIMBER CREST FARMS	1B80047OSON	80-047	3C	WDR	04/24/80	04/24/04	DW'SHWT	4
CALPINE CORPORATION	GEYSERS POWER CO AIDLIN PP	1B80188OSON	94-01401	2B	WDR	06/23/94	06/20/04	DDRILLS	4
NORTH MARIN COUNTY WATER DIST.	OCEANA MARIN (NORTH MARIN CWD)	1B80173OMAR	94-086	2B	WDR	06/23/94	06/20/04	DDOMEST	4
BAYWOOD GOLF & COUNTRY CLUB	BAYWOOD GOLF & COUNTRY CLUB	1B91037RHUM	94-085	2C	WDR	06/23/94	06/20/04	DDOMEST	4
CA DEPT OF CORRECTIONS	CDC PELICAN BAY PRISON WWTP	1A89001NDN	94-071	2B	WDR	06/23/94	06/20/04	DDOMEST	4

MGM BRAKES, INC	MGM BRAKES, INC	CLOVERDALE	IB741250SON	74-125	2B	WDR	06/26/74	06/23/04	HCNSOIL	4
COAST WOOD PRESERVING	COAST WOOD PRESERVING	UKIAH	IB820510MEN	99-045	1A	WDR	07/21/99	07/19/04	HCNWTR	1
FISHER VINEYARDS	FISHER WINERY	SANTA ROSA	IB791300SON	79-130	3B	WDR	07/26/79	07/22/04	DWNWAS	1
SYAR INDUSTRIES INC	SYAR INDUS. INC., HEALDSBURG	HEALDSBURG	IB830210SON	89-096	3C	WDR	08/24/89	08/20/04	DW'SHWT	1
WILSON, KENNETH	WILSON WINERY	HEALDSBURG	IB94021RSON	94-101	2C	WDR	08/25/94	08/22/04	DWNWAS	1
KLAMATH CSD DEL NORTE COMM DEV	KLAMATH STP	KLAMATH	1A84118ODN	84-118	2C	WDR	09/27/84	09/25/04	DDOMEST	1
CA DEPT OF TRANSPORTATIO N-EURE	CDOT HWY 10 CONSTRUCTIONI		IB92023RMEN	94-124	2C	WDR	10/27/94	10/24/04	IEROSH N	2
AGILENT TECHNOLOGIE	FOUNTAINGROVE STORM WATER	SANTA ROSA	IB820050SON	89-140	1A	WDR	11/16/89	11/16/89	HPROCES	2
TIMBER PRODUCTS CO.	TIMBER PRODUCTS CO. YREKA	YREKA	1A850040SIS	85-004	2C	WDR	01/24/85	01/22/05	01/22/05	3
MANILA CSD	MANILA CSD WWTP	MANILA	IB801620HUM	95-002	2C	WDR	02/23/95	02/20/05	DDOMEST	3
CALPINE CORPORATION	CALPINE GEO CO - CGC UNIT 13	SANTA ROSA	IB841010SON	95-00501	2B	WDR	03/23/95	03/20/05	DDRILLS	3
CALPINE CORPORATION	CALPINE GEO CO - CGC7CA1862	SANTA ROSA	IB840330SON	95-006	2B	WDR	03/23/95	03/20/05	DDRILLS	3
CODERA PRODUCTION GROUP	ASSOCIATED VINTAGE GROUP	GRATON	IB801240SON	95-017	2B	WDR	03/23/95	03/20/05	DWNWAS	3
CALIFORNIA NORTHERN RAILROAD	CALIFORNIA NORTHERN RAILROAD	AMERICAN CANYON	IB790230MEN	85-016	2A	WDR	03/27/85	03/25/05	IEROSH N	3
MICHEL VINEYARD	MICHEL SCHLUMBERGER	HEALDSBURG	IB85058RSON	85-058	2B	WDR	05/23/85	05/21/05	DWNWAS	4
CA DEPT OF FORESTRY SANTA ROSA	CDF ALDER CONSERVATION CAMP	KLAMATH	1A75266ODN	85-069	2B	WDR	05/23/85	05/21/05	DDOMEST	4
PARNUM PAVING, INC.	PARNUM PAVING, INC	UKIAH	IB801000MEN	80-100	3C	WDR	07/25/80	07/22/05	DW'SHWT	1
EAGLE ROCK, INC.	LA GRANGE PIT	WEAVERVILLE	1A801690TRI	80-169	3C	WDR	09/25/80	09/22/05	IWSHWTR	1
KENDALL JACKSON WINERY LIMITED	LA CREMA WINERY	SANTA ROSA	IB95048RSON	95-072	2B	WDR	09/28/95	09/25/05	DWNWAS	1

KENDALL-JACKSON WINERY LTD	J. TONESTREET & SONS WINERY	HEALDSBURG	IB95055RSON	95-073	2B	WDR	09/28/95	09/25/05	DWNWAS	1
FREI BROS. WINERY	FREI BROS WINERY	HEALDSBURG	IB791540SON	85-136	2B	WDR	10/23/85	10/21/05	DWNWAS	2
QUALITY RESORTS OF AMERICA	REDWOOD TRAILS CAMPGROUND	TRINIDAD	IB801420HUM	90-227	3C	WDR	12/06/90	12/02/05	DDOMEST	2
CASINI ENTERPRISES, INC.	CASINI RANCH FAMILY CAMPGROUND	DUNCANS MILLS	IB810160SON	81-016	3C	WDR	01/22/81	01/19/06	DDOMEST	3
USDI REDWOOD NATIONAL PARK	REQUA HOUSING SITE	REQUA	1A83145ODN	91-023	3B	WDR	02/28/91	02/24/06	DDOMEST	3
REDWOOD EMPIRE INC.	REDWOOD EMPIRE REMANUFACTURIN G	CLOVERDALE	IB85010CSON	91-035	3C	WDR	03/28/91	03/24/06	DSTORMS	3
SONOMA COUNTY WATER AGENCY	SCWA OCEANIC PROP. CENTRAL PLA	THE SEA RANCH	IB710110SON	96-011	2B	WDR	03/28/96	03/26/06	DDOMEST	3
POINT ARENA, CITY OF	POINT ARENA WASTEWATER TRT.PLT	POINT ARENA	IB800450MEN	96-015	2B	WDR	03/28/96	03/26/06	DDOMEST	3
ECODYNE/THE MARMON GROUP	ECODYNE/SHILOH INDUSTRIAL PARK	WINDSOR	IB820500SON	96-017	1A	WDR	03/28/96	03/27/06	HCNWTR	3
MIRANDA CSD	MIRANDA POTW	MIRANDA	IB800020HUM	86-093	2B	WDR	05/01/86	04/28/06	DDOMEST	4
WESTPORT CWD	WESTPORT CWD	WESTPORT	IB752600MEN	96-028	2B	WDR	05/23/96	05/21/06	DDOMEST	4
MONTAIR SUB. HOMEOWNERS ASSOC.	MONTAIR SUBDIVISION STP	MONTAGUE	1A811310SIS	81-131	3C	WDR	05/28/81	05/24/06	DDOMEST	4
DUNNEWOOD VINEYARDS	DUNNEWOOD VINEYARDS	UKIAH	IB790810MEN	86-110	2B	WDR	06/27/86	06/24/06	DWNWAS	4
PARDUCCI WINE ESTATES	PARDUCCI WINE CELLARS	UKIAH	IB752750MEN	86-114	2B	WDR	06/27/86	06/24/06	DWNWAS	4
CALPELLA CWD	CALPELLA CWD-WTP	CALPELLA	IB771620MEN	86-116	2B	WDR	06/27/86	06/24/06	DDOMEST	4
DAVIS BYNUM WINERY, INC.	DAVIS BYNUM WINERY INC.	HEALDSBURG	IB762000SON	86-129	2B	WDR	06/27/86	06/24/06	DWNWAS	4
MATANZAS CREEK WINERY, INC.	MATANZAS CREEK WINERY	SANTA ROSA	IB780030SON	96-036	2C	WDR	06/27/96	06/25/06	DWNWAS	4
FILITI, ANTHONY	PARMALLINO CHEESE CO., INC.	FORTUNA	IB94028RHUM	96-039	2C	WDR	06/27/96	06/25/06	DW:SHWT	4
SONOMA-CUTRER VINEYARDS, INC.	SONOMA-CUTRER VINEYARDS, INC.	WINDSOR	IB811520SON	96-045	2B	WDR	06/27/96	06/25/06	DWNWAS	4

LUTHER BURBANK CENTER	SANTA ROSA	IB820120SON	96-040	2B	WDR	06/27/96	06/25/06	DDOMEST	4
F. KORBEL & BROTHERS INC.	GUERNEVILLE	IB811870SON	96-041	2B	WDR	06/27/96	06/25/06	DWNWAS	4
MARTINI & PRATI WINES INC.	SANTA ROSA	IB86005CSON	96-042	2B	WDR	06/27/96	06/25/06	DWNWAS	4
BRUTOCAO VINEYARDS	HOPLAND	IB96002RMEN	96-043	2C	WDR	06/27/96	06/27/06	DWNWAS	4



#### SECTION 4: NPDES Pretreatment Inspections (PCIs/Audits)

NPDES No. CA0022713	Arcata, City of Humboldt Bay	PCI – 2003 2005 2007
This facility is not under a federally-approved program, but is subject to state oversight		
NPDES No. CA0022756	Crescent City, City of Ocean	Aud – 2002 2004 2006 PCI – 2002 2004 2006
NPDES No. CA0024449	Eureka, City of: Elk River POTW Humboldt Bay	Aud – 2003 2005 2007 PCI – 2003 2005 2007
NPDES No. CA 0022764	Santa Rosa, City of: Laguna Subregional WPCF Russian R./Laguna	Aud – 2002 2004 2006 PCI – 2002 2004 2006

#### SECTION 5: NPDES Compliance Inspections

Compliance inspections will be conducted at least once per year, and for major NPDES permits the goal is at least three inspections per year.

**\*WASTE TYPE CATEGORIES**  
(prior to treatment or disposal)

DCNWTRS – nonhazardous contaminated ground water

DNONCON – nonhazardous noncontact cooling water

DPROCES – nonhazardous process waste (produced as part of industrial/manufacturing process)

DSTORMS – nonhazardous storm water runoff

HCNWTRS - hazardous contaminated ground water

DFILBRI – nonhazardous filter backwash brine waters

DDOMIND – nonhazardous domestic sewage and industrial waste

DWSHWTR – nonhazardous wash water waste (photo reuse wash water, vegetable wash water)

IMISCEL – inert wastes from dewatering, rec. lake overflow, swimming pool wastes, water ride waste water, or ground water seepage

DMISCEL – nonhazardous wastes from dewatering, rec. lake overflow, swimming pool wastes, water ride waste water, or ground water seepage

HCNWTRS – hazardous contaminated ground water

DCONTAC – nonhazardous contact cooling water

DDOMEST – nonhazardous domestic sewage

NMISCEL – nonhazardous wastes from dewatering, rec. lake overflow, swimming pool wastes, water ride waste water, or ground water seepage

ICNWTRS – inert contaminated ground water

Hazardous – influent or solid wastes that contain toxic, corrosive, ignitable, or reactive substances (prior to treatment or disposal) managed according to applicable Department of Health Services standards

Designated - influent or solid wastes that contain nonhazardous wastes (prior to treatment or disposal) that pose a significant threat to water quality because of their high concentrations

Inert – influent or solid waste that do not contain soluble pollutants or organic wastes (prior to treatment or disposal) and have little adverse impact on water quality

Nonhazardous – influent or solid waste that do not contain soluble pollutants or organic wastes (prior to treatment or disposal) and have little adverse impact on water quality



## APPENDIX B

### BENEFICIAL USE DEFINITIONS

**Municipal and Domestic Supply (MUN)** -- Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

**Agricultural Supply (AGR)** -- Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

**Industrial Service Supply (IND)** -- Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.

**Industrial Process Supply (PROC)** -- Uses of water for industrial activities that depend primarily on water quality.

**Groundwater Recharge (GWR)** -- Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

**Water Contact Recreation (REC-1)** -- Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, or use of natural hot springs.

**Non-Contact Water Recreation (REC-2)** -- Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

**Commercial and Sport Fishing (COMM)** -- Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

**Warm Freshwater Habitat (WARM)** -- Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

**Cold Freshwater Habitat (COLD)** -- Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

**Marine Habitat (MAR)** -- Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

**Wildlife Habitat (WILD)** -- Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

**Preservation of Areas of Special Biological Significance (BIOL)** -- Includes marine life refuges, ecological reserves and designated areas of special biological significance, such as areas where kelp propagation and maintenance are features of the marine environment requiring special protection.

**Rare, Threatened, or Endangered Species (RARE)** -- Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

**Migration of Aquatic Organisms (MIGR)** -- Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

**Spawning, Reproduction, and/or Early Development (SPWN)** -- Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

**Shellfish Harvesting (SHELL)** -- Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sports purposes.

## APPENDIX C

### GEOGRAPHIC INFORMATION SYSTEMS DISCUSSION

#### **Technical and Administrative Aspects of the Activity**

GIS has proven to be a very effective tool for use by staff of the SWRCB and RWQCB's in preparing TMDL's and implementing the Watershed Management Initiative. SWRCB funding has gone to support integration of the GEOWBS (developed for USEPA 305(b) reporting) into a desktop data management tool.

Many kinds of information currently in use at the Regional Water Board are well suited to the kinds of analysis made possible by GIS. Some more familiar topics include: 1) the identification of sources of pollution, especially diffuse (non point) sources of pollution, through analysis of temporal and spatial data sets; 2) calculation of road density, coupled with predictive erosion potential estimates and prioritization of probable sources; 3) analysis of past, present and potential landslide areas; 4) assessment of trends in water temperature variations and analysis of their causes; 5) analysis of the singular and cumulative effects of water diversions on multiple other beneficial uses of water in the watershed; 6) studies of ground water contamination plumes, their sources, extent and interaction with surface waters, and; 7) the ability to integrate multiple issues within a watershed at one time. Rather than treating each issue individually, for example, site mitigation effects and studies of diffuse pollution can be integrated to both mitigate and protect resources. While existing program-focused database sets provide for some of these analyses to be performed now, the communication and prediction of effects of multiple aspects at the same time is best facilitated through GIS displays of relational database interactions.

#### **Current Activity Staffing and Cost**

Existing GIS resources represent a powerful and cost-effective tool to assist State and Regional Board staff in implementing the Watershed Management Initiative and preparing TMDL's for impaired water bodies. The TMDL development efforts at the NCRWQCB rely heavily on in-house and contract-based.

GeoWBS Program: The GIS-enhanced Water Body System database (GeoWBS) is designed to accomplish CWA Section 305 (b) assessment and Section 303 (d) reporting requirements. For the 2000 CWA Section 305 (b) water quality assessment update, the Regional Board entered the 1998 CWA Section 303 (d) listed water bodies and water bodies from watersheds identified in the 1999 WMI Chapters for review this year into the GeoWBS system. In addition, the GeoWBS will be used for the next CWA Section 305(b) and 303 (d) updates and for on going TMDL status reporting.



## APPENDIX D

### NONPOINT SOURCE TABLES

The tables presented in this appendix are tabularized information repeated from each individual WMA in a program-oriented format. The intent is to provide the information for quick reference outside the narrative style of the WMA sections.

A summary of NPS problems in general is presented below. A summary of water quality assessment in terms of geographical areas and NPS categories can be found in Tables 1 and 1A.

- Projected changes in land use in the North Coast Region include an increase in land devoted to vineyards and a decrease in land devoted to orchards and grazing. The Region now has two full-time staff persons working directly on hillside vineyard issues.
- Timber harvest reviews in the Region will be with greater awareness of NPS environmental concerns such as erosion control and maintenance of riparian habitat. In order to meet this challenge, the staff of the Timber Harvest Division has tripled and is actively reviewing and inspecting all Timber Harvest Plans near streams.
- The population in the Region continues to grow, especially in the southern part of the Region in the Santa Rosa Plain. This will necessitate an enhanced vigilance by the Regional Board staff over waste discharge and storm water runoff. The Region plans, as a pilot project in the Russian River WMA, to create a monitoring consortium of all dischargers, agencies and local monitoring efforts to keep track of water quality.
- The largest single pollutant on an areal basis is excess sediment much of it from rural roads. Increased water temperatures from insults to the riparian corridor follow as a close second, and nutrient enrichment, while severe in some areas, is third in areal extent.

Many waterbodies in the region are high quality waters with respect to water chemistry and conventional pollutants (when sedimentation and temperature problems are removed from the analysis). The Smith River is a jewel among north coast rivers and deserves special recognition and protection as outstanding quality. Other rivers of high quality that require protection include the Mad, Trinity, Eel, Russian, and a number of smaller coastal rivers.

The Klamath and Shasta Rivers, the Laguna de Santa Rosa, Stemple Creek, and Americano Creek are nutrient enriched partially from nonpoint sources to varying degrees. As resources permit, we are addressing those problems through outreach and special assessments to document extent of problems and sources.

Long-term goals to address NPS problems include the critical tool of assessment of the waterbodies to determine extent of problems and quantify sources. Using the assessment information in an outreach program, we strive to bring awareness to landowners about their part in reducing NPS pollution. This fostering of stewardship for the aquatic resource is complimented by an active grant program aimed at demonstration of practices to reduce NPS impacts and actual restoration of our waterbodies.

Specific short-term (1–5 years) objectives for each Watershed Management Area come from the individual WMA sections in this report and are repeated in Table 2. These tables for Big, Albion and Ten Mile Rivers have not been developed yet.

Nonpoint source pollution is the leading cause of water quality impairment in California. California's Nonpoint Source (NPS) Pollution Control Program has been in effect since 1988. In January 2000 the lead State agencies for the NPS Program, the SWRCB and CCC in coordination with the RWQCBs released the "Plan for California's Nonpoint Source Pollution Control Program" (NPS



Program Plan). The NPS Program Plan enhances the State's efforts to protect water quality, and to conform to the Clean Water Act Section 319 (CWA 319) and Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA). The State's long-term goal is to "improve water quality by implementing the management measures identified in the California Management Measures for Polluted Runoff Report (CAMMPR) by 2013." A key element of the Program is the "Three-Tiered Approach," through which self-determined implementation is favored, but more stringent regulatory authorities are utilized when necessary to achieve implementation with its NPS problems consistent with the NPS Program Plan and its resource needs.

The State's three-tiered approach for progressive compliance and attainment of receiving water beneficial use protection from Nonpoint Source (NPS) pollution involves:

1. Self-directed Implementation of Best Management Practices (Tier 1)  
Tier 1 is the first and most informal level of Regional Board and/or Regional Board staff involvement. At the Tier 1 level, the discharger is expected to voluntarily identify and implement Best Management Practices (BMPs) that are intended to eliminate and/or prevent NPS pollution without threat of regulatory action. Encouragement and voluntary compliance incentives are promoted through informal staff inspections, education, training, technical assistance, funding, and demonstration projects.
2. Regulatory-based Encouragement of Best Management Practices (Tier 2)  
At the Tier 2 level, the Regional Board, and Regional Board staff essentially withhold direct regulatory action (like issuance of Waste Discharge Requirements [WDRs]) provided the discharger implements appropriate BMPs that are necessary to prevent NPS pollution. A formalization of this approach can be a waiver of WDRs or entering into a management agency agreement, wherein the Regional Board and discharger or responsible agency agree on actions.
3. Effluent Limitations (Tier 3)  
The Tier 3 level is a direct regulatory approach that may include issuance of NPDES Stormwater Permits, Regional Board adoption of Total Maximum Daily Load and Attainment Strategy Plans (Basin Plan revision), WDRs, or enforcement orders containing specific effluent limitations necessary to protect the beneficial uses of the receiving waters. Tier 3 places the discharger under formal regulation with routine inspections, discharger self-monitoring and reporting programs, and enforcement mechanisms in the event of non-compliance.

The North Coast Region has an established NPS policy in its Water Quality Control Plan (Basin Plan) in Section 4: Implementation Plans. In general, the policy is to promote the implementation of best management practices and remedial projects in a three tiered approach: 1) self-determined implementation, 2) regulatory-based encouragement, and 3) effluent limitations. At the present time two action plans are contained in the NPS policy: 1) Action Plan for Logging, Construction and Associated Actions, and 2) Action Plan for Control of Discharges of Herbicide Wastes from Silvicultural Applications.

The North Coast Region has used the three tiered approach for many years and has been successful in promoting compliance through self-determined actions by dischargers. Our watershed partnership approach with animal facility operations (AFOs), including the dairy industry in the Russian/Bodega WMA is an exemplary demonstration of how the North Coast Region has implemented the three tier approach:

#### **Tier 1**

For the last two decades Regional Board staff (in cooperation with educational and technical assistance agencies) has nurtured a working relationship of trust with AFOs to educate and promote

the development and implementation of BMPs necessary for water quality improvement and protection. Included in that outreach, technical assistance, and education effort is the grant program, where we directly oversee USEPA grants, promote and assist in obtaining other federal grant assistance (e.g., EQUIP, CRP), and promote local agency involvement in funding opportunities (City of Santa Rosa loan program). Regional Board staff also participates in a voluntary water quality monitoring program where ranchers, as a part of their ranch plan, monitor stormwater runoff with field test kits. The monitoring information, which is recorded and retained in each rancher's ranch plan, is utilized to assess the success of implemented BMPs. Acceptable monitoring results provide positive feed back to the rancher that the BMPs implemented are effective. Unacceptable monitoring results provide the rancher with the knowledge that additional or modified BMPs need to be developed and implemented.

The first significant step for a discharger is to select the means to comply. Self-directed compliance is intended to allow landowners who are not familiar with their lands and operations to develop a farm or ranch plan that identifies site-specific Best Management Practices (BMPs) with an implementation schedule. The self-directed monitoring elements of the implemented ranch plan also provide the discharger with a means of continued compliance assessment.

### **Tier 2**

The Sonoma/Marin Farm Bureau's Animal Resource Management Committee is composed of ranchers, industry representatives, private consultants, and educational, technical assistance and regulatory agencies. The Committee oversees the broad issue of management practices for water quality protection. It is a self-policing organization that addresses and responds to water quality issues, pulling in agency assistance as needed. Should Regional Board staff or the Department Fish and Game observe or become aware of an undesirable practice, the matter is referred to the Committee for correction. Permitting the Committee the opportunity to seek compliance in a non-confrontational manner has been highly effective.

Encouragement can also include progressive Regional Board and Regional Board staff enforcement, from informal staff contact to formal Regional Board enforcement actions that can include development of time schedules for compliance and monetary penalties.

### **Tier 3**

If the regulatory agencies observe a blatant disregard for water quality protection, they can choose to go directly to enforcement without first going through the Committee. The desired route, however, is to for industry to have the opportunity to seek correction first. On occasion, if the Committee is not successful in bringing about compliance in a timely manner, formal regulatory agency enforcement action is supported by the Committee. When Regional Board staff do become involved, a phased regulatory approach is implemented, beginning with an initial site visit often accompanied by a representative of the Committee. If staff level enforcement is not effective, the matter is elevated to more formal enforcement, such as a Cleanup and Abatement Order.

Another example of our three-tier approach is with county road erosion problems, where we first contact the county regarding a problem and work out an approach to resolution at the staff level. If timely actions are not forthcoming, we elevate the issue to more formal enforcement.

In the spirit of Tier 1, outreach and education is the main means of reaching the public and assisting them with compliance. Table 2A outlines these activities in the North Coast Region.

Table 3 is a list of Waivers of Waste Discharge by category. SB 390 requires that all of these waivers are renewed by 2003, or they will expire. Table 4 is a list of key partners with the North Coast Region who share responsibility for specific water quality issues.

In addition, the staff at the Regional Board participate on several statewide efforts such as the California Bio-diversity Council Workgroup, the Watershed Protection Council, the Anadromous Fisheries Council, the 401 Certification Group, the Urban Runoff Task Force, and the Storm Water Task Force. We also are involved in Section 7 consultations with the Army Corps of Engineers and local efforts to address NPS problems in the Humboldt Bay area, the Upper Klamath River, the Russian River, and coastal tributaries.

Table 5 outlines the North Coast Region's priority NPS implementation activities for FY 2002-03 and resources that will be used to affect those priorities. Table 6 outlines needed NPS implementation activities for FY 2004-05.

**TABLE 1: North Coast Regional NPS Problems by Management Measure Category**

Pollutant(s) impairing or threatening Beneficial Uses Arranged by Management Measure Category						
Watershed/waterbody	Agriculture	Silviculture	Urban	Marinas & Recreational Boating	Hydromodification	Wetlands & Vegetated Treatment Systems
<b>Russian/Bodega WMA</b>						
Estero Americano (692 ac)	Sediment/silt Nutrients				Sediment/silt	
Americano Creek (7 mi)	Nutrients					
Russian River (105mi)	Sediment/silt	Sediment/silt	Sediment/silt		Sediment/silt	Sediment/silt
Tomki Creek (18mi)	Sediment/silt	Sediment/silt				
<b>Stemple Creek</b>	Sediment/silt Nutrients					
<b>Klamath WMA</b>						
Klamath River (190mi)	Nutrients Organics/D.O.	Temperature Sediment/silt	Organics/D.O.		Temperature Sediment/silt	
Scott River (68mi)	Sediment/silt Temperature	Sediment/silt Temperature			Sediment/silt Temperature	Sediment/silt Temperature
Shasta River (52mi)	Organics/D.O. Temperature				Organics/D.O.	Temperature
<i>NORTH COAST RIVERS WMA</i>						
Navarro River Delta (20 ac)	Sediment/silt	Sediment/silt				
Albion River (14mi)		Sediment/silt				
Big River (40 mi)		Sediment/silt				
Garcia River (35mi)	Temperature Sediment/silt	Temperature Sediment/silt			Temperature Sediment/silt	
Gualala River (35mi)	Sediment/silt	Sediment/silt				
Mattole River (56mi)	Sediment/silt	Sediment/silt Temperature			Sediment/silt	

Navarro River (25mi)	Sediment/silt Temperature	Sediment/silt Temperature	Sediment/silt		Sediment/silt Temperature	Sediment/silt Temperature
Noyo River (35mi)		Sediment/silt				
Ten Mile River (10mi)		Sediment/silt				
<b>Humboldt Bay WMA</b>						
Elk River (87mi)		Sediment/silt			Sediment/silt	
Freshwater Creek (73mi)		Sediment/silt			Sediment/silt	
Mad River (90mi)	Sediment/silt Turbidity	Sediment/silt Turbidity			Sediment/silt Turbidity	
Redwood Creek (65mi)	Sediment/silt	Sediment/silt				
<b>Eel River WMA</b>						
Eel River Delta (6350 ac)	Sediment/silt Temperature	Sediment/silt Temperature				
Eel River Middle Fork (64mi)	Sediment/silt Temperature	Sediment/silt Temperature				
Eel River Main Middle fork (1075mi)	Sediment/silt Temperature	Sediment/silt Temperature				
Eel River North Fork (41mi)		Sediment/silt				
Eel River South Fork (85mi)	Sediment/silt Temperature	Sediment/silt Temperature			Sediment/silt Temperature	
Eel River Upper Main Fork (1154mi)	Sediment/silt Temperature	Sediment/silt Temperature				
Van Duzen River (65mi)	Sediment/silt	Sediment/silt				
<b>Trinity River WMA</b>						
Trinity River (170mi)	Sediment/silt	Sediment/silt			Sediment/silt	
Trinity River South Fork (80mi)	Sediment/silt Temperature	Sediment/silt Temperature			Temperature	

Table 1A: North Coast Groundwater Impairments

REGION	WATER BODY NAME	HYDRO UNIT	CAUSES*	SIZE**	SOURCES*	SIZE**	TOTAL SIZE**
1	ALEXANDER VALLEY AREA	114.25	Oil and grease Priority organics	23 23	Lust/Leaking Undergrnd Stor. Tanks	23	23
1	ANDERSON VALLEY	1-190	Oil and grease Priority organics	5 5	Lust/Leaking Undergrnd Stor. Tanks Petroleum Activities Resource Extraction Spills	5 5 5 5	5
1	ANNAPOLIS OHLSON RANCH	1-490	Oil and grease	10	Lust/Leaking Undergrnd Stor. Tanks	10	10
1	BIG RIVER VALLEY	1-450	Oil and grease Priority organics	5 5	Lust/Leaking Undergrnd Stor. Tanks Spills	5 5	5
1	BODEGA BAY AREA	1-210	Oil and grease Petroleum/Gasoline Priority organics	5 5 5	Lust/Leaking Undergrnd Stor. Tanks Spills	5 5	5
1	CLOVERDALE AREA	114.25	Oil and grease Pesticides Priority organics	9 9 9	Lust/Leaking Undergrnd Stor. Tanks Spills	9 9	9
1	EEL RIVER VALLEY	1-100	Oil and grease Priority organics	0 0	Lust/Leaking Undergrnd Stor. Tanks Spills	120 120	120
1	EUREKA PLAIN	1-90	Oil and grease Priority organics	60 60	Land Disposal Landfills Lust/Leaking Undergrnd Stor. Tanks Petroleum Activities Resource Extraction Spills	60 60 60 60 60 60	60
1	FORT BRAGG TERRACE AREA	1-210	Oil and grease Priority organics	24 24	Lust/Leaking Undergrnd Stor. Tanks Spills	24 24	24
1	GARBERVILLE TOWN AREA	1-320	Oil and grease Priority organics	0 0	Lust/Leaking Undergrnd Stor. Tanks Spills	5 5	5
1	GUALALA RIVER VALLEY	1-470	Oil and grease Priority organics	5 5	Lust/Leaking Undergrnd Stor. Tanks	5	5
1	HEALDSBURG AREA	114.25	Oil and grease Priority organics	27 27	Lust/Leaking Undergrnd Stor. Tanks Spills	27 27	27
1	LEGGETT AREA	1000000	Oil and grease	2	Lust/Leaking Undergrnd Stor. Tanks	2	2

\* Causes and Sources are not linked.

\*\* "Size" refers to the affected size (square miles) of the water body and "Total Size" refers to the size of the entire water body.

Table 1A: North Coast Groundwater Impairments (cont'd)

REGION	WATER BODY NAME	HYDRO UNIT	CAUSES*	SIZE**	SOURCES*	SIZE**	TOTAL SIZE**
			<u>Priority organics</u>	<u>2</u>			
1	LITTLE LAKE VALLEY	1-130	<u>Oil and grease</u>	<u>17</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>17</u>	17
			<u>Priority organics</u>	<u>17</u>	<u>Spills</u>	<u>17</u>	
1	LOWER RUSSIAN RIVER VALLEY	114.10	<u>Oil and grease</u>	<u>9</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>9</u>	9
			<u>Priority organics</u>	<u>9</u>	<u>Spills</u>	<u>9</u>	
1	MAD RIVER VALLEY	1-80	<u>Oil and grease</u>	<u>60</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>60</u>	60
			<u>Priority organics</u>	<u>60</u>	<u>Spills</u>	<u>60</u>	
1	MODOC PLATEAU PVA	1-240	<u>Oil and grease</u>	<u>3000</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>3000</u>	3000
			<u>Priority organics</u>	<u>3000</u>	<u>Petroleum Activities</u>	<u>3000</u>	
					<u>Resource Extraction</u>	<u>3000</u>	
					<u>Spills</u>	<u>3000</u>	
1	SANTA ROSA PLAINS	114.22	<u>Metals</u>	<u>96</u>	<u>Agriculture</u>	<u>96</u>	96
			<u>Nutrients</u>	<u>96</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>96</u>	
			<u>Oil and grease</u>	<u>96</u>	<u>Petroleum Activities</u>	<u>96</u>	
			<u>Priority organics</u>	<u>96</u>	<u>Resource Extraction</u>	<u>96</u>	
					<u>Spills</u>	<u>96</u>	
1	SHASTA VALLEY	1-40	<u>Oil and grease</u>	<u>340</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>340</u>	340
			<u>Pesticides</u>	<u>0</u>	<u>Petroleum Activities</u>	<u>340</u>	
			<u>Priority organics</u>	<u>0</u>	<u>Resource Extraction</u>	<u>340</u>	
					<u>Spills</u>	<u>340</u>	
1	SMITH RIVER PLAIN	1-10	<u>Pesticides</u>	<u>70</u>	<u>Agriculture</u>	<u>70</u>	70
			<u>Petroleum/Gasoline</u>	<u>70</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>70</u>	
			<u>Priority organics</u>	<u>70</u>	<u>Spills</u>	<u>70</u>	
1	UKIAH VALLEY	114.31	<u>Metals</u>	<u>16</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>16</u>	16
			<u>Priority organics</u>	<u>16</u>	<u>Petroleum Activities</u>	<u>16</u>	
					<u>Resource Extraction</u>	<u>16</u>	
					<u>Spills</u>	<u>16</u>	
1	WEAVERVILLE AREA	1000000	<u>Petroleum/Gasoline</u>	<u>2</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>2</u>	2
			<u>Priority organics</u>	<u>2</u>	<u>Spills</u>	<u>2</u>	
1	WINDSOR AREA	1000000	<u>Metals</u>	<u>2</u>	<u>Lust/Leaking Undergrnd Stor. Tanks</u>	<u>2</u>	2
			<u>Oil and grease</u>	<u>2</u>	<u>Spills</u>	<u>2</u>	
			<u>Priority organics</u>	<u>2</u>			

\* Causes and Sources are not linked.

\*\* "Size" refers to the affected size (square miles) of the water body and "Total Size" refers to the size of the entire water body.

**Table 2. Short Term Objectives: Russian/Bodega WMA**

Objective	Goal Ref*	State Fiscal Year					Management Measures	Funded in FY 02-03
		01-02	02-03	03-04	04-05	05-06		
Outreach and enforcement to reduce discharges from hillside vineyards and other agricultural sites	1, 3, 4, 5	X**	X	X	?**	?	1A, E, G	Partial
Work with the local dairy industry to improve management practices.	1, 3, 4, 5	X	X	X	X	X	1B, C	No
Support the RCDs' efforts to address erosion and mass wasting issues in the Stemple Creek watershed.	1, 3, 4	X	X	?	?	?	1A, E, G	Yes
Review timber harvest operations for control of sediment discharges.	1, 3, 4	X	X	X	X	X	2A-F, K	
Continue in the restoration of portions of Santa Rosa Creek with issuance of waste discharge requirements for the Prince Greenway project.	1, 3, 4	X	X				5.1, 5.3 6	
Monitor for MTBE in lakes Sonoma and Mendocino	1	X	X				N/A	
Monitor for toxic chemicals in water, sediment, and tissue (TSM, SMW, xenobiotic estrogens)	1, 3, 4, 5	X	X	X	X	X	N/A	
Outreach and enforcement for rural residential roads.	1, 3, 4, 5		?	?	?	?	N/A	Partial
Maintain the Regional Water Board and counties' individual waste disposal systems program and promote reasonable resolution of localized problems.	1, 2, 5	X	X	X	X	X	3.4	
Promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water runoff, solid waste, dairy waste, municipal waste water, agricultural and industrial wastes.	1, 2, 3, 4, 5	X	X	X	X	X	1D, B 3.1, 3.2, 3.3	
Establish a monitoring network in high risk/high use ground water areas.	2		?	?	?	?	N/A	
Assess nonpoint source impacts of Sonoma County landfill on Stemple Creek.	1, 2, 3, 4		?	?			5.2	Yes
Promote habitat/riparian restoration in existing agricultural areas	1, 3, 4, 5	X	X	X	X	X	1A, E 5.1, 5.2, 5.4A	Yes
Evaluate the sediment data collected by the US Geological Survey for the Russian River with respect to erosion and sedimentation issues and the anadromous fishery	3, 4	?					N/A	



Evaluate and pursue methods for evaluating sediment sources (e.g., satellite imagery, aerial photography)	3, 4, 5	?	?	?				N/A	
Support the development of a Budget Change Proposal requesting monitoring funds and pursue innovative approaches to funding and volunteer monitoring	1-7, 9	X	X					N/A	
Promote awareness of the effects of increased erosion on channel morphology	3, 4	X	X	X	X	X		5.1-5.4 3.1A	
Determine sources and extent of sedimentation in Cheney Gulch and refer concern to responsible agency.	5, 9	?	?					1A, E 5.1, 5.2	
Improve agency coordination regarding Bodega Harbor runoff issues and marina and dry dock operations.	5	?	?					3.1-3.3, 3.6 4.1-4.3	
Review and inspect critical construction storm water permit holders.	1-7, 9	X	X	X	X	X		3.1-3.3, 3.5, 3.6	
Continue water quality monitoring in the Russian River, Laguna de Santa Rosa and Stemple Creek	1-4, 6, 7							1A-F, 3.1, 3.2, 3.5, 5.1, 5.3, 6A, 6B	
Implement pollutant controls using existing regulatory programs and authorities	1-7							numerous	
Outreach and education to implement control measures and expand monitoring	1-7							numerous	
Finalize new 401 certification application package									
Cooperate with the ACOE and CDFG on the Santa Rosa Plain wetlands policies									
Streamline permitting process									No

\* GOALS from the WMI Chapter section for the Russian/Bodega WMA

- **GOAL 1: Protect surface water uses MUN, REC-1, REC-2**
- **GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses**
- **GOAL 3: Protect/enhance coldwater fisheries**
- **GOAL 4: Protect/enhance warmwater fisheries**
- **GOAL 5: Protect aquatic life and public health in Bodega Harbor**
- **GOAL 6: Objectives attainment in the Laguna de Santa Rosa**
- **GOAL 7: Stemple Creek and Americano Creek Waste Reduction Strategies**
- **GOAL 8: Water Rights Coordination**
- **GOAL 9: Assessment of Salmon Creek and other tributaries**

**Table 2 – Short Term Objectives: Klamath River WMA**

Objective	Goal Ref*	State Fiscal Year					Management Measures	Funded in FY 02-03
		01-02	02-03	03-04	04-05	05-06		
<b>LOST RIVER Subwatershed</b>								
Continue existing level of baseline water quality monitoring and investigation of pesticide and toxics issues	2, 3	?**	?	?	?	?	ID, 2I	
Increase staff interactions with BOR and National Wildlife Refuges to document and understand influences of Klamath Straits Drain discharges on downstream Klamath water quality and to address the issues of water quantity, conveyance, and timing issues in a manner that better protects water quality	2, 3		X**	X			5.1A	
Increase staff interaction with ODEQ and TID on review of existing water quality objectives through the “TMDL” process and funding support for assessment of agricultural practices affecting water quality in Lost River and Tule Lake	3		X	X			1A, 1E, 1F	
Continue existing level of CWA Section 319(h) grant programs for stream restoration on Clear Lake tributaries	1, 2	?	?	?			1G, 5.4A	No
<b>UPPER KLAMATH Subwatershed</b>								
Significantly increase staff interaction with PacifiCorp, BOR, Klamath Compact Commission, USFWS, and CDFG working towards understanding water conveyance and flow scheduling as relates to water quality factors in the FERC and SWRCB water rights licensing processes	1, 2, 3, 4		X	X	X		2L	
Continue existing level of baseline monitoring, including Hydrolab stations in Oregon at JC Boyle and Keno with emphasis on documenting water quality as	1, 2, 3, 4	?	?	?	?	?	N/A	

it flows from above Klamath Straits Drain into Copco reservoir									
Increase staff interactions with ODEQ on review of common bi-state water quality objectives through the “TMDL” program, including CA concerns regarding Klamath water quality meeting recreation standards	1, 2, 3, 4		X	X			N/A		
Increase staff time spent interacting with USFWS for KRS maintenance and use	1, 2, 3, 4	?	?	?	?	?	2L		
Increase staff interaction with residents of Copco Reservoir regarding summertime nuisance conditions	2, 4	?	?	?	?	?	2L		
Continue existing level of grant program for stream restoration work	1, 2, 3	?	?	?			5.4A	No	
<b>MIDDLE KLAMATH Subwatershed</b>									
Increase level of CDF Review Team meetings and inspections	1, 4, 5	X	X	X	X	X	2A, 2B, 2E, 2K		
Increase level of review of USFS Timber Sales	1, 4, 5	X	X	X	X	X	2A, 2B, 2E, 2K		
Continue existing level of work with local community on sediment control in the upper Scott River watershed	1, 4, 5		?	?	?	?	1A, 1G, 1E, 2L		
Continue existing level of forest herbicide application monitoring	1, 4, 5	X	X	X	X	X	2I		
Continue existing grant program for stream restoration and nonpoint source control of agricultural, construction, and timberland in the Shasta, Scott, and Salmon rivers, concentrating on those issues which affect water temperature and habitat, such as riparian corridors, irrigation water discharges	1, 4, 5	?					1A, 1G, 1E, 2L, 5.4A	No	
Increase staff interaction with USFWS and CDFG towards determining specific temperature needs for fish in the mainstem below Iron Gate dam and in the Shasta and Scott rivers using the FERRC	1, 4, 5		X	X	X		2L		

process to ensure adequate flows for migration and temperature maintenance										
Review grazing permits and practices for water quality compliance	1, 4, 5	?	?	?	?	?	?	IE	Partial	
Increase baseline water quality monitoring	1, 4, 5	?	?	?	?	?	N/A			
Continue existing level of staff interaction with local watershed groups towards developing TMDLs in designated sub-basins	1, 4, 5	X	X	X	X	X	2L			

**LOWER KLAMATH Subwatershed**

Increase level of CDF Review Team meetings and inspections	1, 3, 4	X	X	X	X	X	2A, 2B, 2K		
Increase level of review of USFS Timber Sales	1, 3, 4	X	X	X	X	X	2A, 2B, 2K		
Increase staff interaction with private timber companies to develop long-term water quality monitoring programs	1, 3, 4	X	X				2L		
Continue existing level of forest herbicide application monitoring	1, 3, 4	X	X	X	X	X	2K		
Foster adaptive management based on water quality findings	1, 3, 4	X	X	X	X	X	N/A		
Develop and maintain additional monitoring stations downstream of Orleans	1, 3, 4	?	?	?	?	?	N/A		

\*GOALS from the WMI Chapter section for the Klamath WMA

- **GOAL 1: Protect and enhance the salmonid fishery (Mainstem and tributaries below Iron Gate)**
- **GOAL 2: Protect and enhance warmwater and endangered aquatic species**
- **GOAL 3: Maintain the viability of agriculture and timber uses**
- **GOAL 4: Maintain recreational opportunities**
- **GOAL 5: Protect groundwater uses**

**Table 2 – Short Term Objectives: Noyo River**

<b>Objective</b>	<b>Goal Ref*</b>	<b>State Fiscal Year</b>					<b>Management Measures</b>	<b>Funded in FY 02-03</b>
		<b>01-02</b>	<b>02-03</b>	<b>03-04</b>	<b>04-05</b>	<b>05-06</b>		
Monitoring to determine the effectiveness of management practices to reduce erosion and sedimentation and determine trends towards the TMDL desired future condition.	1,2						1E,2, 3.1, 3.2, 3.3, 5.1, 5.3, 6A	
Biological assessment in the surface waters near the Parlin Fork Conservation Camp	1							
Enhance public and agency participation to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.	1,2						various	No
Improve coordination with local and State agencies s part of the TMDL implementation process.	1,2						1E,2, 3.1, 3.2, 3.3, 5.1, 5.3, 6A	
Additional investigation, sampling and monitoring, and enforcement actions at mill sites that historically used wood treatment chemicals	1						5.1, 6A	
Review and inspect timber harvest plans for implementation of best management practices to ensure protection of water quality and beneficial uses. Expand program activities on private land.	1,2						2	
Continue active involvement in grant programs	1,2						various	Yes

**GOAL 1: Protect surface and ground water DOM, REC-1, and REC-2 uses**  
**GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD**

**Table 2 – Short Term Objectives: Navarro River**

State Fiscal Year

Objective	Goal Ref*	State Fiscal Year					Management Measures	Funded in FY 02-03
		01-02	02-03	03-04	04-05	05-06		
Monitoring to determine the effectiveness of management practices to reduce erosion and sedimentation and determine trends towards the TMDL desired future condition.	1,2						1E,2, 3.1, 3.2, 3.3, 5.1, 5.3, 6A	Yes
Enhance public and agency participation to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.	1,2						various	Yes
Improve coordination with local and State agencies s part of the TMDL implementation process.	1,2						1E,2, 3.1, 3.2, 3.3, 5.1, 5.3, 6A	
Additional investigation, sampling and monitoring, and enforcement actions at mill sites that historically used wood treatment chemicals	1						5.1, 6A	
Continue active involvement in grant programs	1,2						various	Yes
Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards	1,2						1A	Partial
Conduct outreach on best management practices for hillside vineyards	1,2						1G	Partial
Review and inspect timber harvest plans for implementation of best management practices to ensure protection of water quality and beneficial uses. Expand program activities on private land.	1,2						2	

**GOAL 1: Protect surface and ground water DOM, REC-1, and REC-2 uses**

**GOAL 2: Protect and enhance beneficial uses associated with anadromous fishes COLD**

**Table 2 – Short Term Objectives: Garcia River Watershed**

Objective	Goal Ref*	State Fiscal Year					Management Measures	Funded in FY 02-03
		01-02	02-03	03-04	04-05	05-06		
Participate in the THP review team and preharvest inspections	1,3	X**	X	X	X	X	2A	
Review and comment on SYPs and HCPs to ensure consistency with TMDL	1,3	X	X	X	X	X	2A	Yes
Provide outreach and education to local landowners	1,3	?	?	?	?	?	2I, 5.4A	Yes
Promote grants for restoration (319(h), CDFG)	1,3	X	X	X	X	X	5.4A	Yes
Review existing temperature data and collect more to fill data gaps	1,3	?	?	?			2B	
Review permit and plan compliance with the TMDL	1,3			X			N/A	Yes
Enforce on violations of the Basin Plan and/or TMDL	1,3	X	X	X	X	X	N/A	Yes
Stay involved in and promote the above considerations in the Section 404 permit process and CDFG 1603 process	1, 3	X	X	X	X	X	5.1B	
Review landowner and county road inventories	1, 3	?	?	?			2D	Yes
Promote outsliping and rolling dips for roads in the WMA	1, 3	X	X	X	X	X	2C	Yes
Request Rangeland Management Plans from ranchers	1,3	X	X	X			1E	Yes
Promote specific implementation plans in the TMDL to address identified sources	1,3	X	X	X	X	X	N/A	Yes
Implement upslope erosion controls	1,3	L**	L	L	L	L	1A, 2A	No
Manage and maintain properly functioning riparian zone (may include promoting late seral stage coniferous vegetation)	1,3	L	L	L	L	L	5.1B, 2B	No
Encourage bridges instead of culverts on fish-bearing streams	1,3	X	X	X	X	X	2A	
Work with the Mendocino County Health Department to educate users of agricultural and residential storage tanks on pollution prevention	2	?	?				N/A	
Monitor applications of the	1,3						5.1A, 5.1B	

Mendocino County Garcia River Gravel Management Plan		?	?	?				
Review effectiveness of current enhancement projects	1,3	X					2K	
Encourage maintenance of adequate stream flows	1,3	X	X	X	X	X	6B	
Consider effects of off-stream water supply pits and channel stability and discourage direct diversion for road watering/dust control	1,3		?	?	?	?	2A, 5.1A	

\* GOALS from WMI Chapter for the Garcia River Watershed

- **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)**
- **GOAL 2: Protect and enhance ground water resources and attendant high beneficial uses**
- **GOAL 3: Protect all other surface water uses**

L = Landowner responsibility under the TMDL



**Table 2 – Short Term Objectives: Gualala River Watershed**

State Fiscal Year

<b>Objective</b>	<b>GOAL Ref*</b>	<b>01-02</b>	<b>02-03</b>	<b>03-04</b>	<b>04-05</b>	<b>05-06</b>	<b>Management Measures</b>	<b>Funded in FY 02-03</b>
Monitor to determine the effectiveness of management practices to reduce erosion and sedimentation	1	X**	X	?	?	?	1A, 2	Partial
Assess bacterial quality in two high use recreation areas	3	?	?				4.2A & C	
Education and outreach to improve the recognition of land use impacts on the aquatic environment from nonpoint sources	1,3	X	X				2L, 3.6A	Yes
Coordinate through the GRWC on a monthly basis, and with other entities as needed	1,2,3	X	X				1G, 2L, 3.6A, 5.4A	Yes
Investigate ground water petroleum contamination	2	X					N/A	
Continue involvement in grant programs for NPS and fisheries	1	X	X	X	X	X	5.4A	Yes
Continue involvement in forestry, grazing, and county road issues	1,3	X	X	X	X	X	2A,B,C,D,E,F,H,K,L	Partial

\* GOALS from the WMI Chapter for the Gualala River Watershed

- **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)**
- **GOAL 2: Protect and enhance ground water resources and attendant high beneficial uses**
- **GOAL 3: Protect all other surface water uses**

**Table 2 – Short Term Objectives: Humboldt Bay WMA**

Objective	GOAL Ref*	State Fiscal Year					Management Measures	Funded in FY 02-03
		01-02	02-03	03-04	04-05	05-06		
Review timber landowners' Sustained Yield Plans and Habitat Conservation Plans for protection of beneficial uses.	1	X**	X	X	X	X	2A	
Maintain an active timber harvest review program and promote enforcement actions on violations	1	X	X	X	X	X	2A	
Impose penalties on animal facilities with repeated non-compliance	1	?**	?	?	?	?	1B	Yes
Continue active participation in Vegetation Management Advisory Committee (CalTrans) and assist CalTrans in the development of a study of herbicide runoff from highway spraying operations	1	X	X	X	X	X	1D, 3.5D	
Promote watershed analysis of Humboldt Bay tributaries within the scope of the Pacific Lumber Company Habitat Conservation Plan	1, 4	X	X	X	X	X	2A	
Identify sources of existing ground water information.	2	?	?				N/A	
Participate in local outreach programs, such as the Humboldt Bay Symposium.	2	?	?				1G, 2L, 3.6A	
Provide information for accessing 319(h) and Proposition 13 grant funds for the agricultural, timber and urban/rural communities.	2, 4	X	X	X	X	X	1G, 2I, 3.6A	
Continue involvement with local efforts to coordinate monitoring	3	X	X	X	X	X	1G, 2L, 3.6A	Yes
Enhance the existing monitoring activities by volunteers	3	?	?	?	?	?		
Maintain involvement in the gravel bar mining, especially as relates to channel stability.	4	X	X	X	X	X	5.1 A & B	
Staff will continue to support and encourage the Humboldt Shellfish Technical Advisory Committee.	5	X	X	X	X	X	4.1A	
Continue investigations at the Eureka Waterfront area to eliminate petroleum, metals, and organic chemical pollution and threats	5	X	X	X	X	X	4.1A	
Continue review of land use practices within the Humboldt Bay Watershed to ameliorate impacts from runoff sources.	5	?	?	?	?	?	1A, 1D, 2E, 2I, 3.4B	
Seek funding to improve	1	?			?	?	1G, 2L	

interagency coordination to assist with identification of problem areas, conduct outreach programs and coordinate enforcement activities for erosion control			?	?				Partial
Encourage local agencies to adopt and enforce local ordinances for erosion control	1	?	?	?	?	?	1A	
Conduct community education and outreach programs.	1	?	?	?	?	?	1G	Yes
Perform watershed assessments, including bacterial sampling	1	?	?	?	?	?	N/A	
Follow up on MTBE detections at Ruth Lake, Mad River watershed	1	?	?	?	?	?	N/A	
Require regular monitoring of water quality at nonpoint source facility discharge points.	1	?	?	?	?	?	N/A	
Require water quality monitoring of THPs by PALCO	4						2	
Seek additional funding for regulatory oversight of investigations and cleanups along the waterfront.	1	X	X	X	X	X	N/A	
Require regular monitoring of nearby surface water bodies in association with the application of herbicides	1	?	?	?	?	?	1D, 2I	
Seek increased funding to conduct inspections and water quality monitoring	1	X	X	X	X	X	N/A	
Pursue additional Regional Water Board funding (PYs) to identify ground water monitoring needs.	2	X	X	X	X	X	N/A	
Pursue additional Regional Water Board funding (PYs) to conduct nonpoint source inspections.	2	X	X	X	X	X	1A-G, 2L, 3.6, 4.3, 5.4, 6D	No
Pursue additional Regional Water Board funding (PYs) to store, analyze, and assess existing information and to develop GIS support.	2	X	X	X	X	X	N/A	
Increase coordination and cooperation with the RCDs and the agricultural community to advance to Title 27 requirements	2, 5	?	?	?	?	?	1B, 1E, 1G	
Prevent access and discharge to waste pits and ponds	2	X	X	X	X	X	N/A	
Continue to coordinate with the county to review septic system situations to avoid ground water contamination.	2	X	X	X	X	X	3.4B	
A monitoring workshop should be held in the Humboldt Bay area to coordinate among private, public groups, HSU, Shellfish TAC and other	3	?	?	?	?	?	1B, 1G, 2L, 3.6A, 4.1A	

Coordinate assessment and monitoring activities with local agencies and groups	3	?	?	?	?	?	1G, 2L, 3.6A	
Seek funding for a local Database/GIS System and coordinator	3	X	X	X	X	X	N/A	
Identify opportunities for redirection of staff resources and funding into additional assessment and monitoring functions.	3	X	X	X	X	X	N/A	
Support and promote educational opportunities for permitting, erosion control, wetlands values, and aquatic habitat restoration, develop a matrix of agencies and responsibilities to distribute at local permit centers. Tax	1, 2, 3, 4	?			?	?	1G, 2L, 3.6A, 5.4A, 5.3A	
Utilize Water Quality Attainment Strategies (“TMDL”) for reduction of	3	?			?	?	1A, 2	
Look at restoration projects from the standpoints of utility and effectiveness.	3	?	?	?	?	?	N/A	
Obtain dredging records to assist in the assessment of upslope activities and larger problems downstream in the waterways	3	?	?	?	?	?	5.1A & B	
Seek additional funding for staff and laboratory services to inspect and monitor water quality	3	X	X	X	X	X	N/A	
Address Clean Water Act Section 303(d) for the Mad River, Redwood Creek,	4	X			X	X	1G, 2L, 3.6A, 5.4A	
Improve habitat conditions for anadromous fishes by assisting and coordinating with CDFG and local agencies and groups in fishery assessment and by promoting grant funding for stream rehabilitation and monitoring.	4	?	?	?	?	?	2L, 5.4A	
Promote enhancement of riparian areas.	4	X	X	X	X	X	5.4A, 2L, 1G, 6D	
Support use of the State Mussel Watch Program within the Bay.	5	?			?	?	4.1A	
In cooperation with the Department of Health Services, Shellfish Program, explore pathogen issues with University of California at Davis	5	?	?	?	?	?	N/A	

\* GOALS from the WMI Chapter section for the Humboldt Bay WMA

- **GOAL 1: Protect surface water uses MUN, REC-1, REC-2, NAV, WILD, EST, MAR, MIGR, SPWN, SHELL**
- **GOAL 2: Protect ground water uses MUN, IND, AGR, REC-1, REC-2**
- **GOAL 3: Further and continued assessment and monitoring**
- **GOAL 4: Protect/enhance cold water fisheries**
- **GOAL 5: Protection of the commercial and recreational shellfish uses**

**Table 2 – Short Term Objectives: Eel River WMA**

Objective	GOAL Ref*	State Fiscal Year					Management Measures	Funded in FY 02-03
		01-02	02-03	03-04	04-05	05-06		
Develop strategies to implement and enforce best management practices for	1	X**			X	X	1D, 1G, 2I, 2L, 3.6A, 3.5B, 3.5D, 3.5F,	
Work with the timber industry to address timber harvest impacts and issues (. Work with USFS regarding timber harvest related activities, including road building and road abandonment, in the upper Eel Basin.	1	X	X	X	X	X	2A,B,C,D,E,I	
Investigate herbicide impacts to surface and ground water. Participate in Vegetation Management Advisory Committee.	1	?**	?	?	?	?	1D, 2I, 3.5D, 3.5F	
Promote grants for nonpoint source studies and implementation	1	X	X	X	X	X	5.4A	Yes
Increase coordination with RCD and agricultural community to address rangeland issues and confined animal problems.	1, 2	X	X	X	X	X	1B, 1E, 1G	Partial
Continue on-going activities associated with known ground water contamination	3	X	X	X	X	X	N/A	
Prevent access to waste pits and ponds.	3	X	X	X	X	X	N/A	
Coordinate with the counties on septic system situations and reporting on septage disposal.	3	X	X	X	X	X	3.4B	
Promote erosion control educational materials and	1	?			?	?	1G, 2L, 3.6A, 5.4A,6A	Yes
Compare new air photos with historical air photos and note changes in the morphology of channels.	1	?	?	?	?	?	1G, 2L, 3.6A, 3.5B, 3.5E	
Develop a road map of groups/agencies responsible to assist an individual landowner in a given waterbody or type of problem or situation.	1	?	?	?	?	?	1G, 2L, 3.6A, 5.4A,6A	
Inspect construction sites for erosion controls, encourage local agencies to adopt and	1	?	?	?	?	?	3.2A, 3.2B, 5.4A	

enforce local ordinances for erosion control. Increase storm water program resources								
Fund PYs for coordinating our functions with other agencies on a watershed basis.	1	?	?	?	?	?	1G, 2L, 3.6A, 3.5B, 3.5E	Partial
Improve water quality assessment and monitoring activities	1	?	?	?	?	?	N/A	
Tax incentives for erosion control and aquatic restoration activities should be supported and pursued.	1	?	?	?	?	?	N/A	
Promote enhancement of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups.	1	?	?	?	?	?	1G, 2L, 5.4A	Yes
Improve habitat conditions for anadromous fishes by assisting and coordinating with CDF&G and local agencies and groups.	1	?	?	?	?	?	5.1A, 5.4A	Yes
Coordinate water rights/dams issues with SWRCB and other agencies.	1	?	?	?	?	?	N/A	
Be part of the process and decision criteria regarding amounts, locations, and seasonality of gravel extractions	1	?	?	?	?	?	5.1A, 5.1B	
Encourage the local planning agencies to endorse the concept of a riparian corridor reserve and develop a model erosion control ordinance for all grading and building projects less than 5 acres in size. Coordinate with local agencies, CalTrans, and the Railroad Authority to develop and implement best management practices for erosion control.	1	?	?	?	?	?	1A, 3.1, 3.5A	
Develop and implement a focused sampling program for temperature, sediment loading, geomorphology changes and water quality in upper mainstem Eel River.	1, 2	?	?	?	?	?	N/A	
Support CDFG efforts to identify the extent of squawfish predation on	1	X	X	X	X	X	N/A	

salmon and steelhead populations and evaluate management strategies to eliminate squawfish predation and/or population within the river and Lake Pillsbury.								
Increase staff priority to develop general permits for agricultural activities	2	?	?	?	?	?	N/A	
Investigate the feasibility and impacts to beneficial uses if Eel River estuary and lower mainstem are dredged to remove well documented sediment clogging in watershed.	2	?	?	?	?	?	5.1A	
Streamline 401 water quality certification program for small dischargers and encourage better use of existing BMP's for erosion.	2	X	X	X	X	X	N/A	
Establish and fund an Eel River watershed coordinator position to develop outreach programs.	2	?	?	?	?	?	1G, 2L, 5.4A	
Prepare, develop, and implement a program to educate the public, local, city, and state Agencies, along with private industry, on discharges of toxic chemicals.	3	?	?	?	?	?	1G, 2L, 3.6A	

\* GOALS from the WMI Chapter section for the Eel River WMA

- **GOAL 1: Protect and enhance the salmonid resources (COLD)**
- **GOAL 2: Protect other surface water uses (MUN, AGR, REC 1, REC-2)**
- **GOAL 3: Protect ground water uses (MUN, IND. AGR, REC-1, REC-2)**
- **GOAL 4. Protect warmwater fishery resources**

**Table 2 – Short Term Objectives: Trinity WMA**

Objective	GOAL Ref*	State Fiscal Year					Management Measures	Funded in FY 02-03
		01-02	02-03	03-04	04-05	05-06		
Increase level of CDF Review Team activities including inspections	1,3	X	X	X	X	X	2A, 2B, 2E, 2K	Yes
Increase level of review of USFS Timber Sales	1,3	X	X	X	X	X	2A, 2B, 2E, 2K	Yes
Increase implementation of USFS/SWRCB MAA for non-timber NPS issues for Shasta/Trinity National Forest	1,3						2A, 2B, 2E, 2K	Partial
Inventory and assess abandoned and active mines and remediate as necessary	2, 3						N/A	No
Investigate and assess old burn dumps for hazardous materials release	2,3						N/A	No
Review restoration and habitat enhancement projects for implementation of Best Management Practices (BMP) and NPS Management Measures (MM)	1,2,3						1C, 1D, 1E,5.1, 5.3, 6B	No
Assess roads associated with Buckhorn Dam for erosion control and upslope slumping	1, 3						2D, 5.2	No
Investigate and assess onsite disposal systems for compliance	2						3.4	?
Monitor projects to determine the effectiveness of BMPs and MMs	1, 3						Various	No
Continue outreach, education, and coordination with locals, and the TRTF through the TMDL process	1, 2, 3						1G, 2L, 3.6, 5.4, 6D	?
Continue to implement the 404/401 certification process	1, 2, 3						1, 2, 5, 6	?
Increase level of investigation, monitoring and enforcement of petroleum and wood treatment chemical contamination of ground water	2						3.3	No
Continue active involvement in federal and state grant programs, promote local activities and watershed groups	1, 3	X	X	X	X	X	1, 2, 3, 5, 6	Partial
Adopt an implementation plan for sediment control	1, 3						1A, 2, 3.5F, 5, 6	

\* GOALS from the WMI Chapter section for the Trinity WMA

- **GOAL 1: Protect and enhance salmonid resources (COLD,MIGR, SPWN, RARE)**
- **GOAL 2: Protect and enhance ground water resources and attendant beneficial uses**
- **GOAL 3: Protect all other surface water uses**



**TABLE 2A: Education, Outreach, and Technical Assistance**

**Watershed: Regionwide**

<b>Target Audience</b>	<b>Education/Outreach/Assistance GOALS</b>	<b>Product(s)</b>	<b>Staff or Contract</b>	<b>Management Measure Category</b>
Water quality monitors	<ul style="list-style-type: none"> <li>• Monitoring Study Group</li> <li>• Measure effectiveness of BMPs</li> </ul>	<ul style="list-style-type: none"> <li>• Design of monitoring programs</li> </ul>	Staff	2
Public and timber industry	<ul style="list-style-type: none"> <li>• Cumulative Watershed Effects Workshop</li> <li>• Educate about the current process</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate cumulative watershed effects</li> </ul>	Staff	2
Staff, agencies, timber industry	<ul style="list-style-type: none"> <li>• Erosion Control Seminar</li> <li>• Convey newest/best techniques of erosion control</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion control on roads and large land clearings (such as vineyards)</li> </ul>	Staff	2
Forest herbicide users	<ul style="list-style-type: none"> <li>• Weed Seminar</li> <li>• Review/update on regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Protect water quality from herbicides</li> </ul>	Staff	2
Agencies and watershed groups	<ul style="list-style-type: none"> <li>• Completion of Watershed Assessment Efforts</li> <li>• Assessment goals for individual WMAs</li> </ul>	<ul style="list-style-type: none"> <li>• Completed watershed assessments</li> </ul>	Staff	1,2,3, 5,6
Elementary school children	<ul style="list-style-type: none"> <li>• Understanding the importance of clean water</li> </ul>	<ul style="list-style-type: none"> <li>• Active citizens</li> </ul>	Staff	1G, 2L, 3.6, 4.3, 5.4, 6D

**TABLE 2A: Education, Outreach, and Technical Assistance**

**Watershed: Russian/Bodega Watershed Management Area**

<b>Target Audience</b>	<b>Education/Outreach/ Assistance GOALS</b>	<b>Product(s)</b>	<b>Staff or Contract</b>	<b>Management Measure Category</b>
Growers, landowners	<ul style="list-style-type: none"> <li>• Reduce discharges from hillside vineyards and other agricultural sites</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced erosion and sedimentation</li> <li>• Reduced nutrient discharges</li> </ul>	Staff	1A, 1E, 1G
Local dairy industry	<ul style="list-style-type: none"> <li>• Improve management practices</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced erosion and sedimentation</li> <li>• Reduced nutrient discharges</li> </ul>	Staff	1B, 1C
Rural residential road owners	<ul style="list-style-type: none"> <li>• Road restoration/retirement and repairs</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced erosion and sedimentation</li> <li>• Improve anadromous fish habitat</li> </ul>	Staff	Various
Agricultural producers	<ul style="list-style-type: none"> <li>• Promote habitat/riparian restoration in existing agricultural areas</li> <li>• Fishery assessment</li> <li>• Promote grant funding for stream rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>• Improve habitat conditions for anadromous fishes</li> </ul>	Staff	1A, 1E, 5.1, 5.2, 5.4A

Landowners	<ul style="list-style-type: none"> <li>Promote awareness of the effects of increased erosion on channel morphology</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced salmonid habitat</li> </ul>	Staff	5.1 - 5.4, 3.1A
Other agencies	<ul style="list-style-type: none"> <li>Improve agency coordination regarding Bodega Harbor runoff issues and marina and dry dock operations</li> <li>Encourage the pursuit of a 205(j) grant.</li> </ul>	<ul style="list-style-type: none"> <li>Improve water quality in Bodega Bay</li> </ul>	Staff	3.1-3.3, 3.6, 4.1-4.3

**TABLE 2A: Education, Outreach, and Technical Assistance**

**Watershed: Klamath Watershed Management Area**

<b>Target Audience</b>	<b>Education/Outreach/ Assistance GOALS</b>	<b>Product(s)</b>	<b>Staff or Contract</b>	<b>Management Measure Category</b>
<b>LOST RIVER Subwatershed</b>				
Watershed groups, non-profits	CWA 104, 205(j), 319(h) and Fish and Game 271 grants	Grant projects for control of tailwater	Staff	1F, 1C, 1G, 5.4A, 6D
<b>UPPER KLAMATH Subwatershed</b>				
Watershed groups, non-profits	CWA 104, 205(j), 319(h) and Fish and Game 271 grants	Grant projects	Staff	5.4A
<b>MIDDLE KLAMATH Subwatershed</b>				
Local community	Promote assessment and restoration activities	Sediment control in the upper Scott River watershed	Staff	1A, 1G, 1E, 2L
Watershed groups, nonprofits	CWA 104, 205(j), 319(h) and Fish and Game 271 grants	Grant projects for nonpoint source control of agricultural, construction, and timberland in the Shasta, Scott, and Salmon rivers	Staff	1A, 1G, 1E, 2L, 5.4A
Watershed groups, nonprofits	Attend watershed group meetings	Development of TMDLs in designated sub- basins	Staff	2L
<b>LOWER KLAMATH Subwatershed</b>				
Timber companies	Foster long-term water quality monitoring	Monitoring data and water quality trends	Staff	2L

**TABLE 2A: Education, Outreach, and Technical Assistance**

**Watershed: Garcia River Watershed**

<b>Target Audience</b>	<b>Education/Outreach/ Assistance GOALS</b>	<b>Product(s)</b>	<b>Staff or Contract</b>	<b>Management Measure Category</b>
Local landowners	<ul style="list-style-type: none"> <li>Increase awareness of nonpoint source pollution</li> </ul>	<ul style="list-style-type: none"> <li>Enhance anadromous fish resources</li> </ul>	Staff	2I, 5.4A
Watershed groups, nonprofits, agencies	<ul style="list-style-type: none"> <li>CWA 104, 205(j), 319(h) and fish and Game 271 grants</li> </ul>	<ul style="list-style-type: none"> <li>Grant projects</li> </ul>	Staff	5.4A
Ranchers	<ul style="list-style-type: none"> <li>Rangeland Water Quality Management Plans</li> </ul>	<ul style="list-style-type: none"> <li>Reduced erosion, sedimentation and nutrient delivery to surface waters</li> </ul>	Staff	1E
Users of agricultural and residential storage tanks	<ul style="list-style-type: none"> <li>Education through the Mendocino County Health Department</li> </ul>	<ul style="list-style-type: none"> <li>Prevent pollution from storage tanks</li> </ul>	Staff	N/A

**TABLE 2A: Education, Outreach, and Technical Assistance**

**Watershed: Gualala River Watershed**

<b>Target Audience</b>	<b>Education/Outreach/ Assistance GOALS</b>	<b>Product(s)</b>	<b>Staff or Contract</b>	<b>Management Measure Category</b>
Landowners, watershed groups	<ul style="list-style-type: none"> <li>• Recognition of land use impacts on the aquatic environment from nonpoint sources</li> </ul>	<ul style="list-style-type: none"> <li>• Improved anadromous fish habitat</li> <li>• Reduction in erosion and sedimentation</li> </ul>	Staff	2L, 3.6A
Watershed groups, nonprofits, agencies	<ul style="list-style-type: none"> <li>• CWA 104, 205(j), 319(h) and Fish and Game 271 grants</li> </ul>	<ul style="list-style-type: none"> <li>• Grant projects</li> <li>• Improved anadromous fish habitat</li> </ul>	Staff	5.4A
Gualala River Watershed Council	<ul style="list-style-type: none"> <li>• Attend meetings</li> <li>• Consult with other entities and agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholder involvement</li> </ul>	Staff	1G, 2L, 3.6A, 5.4A

**TABLE 2A: Education, Outreach, and Technical Assistance**

**Watershed: Humboldt Watershed Management Area**

<b>Target Audience</b>	<b>Education/Outreach/ Assistance GOALS</b>	<b>Product(s)</b>	<b>Staff or Contract</b>	<b>Management Measure Category</b>
Agencies, Watershed groups, public	<ul style="list-style-type: none"> <li>• Provide information</li> <li>• Receive input from agencies and the public</li> </ul>	<ul style="list-style-type: none"> <li>• Interagency coordination</li> <li>• Stakeholder involvement</li> </ul>	Staff	1G, 2L, 3.6A
Landowners: agricultural community	<ul style="list-style-type: none"> <li>• CWA 104, 205(j), 319(h) and Fish and Game 271 grants</li> </ul>	<ul style="list-style-type: none"> <li>• Grant projects</li> </ul>	Staff	1G, 2L, 3.6A
Local watershed groups	<ul style="list-style-type: none"> <li>• Coordination of volunteer monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring data</li> </ul>	Staff	1G, 2L, 3.6A
Agricultural and timber industries and urban dwellers	<ul style="list-style-type: none"> <li>• Better understanding of cold water fisheries needs</li> </ul>	<ul style="list-style-type: none"> <li>• Improved anadromous fish habitat</li> </ul>	Staff	1G, 2L, 3.6A
The public and private industries	<ul style="list-style-type: none"> <li>• Provide information on good management practices</li> </ul>	<ul style="list-style-type: none"> <li>• Protection of surface water beneficial uses</li> <li>• Erosion control</li> </ul>	Staff	1G, 2L
Cattle producers	<ul style="list-style-type: none"> <li>• Promote good management practices</li> <li>• Implement the California Rangeland Water Quality Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce erosion</li> <li>• Reduce nonpoint source waste discharge</li> </ul>	Staff	1G, 1E
The public, local, city, state agencies, private industry	<ul style="list-style-type: none"> <li>• Educational program</li> </ul>	<ul style="list-style-type: none"> <li>• Prevention of toxic discharges to ground water</li> </ul>	Staff	1G

Confined animal facilities, rangeland owners, RCDs	<ul style="list-style-type: none"> <li>• Foster cooperation and coordination</li> <li>• Educational meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid ground water contamination</li> </ul>	Staff	1B, 1E, 1G
The public and agencies	<ul style="list-style-type: none"> <li>• Promote use of wastes at agronomic rates</li> <li>• Promote the Rangeland Water Quality Management Plan</li> <li>• Increase interagency coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Proper disposal of nonpoint source wastes</li> </ul>	Staff	1G, 1C, 1E, 3.6A
Private, public groups, HSU, and other agencies	<ul style="list-style-type: none"> <li>• Monitoring workshop</li> </ul>	<ul style="list-style-type: none"> <li>• Data exchange</li> <li>• Standardization of monitoring protocols</li> <li>• Standardization of volunteer monitoring</li> <li>• Coordinating data collection and analysis</li> </ul>	Staff	1B, 1G, 2L, 3.6A, 4.1A
Watershed groups	<ul style="list-style-type: none"> <li>• Watershed assessment</li> <li>• Obtain monitoring data</li> </ul>	<ul style="list-style-type: none"> <li>• Watershed Plans</li> <li>• Trends in water quality and habitat trends</li> </ul>	Staff	1G, 2L, 3.6A
The public, small and rural landowners	<ul style="list-style-type: none"> <li>• Placing educational handouts at local permit offices</li> <li>• Develop a road map of groups/agencies responsible to assist an individual landowner</li> </ul>	<ul style="list-style-type: none"> <li>• Educational materials and opportunities for permitting, erosion control, wetlands values, and aquatic habitat restoration</li> <li>• Enhanced cold water fisheries</li> </ul>	Staff	1A, 1G, 2L, 5.4A, 5.3A



	<ul style="list-style-type: none"> <li>Erosion control for small and rural landowners</li> <li>Develop a matrix of agencies and responsibilities to distribute at local permit centers</li> </ul>	<ul style="list-style-type: none"> <li>Increased assessment and monitoring</li> </ul>		
Landowners, construction, silviculture, agriculture industries	<ul style="list-style-type: none"> <li>Reduce nutrient, sediment, and chemical discharges from nonpoint sources.</li> </ul>	<ul style="list-style-type: none"> <li>Enforce best management practices for nonpoint source regulation</li> </ul>	Staff	1G, 2L, 3.6A, 5.4A
Landowners	<ul style="list-style-type: none"> <li>Assessment of sources, assessment of impairments, development of quantifiable targets, consideration of feasible solutions to reduce sources, and coordinated monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Establish sediment reduction strategies</li> </ul>	Staff	1G, 2L, 3.6A, 5.4A
Watershed groups, other agencies	<ul style="list-style-type: none"> <li>To improve riparian functions for shading, buffering land use impacts, bank stabilization, and habitat</li> </ul>	<ul style="list-style-type: none"> <li>Enhancement of riparian areas</li> </ul>	Staff	5.4A, 2L, 1G, 6D

**TABLE 2A: Education, Outreach, and Technical Assistance**

**Watershed: Eel River Watershed Management Area**

<b>Target Audience</b>	<b>Education/Outreach/ Assistance GOALS</b>	<b>Product(s)</b>	<b>Staff or Contract</b>	<b>Management Measure Category</b>
Local Landowners in Eel and Van Duzen Rivers	<ul style="list-style-type: none"> <li>• TMDL requirements</li> <li>• Provide sediment reduction strategies (BMPs)</li> </ul>	<ul style="list-style-type: none"> <li>• Guidance on BMPs</li> </ul>	Staff	1G, 2L, 3.6A
Local watershed groups, agencies, RCDs etc	<ul style="list-style-type: none"> <li>• CWA 104, 319(h) &amp; 205(j) and Fish &amp; Game 271 grants</li> </ul>	<ul style="list-style-type: none"> <li>• Grant projects</li> </ul>	Staff	5.4A
Small and Rural landowners	<ul style="list-style-type: none"> <li>• Promote erosion controls</li> </ul>	<ul style="list-style-type: none"> <li>• Educational handouts</li> </ul>	Staff	1G, 2L, 3.6A,
Public agencies, watershed groups, RCDs	<ul style="list-style-type: none"> <li>• Enhancement of riparian areas</li> </ul>	<ul style="list-style-type: none"> <li>• Grant projects</li> <li>• Educational materials</li> </ul>	Staff	1G, 2L, 3.6A 5.4A
Watershed Groups	<ul style="list-style-type: none"> <li>• Seal waste pit and ponds</li> <li>• Education on BMPs</li> </ul>	<ul style="list-style-type: none"> <li>• Host watershed group meetings</li> <li>• Implementation of Rangeland Management Planning process</li> </ul>	Staff	1C, 1E, 1F, 1G
Public, local, city, State agencies, and private industry	<ul style="list-style-type: none"> <li>• Reduce discharges of toxic chemicals</li> </ul>	<ul style="list-style-type: none"> <li>• Educational program</li> </ul>	Staff	1G 2L

**TABLE 3: WAIVERS OF WASTE DISCHARGE (General Categories)**

Waiver No./Name/Description	Management Measures	Review Schedule
Air conditioner, noncontact cooling and elevated temperature waters	3.3	All waivers will be reviewed by January 1, 2003
Drilling muds (not geothermal drilling muds)	N/A	
Clean oils	1D, 3.1, 3.2	
Minor dredge operations	5.1	
Inert solid wastes (nonwater soluble, non-decomposable, non-hazardous i.e. earth, rock, concrete)	N/A	
Test pumpings of fresh water wells	N/A	
Storm water runoff	3.1, 3.2, 3.3	
Erosion from minor construction projects	3.2	
Pesticide rinse waters from applicators	1D	
Confined animal wastes	1B	
Minor stream channel alterations and suction dredging	5.1	
Small, short-term sand, gravel, and quarry operations	5.1	
Small mining operations	N/A	
Swimming pool discharges	3.3	
Food processing wastes spread on land	1C, 1F	
Agricultural commodity wastes	1C, 1F	
Industrial wastes used for soil amendments	1C, 1F	
Timber harvesting	2	
Minor hydro projects	5	
Irrigation return water	1F	
Projects where application for Water Quality Certification has been requested		
Individual sewage disposal systems and small community, commercial, institutional, and industrial	3.2, 5	

operations which utilize on-site wastewater treatment and disposal for domestic wastes	3.4	
Flow-through seawater systems and aquacultural operations	4.2B	
Dewatering at construction projects	3.2	
Use of reclaimed wastewater for soil compaction or dust control, and other construction purposes	3.2	
Discharge from flushing of domestic water lines and tanks	3.3	
Lake or reservoir drainage projects	N/A	
Discharge from hydrostatic test lines	3.2, 3.3	
Low volume, noncontaminated wastewaters generated by the installation and purging of monitoring wells during ground water contamination investigations	3.1, 3.2, 3.3	
Discharges associated with the incineration of soils contaminated with petroleum hydrocarbons	3.3	

**TABLE 4: North Coast Region Key Partners**

<b>Existing or Potential Partner Agency:</b>	<b>MOU/MAA Title Content of potential/revised agreements:</b>	<b>Target date for review (existing) or adoption (potential):</b>	<b>Management Measure Categories:</b>
Sonoma County and the South Park County Sanitation District (existing)	Plan of Action for HVOC Investigation and Mitigation in the Roseland Area	Monthly reports, Final Report 2/15/02	HVOC ground water plume, (maybe 3.3A)
Humboldt Bay Shellfish Technical Advisory Committee (includes: shellfish industries, local wastewater treatment plants, regulatory agencies, agricultural & environmental interests)	Regional Water Board Resolution No. 94-78 established the TAC per the Shellfish Protection Act of 1993. The purpose of the TAC is to advise and assist the Regional Water Board in developing an investigation and recommendation strategy to control pollution from commercial shellfish growing waters in Humboldt Bay and to pursue appropriate funding.	A report was submitted in May 1999 with recommendations. A bacteria study of runoff to the Bay is currently underway and funded by the State Water Resources Control Board.	4.2B (maybe 1B, 1C)

**TABLE 5: PROPOSED SFY 2002/03 NONPOINT SOURCE RESOURCE ALLOCATION (Includes activities for which funding has not been identified; Does not include TMDL activities not funded by 319(h))**

<b>Task</b>	<b>Product</b>	<b>Management Measure(s)</b>	<b>Staff or Contract</b>	<b>Cost</b>
Hillside vineyard education, outreach, inspections and enforcement	Fewer erosion sites	1A, E, G	Staff	\$220,000
Dairy outreach	Control of dairy waste	1B,C	Staff	\$110,000
TMDL Implementation Tasks	Fewer erosion sites	1,2,5	Staff	\$110,000
Perform nonpoint source inspections and follow-up	Increased awareness Enforcement of problems	1A-G, 2L, 3.6, 4.3, 5.4, 6D	Staff	\$330,000
Timber harvest plan review and inspection	Fewer erosion sites Improve riparian zone	2A-F, K	Staff	\$3.1 M
Maintain individual waste disposal systems program	Public health protection	3.4	Staff	\$33,000
Promote riparian zone restoration and channel morph considerations	Improved flood plain function Less stream bank erosion Less aggradation/degradation	1A, E 5.1, 5.2, 5.4A	Staff	\$55,000
NPS grant outreach and management	More NPS controls in place	5.4A	Staff	\$165,000
Monitor effectiveness of TMDL and management practices to reduce erosion and sedimentation	More effective NPS program Improved ability to judge control mechanisms	1A, 2	Staff	\$385,000
Increase RCD coordination to address rangeland and confined animal runoff problems	Less erosion Improved riparian zones Lower water temperatures Improved animal waste management	1B, 1E, 1G	Staff	\$110,000

STAFF COST – 1 PY = \$110,000

Contract cost is for the entire contract even if it is a multi-year contract.

**TABLE 6: NPS RESOURCE NEEDS 2002/03 THROUGH 2004/05**

<b>Task</b>	<b>Product</b>	<b>Management Measure(s)</b>	<b>Geographic Area</b>	<b>State Fiscal Year</b>	<b>Est. Cost PYs/Dollars</b>
Implement USFS/SWRCB MAA for non-timber NPS activities	<ul style="list-style-type: none"> <li>• Fewer erosion sites and sources of sedimentation</li> <li>• Road retirement</li> <li>• Improved riparian habitat</li> <li>• Fire management</li> <li>• Wetlands protection</li> </ul>	, 2C, 2D,2G,2H,2I, 2J, 5.1, 5.3,6A, 6B	Mendocino, Modoc, Six Rivers, Klamath, and Shasta/Trinity National Forests	2002 - 20053	2.5 PYs
Rural Road Issues	Less stream sedimentation and fish passage blockages	2C, 2D,2G,2H,2I, 2J, 5.1, 5.3,6A, 6B	Regionwide	2002-2005	2.0 PYs
Ranch Plan Reviews	Less stream sedimentation and fish passage blockages	2C, 2D,2G,2H,2I, 2J, 5.1, 5.3,6A, 6B	Regionwide	2002-2005	0.5 PYs

STAFF COST = 1PY = \$110,000

## Appendix E SWAMP Monitoring Stations

NCWAP 2001-02	Waterbody Name/Location	HUC	TYPE	Chem, Mtl, CHLa (3) and pcp/tcp	Organic (2)	BacT	MTBE (1)	Channel	vitell	RBA	Multi - Log
a	Smith River below Dr. Fine Bridge	103.11	P	5	3				1		
	Smith River - South Fork above Hiouchi	103.20	P	5	3				1		
	Smith River above South Fork	103.20	P	5	3				1		
	Klamath River below Horse Creek	105.00	P/S	5							
	Klamath River at Gottville River Access	105.00	P/S	5							
	Klamath River Below Iron Gate	105.00	P/S	5					1		
	Klamath River at Weitchpec	105.12	P/S	5					1		
	Klamath River at Seiad Valley	105.33	P/S	5							
Y	Scott River near Klamath River	105.40	P	5	3						1
Y	Scott River at Fort Jones	105.42	R	5							1
Y	Scott River u/s Etna Creek	105.42	R	5							1
Y	Scott River at Callahan	105.42	R	5							1
Y	Shasta River at Hwy 263	105.50	P/S	5	3						1
Y	Shasta River at Hwy 3	105.50	R	5	3						1
Y	Shasta River near Big Springs (d/s Parks Creek)	105.50	R	5	3						1
	Trinity River at Hoopa	106.11	R	5							
	Trinity River at Weitchpec	106.11	P	5					1		
	Trinity River at Salyer	106.13	R	5							
	Trinity River - North Fork at Helena	106.15	R	5					1		
	Trinity River - South Fork near Salyer	106.21	R	5							
	Trinity River at Douglas City	106.31	R	5							
	Trinity River at Poker Bar (d/s Grass Valley Cr.)	106.31	R	5							
	Trinity River at Lewiston	106.32	P	5					1		
	Redwood Creek at Orick	107.10	P	5							
	Little River at Crannel	108.20	R	5							
Y	Mad River at Blue Lake (hatchery)	109.10	P	5							
Y	Mad River at Butler Valley (d/s Boulder Creek)	109.30	R	5				1			
	Mad River, Ruth Lake, Stn #1	109.40	S				28				
	Mad River, Ruth Lake, Stn #2	109.40	R				28				
Y	Mad River, Ruth Lake, Outlet	109.40	R				4				
Y	Mad River at Ruth (u/s Ruth Lake)	109.40	R	5							



## Appendix E SWAMP Monitoring Stations

	Jacoby Creek - Lower	110.00	R	5				1		1	
	Jacoby Creek - Upper	110.00	R	5				1		1	
	Freshwater Creek - Lower	110.00	R	5				1		1	
	Freshwater Creek - Upper	110.00	R	5				1			
	Elk River at Fields landing	110.00	R	5							
	Elk River - North Fork	110.00	R	5							
	Elk River - South Fork	110.00	R	5							
	Salmon Creek at Hwy 101	110.00	R	5							
	Van Duzen River d/s of Yager Creek	111.11	R	5							
	Eel River at Holmes	111.12	P	3	3						
	Yager Creek at Carlotta	111.21	R	5				1			
	Van Duzen River at Bridgeville	111.22	R	5							
	Van Duzen River near Dinsmore	111.22	R	5							
	Eel River, South Fork d/s of Bull Creek	111.30	P	6							
	Eel River, South Fork near Benbow	111.32	R	5							
	Eel River, South Fork near Branscomb	111.33	P	3				1	1		
	Elder Creek at Eel River	111.33	R	5							
	Eel River, above Dyerville	111.41	P	6							
Y	Eel River above Dos Rios	111.41	P	3						1	
Y	Eel River near Alder Point	111.42	R	5							
Y	Eel River - North Fork near Mina	111.50	R	5							
Y	Eel River near Hearst	111.62	R	8						1	
	Eel River, Lake Pillsbury, St #1	111.63	R				28				
	Eel River, Lake Pillsbury, St #2	111.63	R				28				
	Eel River, Lake Pillsbury, Outlet	111.63	R				4				
Y	Eel River at Van Arsdale Reservoir	111.63	R	5	3					1	
Y	Eel River, M Fork at Dos Rios	111.70	P	3							
	Gualala River at Gualala Regional Park	113.82	P	5							
	Russian River at Guerneville	114.11	P/S	5	5					1	
	Russian River at Healdsburg	114.24	P/S	5	5					1	
	Russian River at Cloverdale	114.26	P/S	5	5					1	
	Russian River at Talmage (Ukiah)	114.31	P/S	5	5					1	
	Number of samples per analyte group			273	47	0	120	7	16	3	
	Analysis cost per sample			\$660	\$483		\$150	\$5,000	\$3,000	\$2,500	

## Appendix E SWAMP Monitoring Stations

	Cost per analyte group		\$180,180	\$22,701	\$0	\$18,000	\$35,000	\$48,000	\$7,500	
							\$20,000			
	Total Analysis Cost		\$317,051							
	DFG Data Reports (4)		\$12,600							
	Van Duzen River Stream Gage		\$20,000							
	Sequoia Analytical Allocation		\$13,000							
	Total to DFG Contract		\$294,651							
	Total to USGS Contract		\$55,000							
	Total to Sequoia Contract		\$13,000							
	Contract Total		\$362,651							
	DFG Pass-thru Overhead		\$15,392							
	Grand Total		\$378,043							
	<b>TOTAL COSTS</b>		<b>\$378,043</b>							
	<b>Total R1 Allocation</b>		<b>\$392,614</b>							
	<b>Unallocated Funds</b>		<b>\$14,571</b>							
	Note 1	6 samples per strn, 2stns per lake, 4 events + 4 outlet, NCRWQCB will collect samples								
	Note 2	Full Scan - pesticides and Aroclors								
	Note 3	Based on RWQCB collecting samples, actual sample collection costs may be higher than projected \$60 per sample if DFG collects sample								
	Note 4	\$1,575 per data batch, 8 data batches (5 sampling events, 2 MtBE events and 1 vitellogenin event)								

NCWAP Station=N. Coastal Watershed Assessment Program stations, Y=stations that will also be used in support of the NCWAP program  
 Suspect Problem=suspected problem, Y=we expect to document water quality problems at the station  
 HUC=hydrological unit  
 Type=station type—P=permanent, R=rotating, S= ,P/S=  
 Chem mtl, CHLa, and pcp/tcp=water chemistry (minerals, nutrients, pH, dissolved oxygen, conductance) heavy metals, Chlorophyll a, PCP and TCP  
 Organic=organic compounds  
 BacT=bacterial analyses  
 MtBE=MtBE analysis  
 Channel=channel morphology including sediment transport  
 Vitell=vitellogenin screening for xenobiotic estrogens  
 RBA=Rapid bioassessment for macro-invertebrates  
 Multi-log=Multi-parameter data loggers





















