

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 elevated temperatures. The Action Plan for the Garcia River Watershed Sediment TMDL (Garcia TMDL Action Plan) was adopted into the Water Quality Control Plan for the North Coast Region on January 3, 2002.

WATERSHED DESCRIPTION

The Garcia River watershed comprises approximately 73,223 acres in southwestern Mendocino County. The Garcia River watershed is in the hydrological unit 113.70. 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 conifers in the riparian zone. The primary land uses; forestry, dairies, grazing, and gravel mining, have changed little in the last two decades.



vineyards in the future.

Timber harvesting is the dominant land use activity in the watershed. 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 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 ownerships. Hillside vineyard development is a concern for production of sediment as land is converted to new

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.

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. 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 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.

The Critical Coastal Areas in this watershed are the Garcia River and the Kelpbeds at Sanunders Reef. See Appendix C for more information about these Critical Coastal Areas.

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 anadromous fisheries have experienced severe decline in the last 40 years. 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, pink salmon, chinook salmon and steelhead trout. Natural processes combined with multiple land uses are responsible to varying degrees for impairment of the beneficial uses within the Garcia River watershed. Anthropogenic sediment contributions from accelerated erosion and mass wasting have resulted from land use activities including timber production and harvest, road construction and maintenance, grazing, gravel mining, and agriculture. The Action Plan (refer to the Implementation section below) contains additional detail on land use and changes over time.

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. 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.

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.

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.

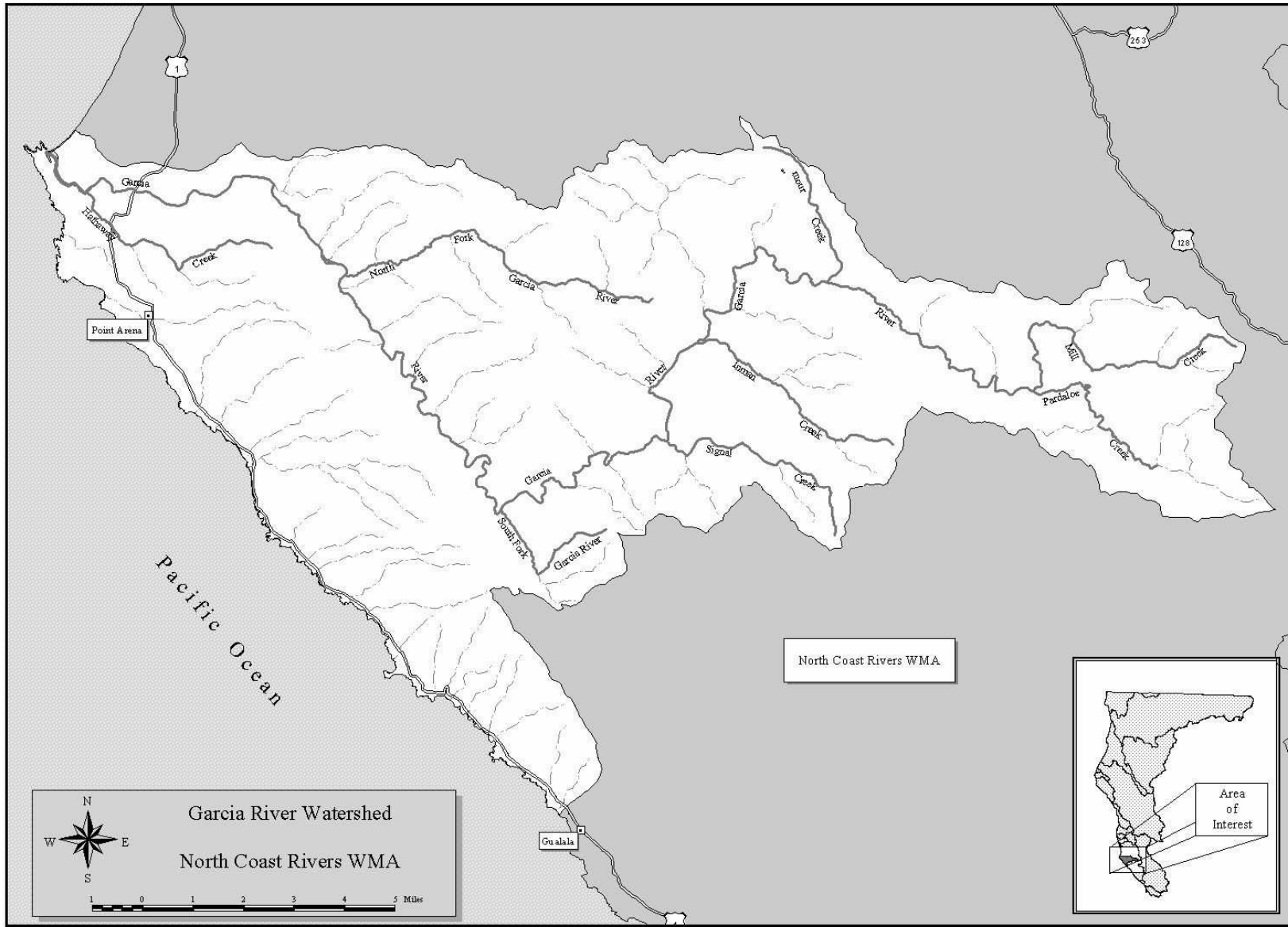


Figure 2.3.11.1 Garcia River Watershed

Primary water quality problems in the Garcia River watershed

- Sedimentation of streams
- Salmonid habitat degradation
- High water temperatures

WATER QUALITY GOALS AND ACTIONS

Staff members familiar with our activities in the watershed, 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. The goals and rankings were developed prior to the development of the Acton Plan.

The broad goals for the watershed 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

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

The Regional Water Board 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

- Assist landowners in development of compliance documents for the Garcia River TMDL Action Plan
- Participate in the THP review team and preharvest inspections
- Review and comment on SYPs and HCPs to ensure consistency with the Garcia River TMDL Action Plan
- Provide outreach and education to local landowners
- Promote and manage 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 Garcia River TMDL Action Plan
- Enforce on violations of the Basin Plan and/or Garcia River TMDL Action Plan
- Stay involved in and promote the above considerations in the section 404 permit process and CDFG 1603 process
- Supplement the Garcia River TMDL Action Plan by doing the following:
 - Inventory landowner and county road problems

- Promote effective drainage techniques for roads to prevent sediment discharges to watercourses
- Develop specific targets for implementation measures within the watershed
- 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, including sources related to new development of hillside vineyards
- 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 options
- 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
- 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
- Participate on the Regional Committee to develop Critical Coastal Area Action Plans and implement projects in the Critical Coastal Areas of Garcia River and the Kelpbeds at Saunders Reef.

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.

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, staff will address them through this process.

IMPLEMENTATION STRATEGY

The primary emphasis in the watershed will be the continued implementation of the Garcia River TMDL Action Plan. Our core regulatory and toxics site mitigation activities will continue at their current levels. Landowners within the Garcia River watershed are provided three strategies, known as "Options", as a way to ensure that the land they own and manage will achieve compliance with the TMDL Action Plan. As of January 3, 2002, all landowners are subject to two new waste discharge prohibitions, also known as Option 1. The following are the new Option 1 waste discharge prohibitions in the Garcia River watershed:

- The controllable discharge of soil, silt bark, slash, sawdust, or other organic and earthen material from any logging, construction, gravel mining, agricultural grazing, or other activity of whatever nature into waters of the State within the Garcia River watershed is prohibited.
- The controllable discharge of soil, silt bark, slash, sawdust, or other organic and earthen material from any logging, construction, gravel mining, agricultural grazing, or other activity of whatever nature to a location where such material could pass into waters of the state is prohibited.

Option 1 is the default option for landowners that have not submitted a signed Statement of Intent to comply with the Option 2 or 3 strategies described below.

A second strategy, known as Option 2, requires a landowner to develop an Erosion Control Plan and a Site-Specific Management Plan (SSMP) for their entire property. The Erosion Control Plan is an inventory of all controllable sediment delivery sites that have the potential to deliver ten cubic yards of sediment or greater to waters of the state over the life of the TMDL (40 years). The inventoried sediment delivery sites are then placed on a schedule to be mitigated over the next ten years. The SSMP is a list of management practices developed by the landowner to be conducted in the future as a means of preventing sediment delivery into watercourses. Additionally, an inventory of all unstable areas (slides) on the landscape is required. The SSMP measures must provide roughly equivalent protection as that of the corresponding Garcia River Management Plan (GRMP) measures. The GRMP are a set of Best Management Practices contained in the TMDL Action Plan.

The Option 3 strategy also requires the development of an Erosion Control Plan, but instead of developing a SSMP, the landowner agrees to follow the GRMP measures. The GRMP contains land management measures that apply to roads, watercourse crossings, slides, riparian zones, and near stream facilities designed to prevent the

delivery of sediment to waters of the state. All landowners are provided three compliance strategies, or options, to comply with the Garcia River TMDL Action Plan. All landowners are encouraged to develop Erosion Control Plans and Management Plans to control and prevent sediment discharges to watercourses within the Garcia River watershed.

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 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 for sediment. Go to <http://www.waterboards/northcoast/programs/tmdl/Status.html> to view the TMDL and Action Plan.

Assessment and Monitoring

The Monitoring Plan is an important component to the overall Garcia River TMDL Action Plan. Landowners who are implementing approved compliance documents are required to submit annual hillslope monitoring reports to the Regional Water Board regarding all mitigation conducted during the previous year as well as to report any additional sediment sources. Instream water quality monitoring is conducted in the watershed on a voluntary basis and several landowners and interested parties are currently implementing these efforts with grant funding supplied through the Regional Water Board. These monitoring efforts 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. The Monitoring Plan will help assess progress towards attainment of the desired future conditions as expressed by the numeric targets.

More information and data are available at <http://www.krisweb.com/>.

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 sub-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.

The monitoring strategy is contained in the Garcia River TMDL Action Plan but needs to be refined. The Regional Water Board 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 Garcia River TMDL Action Plan and assist in the application and evaluation of the numeric targets and implementation measures. First-round TMDL monitoring occurred in the spring of 2000, and SWAMP stations were included for FY 2000-01 for general water quality information. Additional details on Regional Water Board monitoring and assessment needs are presented in Appendix 2.3.11-B.

Education and Outreach

The Regional Water Board 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 Garcia River TMDL Action Plan. The sub-watershed prioritization will be used as the primary determining factor for staff involvement.

Core Regulatory

The Regional Water Board plans 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 Garcia River TMDL Action Plan.

Ground water

Ground water issues center around petroleum and other toxic contamination at specific sites. The Regional Water Board 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 Garcia River TMDL 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 plan, including assessment and monitoring, education and outreach, coordination, local contracts, and water quality planning

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. 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 are necessary.

Vineyards are rapidly expanding in the watershed. 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.

Regional Water Board staff is proposing a new Total Maximum Daily Load (TMDL) Implementation Policy for Sediment Impaired Receiving Waters in the North Coast Region, which is applicable to all sediment impaired watersheds in the Region except the Garcia River watershed. Also under development is a Regional Sediment Amendment to the Basin Plan with prohibitions and an Action Plan, which will provide more enforcement tools to the TMDL Implementation Policy for controlling sediment. See Section 3, Regional Activities for more information on these efforts. These efforts will not supercede the Garcia TMDL Action Plan, but adds actions available to Regional Water Board staff.

In addition, the Regional Water Board staff will participate on the Regional Committee to develop Critical Coastal Area Action Plans and implement projects in the Critical Coastal Areas of the Garcia River and the Kelpbeds at Saunders Reef.

Timber Harvest

The Regional Water Board has an extensive timber harvest program where staff review and inspect timber harvest plans on private lands for implementation of the Forest Practice Rules and compliance with recently adopted General Waste Discharge Requirements (WDRs) or a Categorical Waiver. Additionally, staff reviews U.S. Forest Service timber sales for implementation of best management practices and compliance with a recently adopted Categorical Waiver to ensure protection of water quality and beneficial uses.

Regional Water Board staff continues to work in concert with the California Department of Forestry and Fire Protection during the review and approval of proposed timber harvesting activities on private lands. The SWRCB and CDF/BOF entered into a Management Agency Agreement, which delegates some water quality protection responsibilities 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. More recently however, the Regional Water Board adopted General WDRs and a Categorical Waiver of WDRs for discharges related to timber harvesting on private timberlands. Regional Water Board staff continues to review timber harvest plans (THPs) and non-industrial timber management plans (NTMPs) and provide recommendations to CDF during the Review Team process. In addition, Regional Water Board staff must review THPs and NTMPs for compliance with the recently adopted General WDRs or waivers of WDRs.

The Regional Water Board currently has resources to oversee timber sale activities associated with USFS lands pursuant to the USFS MAA. Regional Water Board staff continues to review USFS timber harvesting activities for compliance with the recently adopted Categorical Waiver of WDRs and implementation of best management practices. Review of non-timber nonpoint source activities on USFS land is not well funded. Regional Water Board staff is unable to implement this portion of the USFS MAA except for responding to complaint issues on a case-by-case basis. This is a significant issue for future oversight by the Regional Water Board for these activities.

Local Contracts/Agreements

The Regional Water Board will continue active involvement in the Clean Water Act section 319(h) grant program and Water Bond grant programs, 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 watershed:

- 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
- Perform Triennial Review of the Basin Plan

Evaluation and Feedback

The Regional Water Board plans 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.

BUDGET

The Regional Water Board 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 currently not addressed. Monitoring and assessment needs are detailed in Appendix 2.3.11-B, and nonpoint source activities are contained in Appendix B.

Additional funding to conduct outreach and enforcement activities on new developments of hillside vineyards is needed to pursue the actions not currently addressed.

Appendix 2.3.11-A Stakeholders

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 (NOAA Fisheries)
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
Department of Parks and Recreation

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 River
Sierra Club
Mendocino Watershed Service
CalTrout
Coast Action Group
Agricultural Landowners Association
Mendocino County Farm Bureau
Garcia Watershed Advisory Group

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.

1. Updated Aerial Photos - \$37,000 (0.2 PY + \$15,000)

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)

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 watershed in FY 2000-01 at three stations: Garcia River near Point Arena, Garcia River at Eureka Hill Road bridge, and South Fork Garcia River.

