

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) technical TMDL 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 square miles. 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 Ten Mile is in the hydrological unit 113.13. See Figure 2.3.4.1 below.



The watershed is entirely privately owned, with Hawthorne Timber Company, LLC (managed by Campbell Timberland Management, LLC), 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. Hardwood species such as tanoak and Pacific madrone are other common components of conifer stands, though only on xeric sites. Interior live oak is a minor component at most xeric sites on inland ridges. Near the headwaters open grassland dominates with an overstory of California black oak and Oregon white oak punctuated with Douglas-fir/redwood/tan oak stand.

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 has 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 that 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 have been proposed for this basin. As with many of the north coast watersheds, the coldwater 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 coldwater 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)

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 basin wide 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.

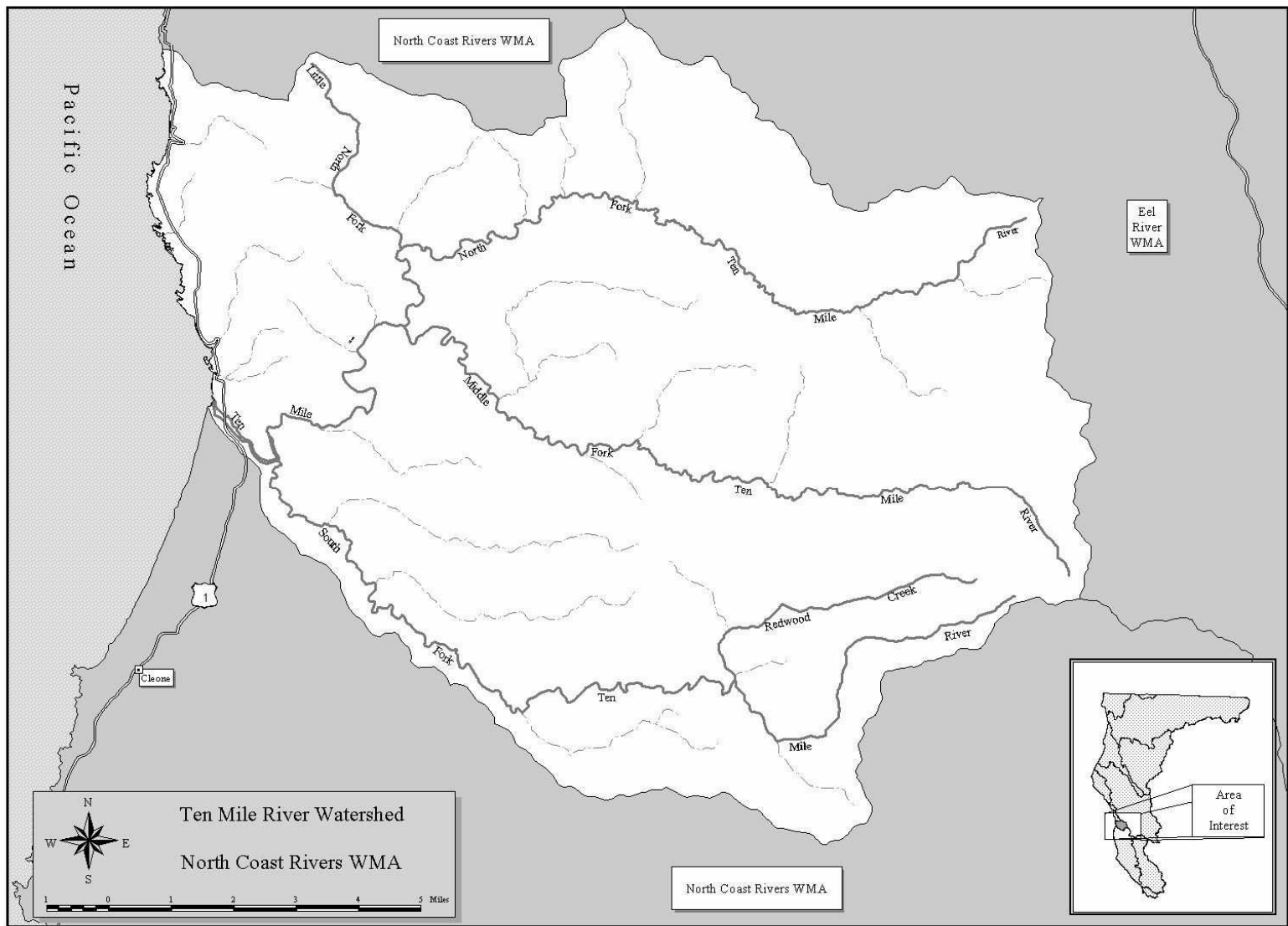


Figure 2.3.4.1. Ten Mile River Watershed

The existing data indicate that coho salmon continue to spawn and rear with some regularity in the Ten Mile River and tributaries. Chinook were 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. Unfortunately, very limited data regarding chinook salmon has been collected over the years.

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. 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 degrees 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.

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.
- The percentage of habitat in scour pools is extremely poor.
- The availability of C-type channel is limited.

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.

Primary water quality issues in the Ten Mile River watershed

- Salmonid habitat disturbance
- Lack of large woody debris
- High water temperatures
- Sedimentation of streams

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.

WATER QUALITY GOALS

- **Protect surface and ground water MUN, DOM, REC-1, and REC-2 uses**
- **Protect and enhance beneficial uses associated with anadromous fishes COLD, MIGR, SPWN, EST, COMM**

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

IMPLEMENTATION STRATEGY

Implementation will occur in the form of the TMDL waste load reduction strategy for sedimentation that will 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 and development of the strategy incorporated significant interagency and public coordination.

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. See <http://www.krisweb.com/> for more information and data.

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. 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.

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*, and 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, and Gulch 27.

Education and Outreach

The TMDL process will enhance public and agency participation. The 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

The Regional Water Board currently coordinates with local and State agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process.

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.

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's Nonpoint Source Enforcement Policy (see Appendix B). 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 are necessary.

In addition, 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. 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.

Timber Harvest

The Regional Water 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. Program activities are expanding on private land in concert with California Department of Forestry and Fire Protection. 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. The Regional Water Board reviews timber harvest plans (THPs) and non-industrial timber management plans (NTMPs) and provides recommendations to CDF.

In addition, THPs and NTMPs must comply with general or individual WDRs or waivers of WDRs.

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

Local Contracts/Agreements

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

Evaluation and feedback

Progress will be evaluated on a yearly basis, the TMDL providing the focus.

BUDGET

The Regional Water Board will attempt to fund the highest priority actions as identified in this watershed to the extent funding constraints allow, and will pursue additional funding to conduct outreach and enforcement activities as needed to pursue the actions currently not addressed.

Appendix 2.3.4-A Stakeholders

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

United States

Environmental Protection Agency
Fish and Wildlife Service
National Marine Fisheries Service (NOAA Fisheries)
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
Department of Parks and Recreation

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)
Coastal Land Trust
Mendocino Coast Watch
Mendocino Land Trust
Redwood Coast Land Conservancy
Redwood Community Action Agency