SECTION 1: INTRODUCTION

1.1 Introduction and Background

This watershed plan was made possible through Grant #P0150016 from the Department of Fish and Game, the National Oceanic and Atmospheric Administration and the California Coastal Salmonid Recovery Program. The Cachuma Resource Conservation District performed field surveys and managed production of the plan.

1.1.1 Vision and Goals

The Carpinteria Creek Watershed Coalition is a group of private landowners, farmers, ranchers, nonprofit organizations, local, state and federal agencies, which came together in 2001 with a common vision for the Carpinteria Creek watershed. The Coalition's vision was "*the collaborative restoration and protection of the integrity of Carpinteria Creek*".

The Coalition selected six goals:

1. A self-sustaining Steelhead population in Carpinteria Creek.
2. Sustainable and functional riparian corridors from the top of the watershed to the ocean.
3. Persistent high water quality in all reaches of the creek.
4. Community wide participation toward collaborative watershed protection and management.
5. Public access to the creek corridor where appropriate.
6. Public education of the natural resources in the watershed.

1.1.2 Purpose and Need for a Plan

The purpose of the plan is to develop a framework for implementing projects to improve the health of the creek, based on the physical characteristics of the creek and issues that have been identified. Two primary goals of the plan are to restore habitat for endangered steelhead trout, and improve water quality in the creek.

The report *Steelhead Assessment and Recovery Opportunities in Southern Santa Barbara County, California* ranked Carpinteria Creek as having the highest total habitat value and best restoration potential for endangered steelhead among all South Coast streams *(Stoecker et. al., 2002)*. That report also identified significant barriers to steelhead passage in Carpinteria Creek, a summary of which is included in this watershed plan.

Section 303(d) of the federal Clean Water Act, (the 303(d) list) stipulates that waters which do not meet water quality standards be listed as impaired water bodies based on the severity of the impairment. The 303(d) list requires that a loading limit called the Total Maximum Daily Load (TMDL) be established for parameters of impairment in the water body. Eighteen months of sampling led to the listing of Carpinteria Creek as impaired by pathogens. It is hoped that by developing this watershed management plan

and identifying restoration and monitoring opportunities, Carpinteria Creek can be removed from the 303(d) list. Funding opportunities exist from the USDA Natural Resources Conservation Service (NRCS), the U.S. Fish and Wildlife Service and others, each of which requires thorough project identification and description. The watershed plan will provide a framework for the Carpinteria Creek Watershed Coalition to seek funding for and implement projects.

1.1.3 Plan scope, focus and scale

The scope of this watershed assessment and management plan is comprehensive, and includes water quality, in-stream flows, fish and other wildlife habitat. Existing data, studies and plans are utilized in the plan to the extent possible, depending on availability, reliability and completeness. While groundwater quality and usage have an impact on the water supply in the basin, the focus of this plan is surface water quality, supply and flow as it relates to steelhead and wildlife habitat as well as impacts to human health. The plan covers the area within the Carpinteria Creek watershed as well as the creek corridor.

1.1.4 Participants

Cachuma Resource Conservation District (CRCD) hired the Community Environmental Council (CEC), a 501c(3) organization to assist in the gathering of information and compilation of this watershed plan, as well as sponsoring community meetings to encourage local stakeholder participation. In 2003, a Technical Advisory Committee was developed to give technical expertise on a wide range of topics. Members included, CRCD, CEC, Carl Stucky, farm manager, Bob Thiel, Southern California Wetlands Recovery Project, Darcy Aston, Santa Barbara County Water Agency, Tim Robinson, UCSB Researcher, and Matt McGoogan, NOAA Fisheries.

Many Coalition members were consulted for their knowledge, including community members Bob Hansen (birds) and Larry Ballard (plants), Karl Treiberg and Maureen Spencer, Santa Barbara County Flood Control, Matt Stoecker, Stoecker Ecological Consulting, Ed Keller, UCSB Geology Professor, David Griggs, Carpinteria Valley Museum of History, employees of the US Forest Service and many others. Still others like long time resident Betty Songer organized yearly community barbeques for the Coalition. Goals and objectives developed by the Coalition are found in Appendix A.

1.1.5 Public Outreach and Participation

In 2002, the Coalition received a Coastal Resources Enhancement Fund grant from the County of Santa Barbara to provide outreach to the community concerning the Coalition's activities and information about the watershed. A color brochure about the Coalition has been developed in both English and Spanish. A newsletter is written quarterly and distributed to landowners via mail, electronically on the Coalition's website and via email, and through community events like the Farmer's Market. A display was created to showcase the creek, the Coalition and concerns in the watershed. Three fact

sheets were developed by various members of the Coalition and include information on the Carpinteria Creek watershed, steelhead and water quality in the creek.

Every year, the Coalition holds a community barbeque to provide information about activities in the watershed, receive input on these activities and to provide a venue for community members to become involved in stewardship of their watershed.

1.1.6 Other Plans and Processes

Carpinteria Creeks Preservation Program (Padre and Associates, 2002)
This report was completed as an implementation program to the City of Carpinteria General Plan/Local Local Coastal Plan to guide the preservation and restoration of creeks located within the City of Carpinteria. The implementation program includes goals of the program, which primarily consist of the protection and restoration of local creeks and compliance with Phase II National Pollutant Discharge Elimination System (NPDES) stormwater requirements, and include proposed regulations that were intended to be adopted by the California Coastal Commission as part of the implementation program of the City's General Plan and Local Coastal Plan.

Steelhead Assessment & Recovery Opportunities in Southern Santa Barbara, County, California, The Conception Coast Project (CCP) (Stoecker et. al., 2002)
The objective of this report was to identify and assess site-specific restoration projects or barriers to steelhead passage. Literature searches, interviews with local community members and extensive creek hiking were utilized to assess passage barriers and stream conditions.

Steelhead Habitat and Population Study: Carpinteria Creek Watershed (Ecology Consultants, 2004)
This report, prepared for CRCD by Jeff Brinkman of Ecology Consultants is the result of fieldwork conducted in 2001-2003 in four reaches of the watershed. It analyzes stream habitat conditions for the endangered Southern California Steelhead Trout. Data collected focuses on in stream habitat for Steelhead, as well as water quality, benthic macroinvertebrate surveys, riparian plants, and vertebrate species.

1.1.7 Ongoing Projects

Santa Barbara Coastal (SBC) Long Term Ecological Research (LTER)
SBC LTER is a group of academic researchers that has performed research on long-term ecological phenomena since 1980. This group of researchers is housed at the University of California, Santa Barbara, and is funded by the National Science Foundation. The main objective of the SBC LTER is to investigate land and ocean processes and how they relate to giant kelp forest ecosystems. Stream chemistry and hydrology measurements relate to the patterns, transport, and processing of organic and inorganic inputs to coastal reefs. Carpinteria Creek is a component of their water quality sampling.

County of Santa Barbara Project Clean Water (PCW)
PCW regularly conducts public outreach to educate the public on good water resource stewardship through school presentations, displays at public events and posting placards on storm drains. In 2003 PCW installed a state of the art inline trash separator, or Continuous Deflection Separation (CDS) unit, near the storm drain outlet on 6th Street that drains the majority of the downtown area (Project Clean Water, 2004).

Other Coalition Member Projects
Several restoration projects are underway with funding from a variety of sources. Just above Highway 101, the City of Carpinteria, has completed a retrofit of a concrete bike crossing. Other fish passage projects in the area include five concrete barrier removals or modifications, and potential County debris basin renovations on Carpinteria and Gobernador Creeks. The Santa Barbara County Weed Management Area is also developing a proposal to eradicate *Arundo donax* in the watershed. The USDA Natural Resources Conservation Service (NRCS) and CRCD are working with several farmers in the watershed on farm conservation plans and irrigation water management plans.

*Southern California Wetlands Recovery (SCWRP) – Wetlands Mappin*g
The Conception Coast Project (CCP) is working with the SCWRP toward developing a methodology for mapping riparian areas in southern California coastal watersheds. The project will utilize digital elevation models (DEM), high-resolution aerial and satellite imagery, and field surveys to characterize the extent and quality of vegetative cover on the floodplains of these watersheds. Carpinteria Creek is one of the pilot watersheds selected, and the field survey is underway. Data collected in the field will be used to calibrate the DEM and imagery data in order to generate riparian maps for the entire watershed. Riparian maps will be used to assist in prioritization of conservation and restoration activities (Personal communication, James Studarus, 2004).

1.2 Relevant Policies

Several local, state and federal policies govern activities such as land use, restoration and recreational use of a waterway. This section briefly describes policies a landowner or organization must comply with, in order to do work in or near the creek (Padre & Associates, 2002).

1.2.1 Federal Policies

Clean Water Act

Under Section 404 of the Clean Water Act (CWA), the United State Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA) jointly regulate the discharge of dredged and fill material into U.S. waters through a permit review process. Individual and general permits are granted by the USACE. Permit applicants must prove they have taken steps to avoid wetland impacts where practicable, minimized potential impacts to wetlands, and provided compensation for any remaining, unavoidable impacts.

Section 401 of the CWA gives the state the authority to review and approve, condition, or deny all Federal permits that might result in discharge to State waters.

For the Carpinteria Creek Watershed, the Central Coast Regional Water Quality Control Board in San Luis Obispo (RWQCB) must determine whether a proposed stream project would be consistent with state and federal laws regulating water quality.

Endangered Species Act

The Fish and Wildlife Service (FWS) and NOAA Fisheries share responsibility for administration of the federal Endangered Species Act (ESA). The FWS regulates protection of terrestrial and freshwater species, while NOAA Fisheries manages endangered marine species and Pacific salmon.

1.2.2 State Law and Policies

California Coastal Act

As defined in the Coastal Act of 1976, the coastal zone is the area of the state that extends three miles seaward and generally about 1,000 yards inland from the mean high tide line. Depending on the level of development and potential impacts on the coastline from inland development, the landward boundary of the coastal zone can vary from substantially less than 1,000 yards inland to a maximum of 5 miles inland from the mean high tide line.

The City of Carpinteria has developed a Local Coastal Program (LCP), which explains that the entire city and agricultural land of Carpinteria Valley fall within the coastal zone boundary. The Local Coastal Plan was certified by the California Coastal Commission and gives the Carpinteria Planning Commission the authority to issue coastal development permits.

California Endangered Species Act

The California Endangered Species Act (CESA) generally parallels the main provisions of the federal ESA and is administered by the California Department of Fish and Game (DFG). Activities that may result in adverse affects to listed species are prohibited, including species petitioned for state listing. CESA allows for take incidental to otherwise lawful development projects. Individuals pursuing activities affecting endangered species in the Carpinteria Creek Watershed can seek consultation from local DFG officials in the Santa Barbara area.

If the applicant has obtained a federal incidental take statement through the ESA, that statement can be submitted to the DFG. To issue a Consistency Determination, the DFG must determine the conditions specified in the federal statement are consistent with CESA. If DFG determines that the federal statement is not consistent, or if the applicant has not obtained a federal statement, the applicant must apply for a State Incidental Take Permit.

Streambed Alteration Agreement

Any work that may involve modifications to a stream channel or stream bank within the high water mark (including vegetation removal) requires a streambed alteration agreement from DFG under section 1601 or 1603 of State fish and game code. This permit must also be obtained before anything can be removed or deposited into a creek.

1.2.3 Local Law and Policies

County of Santa Barbara

The Carpinteria Local Coastal Plan Zoning and Overlay Sections are adopted by reference into the County of Santa Barbara Coastal Zoning Ordinance Section 35-54 "Adopting Zoning Ordinances."

Chapter 15B of the Santa Barbara County Code limits development along watercourses which are included in the areas of special flood hazard shown in flood insurance rate maps and to those parts of a watercourse which lie between areas of special flood hazard on the same watercourse. In this case, County Code prohibits construction and development within 50 feet from the top of the bank of any watercourse unless the necessary permits have been obtained and development has been approved.

City of Carpinteria Local Local Coastal Plan

The Carpinteria Local Coastal Plan contains Section 3.3.4, entitled "Hillside and Watershed Protection." This section emphasizes the implementation of Sections 30231 and 30251 of the Coastal Act through policies designed to protect hillsides and watersheds. Protection measures are necessary to minimize risks to life and property, insure continued biological productivity, protect groundwater resources, and preserve scenic values.

Policies 3-13 through 3-19, listed in the Carpinteria Local Coastal Plan, apply to all construction and development on slopes greater than 20 percent, and on lands within the watershed of any coastal stream or wetland. Through these policies, any proposed development must minimize cut and fill operations, be designed to fit the site's topography, soils, geology, hydrology and other existing conditions, and expose only the smallest practical areas of land for the shortest possible time during development phase. In addition, development requires sediment basins, temporary vegetation, seeding, mulching or other stabilization, and provision to conduct surface water runoff. The development must not degrade the water quality of groundwater basins nearby streams or wetlands.

Section 3.9 focuses on Environmentally Sensitive Habitat Areas. Sections 30231, 30236 and 30240 of the Coastal Act guide the policies within the Local Coastal Plan that relate to Carpinteria Creek. Policies 9-1 through 9-21 address habitat areas within the Carpinteria coastal zone boundary, and all projects must conform to these policies before a development permit is issued. All parcels designated as habitat area or within 250 feet of the habitat area boundary are subject to site inspection by a qualified biologist.

A number of policies focus specifically on streams, including Carpinteria Creek. The Local Coastal Plan requires a minimum buffer strip of 20 feet from the top of the bank for natural streams, adjusted on a case-by-case basis after investigation. The Plan restricts stream corridor structures to development where the primary function is the improvement of fish and wildlife habitat, dams, structures necessary for flood control, bridges when supports are located outside the critical habitat, and pipelines when no alternative route is feasible.

Any permitted construction should minimize impacts from increased runoff, sedimentation, biochemical degradation, or thermal pollution. Cultivated agriculture, installation of septic tanks, concrete channelization and other major steam alteration are prohibited within stream corridors. Finally, no development or substantial alteration of natural stream corridors shall be permitted unless the City finds that such action is necessary to protect existing structures and that there are no less environmentally damaging alternatives.

Zoning Ordinance

Title 14 of the Carpinteria Municipal Code pertains to Zoning. Chapter 14.42 relates to Environmentally Sensitive Habitat Areas (ESHS), explaining that any areas designated as an ESHA or within approximately 250 feet of an ESHA are subject to the provisions of the overlay district. Applications for permit development must include detailed descriptions of each species affected, the areas or habitats found on the site, delineations of all water bodies located on the site, description of all areas to be surfaced, and any other information pertinent to the project which might be necessary for review. The community development department will determine the potential of the proposed development to adversely impact the ESHA and issue the permit accordingly, in compliance with conditions to ensure protection of the area. Policies 9-4 through 9-21 of the Carpinteria Local Coastal Plan are also listed in the Zoning Ordinance, and are specifically applied to Carpinteria Creek, which is the only natural creek within the city.

1.3 Carpinteria Creek Watershed Description

1.3.1 Size and Location

The main channel of the Carpinteria Creek has two tributaries, upper Carpinteria Creek and Gobernador Creek (Figure 1.1). These two combine in the lower watershed just north of Highway 192 (Foothill Road). Upstream, upper Carpinteria Creek and Sutton Canyon Creek flow into Carpinteria Creek, while El Dorado Creek and Steer Creek feed into Gobernador Creek. The Carpinteria Creek watershed is approximately 15.3 square miles (mi^2), reaching a peak elevation of 4,690 feet at Divide Peak in the Santa Ynez Mountains, draining steep hillsides and canyons. The creek continues through agricultural and urban areas in the foothills and coastal plains, passes under a bridge crossing at U.S. 101 and Carpinteria Avenue, flows south between the Concha Loma residential tract to the east and downtown area to the west. After the creek passes under the 8^{th} Street foot bridge and the Union Pacific Railroad Bridge, it empties into the ocean at Carpinteria State Beach. The developed portion of the watershed covers approximately 3.2 mi^2.

Insert Figure 1.1

Figure 1.1 Location Map of Carpinteria Creek Watershed

The Carpinteria groundwater basin is approximately 12 mi^2, much of which has been converted to agriculture and urban use. The basin is bordered to the north by the Santa Ynez Mountains, and the south by the east to west trending Carpinteria Fault. The basin extends from near Highway 150 and Rincon Creek to the east and offshore of Summerland to the west.

1.3.2 Species of Concern

Carpinteria Creek Watershed is designated critical habitat for Steelhead trout in southern California. Other threatened or endangered species with habitat in the watershed include Coulter's goldfields, Coulter's saltbrush, Ventura Marsh milk-vetch, late-flowered mariposa lily, sandy beach tiger beetle, tidewater goby, and western snowy plover. See Figure 1.2 for a map showing habitat locations for species of concern in the watershed. Individuals planning to conduct any activity that could potentially impact any endangered species, whether or not deliberate, must possess a permit to perform that activity.

1.3.3 Geology and Geomorphology

Carpinteria is located in the western Transverse Ranges geomorphic province of southern California, which extends east to west rather than north-northwest as are the majority of California's coastal ranges. The Transverse Ranges are composed of sedimentary, volcanic and metamorphic rocks ranging in geologic age from the Jurassic to the Holocene, formed by north-south tectonic compression from east-west trending mountain ranges such as the Santa Ynez Mountains. Geologic formations in the upper watershed include Matilija Sandstone, Cozy Dell Shale, Coldwater Sandstone, and Sespe Formation. Topsoil complexes range from 30 to 100 percent slopes, with most complexes between 50 to 75 percent slopes.

The lower watersheds of local creeks include foothills and coastal terrace areas of the Carpinteria Basin and adjacent coastal lowlands. The basin was formed during the Pleistocene Age and is a syncline, or a basin-like formation of sedimentary bedrock, that has been filled over time by marine and non-marine alluvial sediments. These deposits are between several hundred and several thousand feet thick, eroded from the northerly mountains by existing and ancestral creeks. Geologic formations include Older Alluvium in the gently sloping foothills, and Recent Alluvium in the coastal lowlands. Topsoil slopes in the lower watershed also cover a wide range, although overall the steepness of slopes are significantly less than in the upper watershed.

Carpinteria Creek flows across several active faults, including the Arroyo Parida – Mission Ridge Fault, in a region with uplift rate exceeding 3.3 feet per 1000 years. It is deflected to the west for about one mile by the Rincon Creek fault and anticline (personal communication Fred Keller, 2004). Creeks within the Carpinteria Creek Watershed originate in steep mountains, and pass through foothills and flat coastal plains as they flow downstream. In the mountains, creeks have steep banks, flowing through narrow canyons with steep slopes composed mainly of sedimentary bedrock formations and thin topsoil layers. These steep gradients create high velocity flows, leading to erosion and transport of sediments downstream, especially during heavy rainfall and high creek flows. This scouring action of high gradient creeks creates sequences of steep riffles, falls and pools of varying depths within the creek channel. Exposed bedrock and large boulders dominate creek banks and channels in these high mountain areas. Creek bottoms

contain smaller boulder, cobble and gravel deposits, while sand and finer sediments are less common. See Figure 1.3 for a map of geologic features in Carpinteria Creek Watershed.

Through the foothills and coastal plain areas, the creek gradients lessen, reducing creek velocity and strength. Large volumes of cobble, gravel, sand and finer sediments eroded from the mountain and foothills are deposited in lowland creeks, creating flat, wide floodplains in areas that were once covered with dense riparian forests and oak woodlands. Boulders and exposed bedrock are infrequent in lowland creek areas; creek banks and channels consist of alluvial materials such as small boulders, cobble, gravel, sand and finer sediments. Creek bottom features consist of alternating section of gentle riffles and shallow pools.

1.3.4 Carpinteria Population

According to the Carpinteria Chamber of Commerce, the population of the Carpinteria Valley is approximately 19,000, while the City itself currently contains 15,194 residents. The California Department of Finance estimated a population of 14,350 in the City of Carpinteria for both 2003 and 2004, approximately 4% of the entire Santa Barbara County population of 414,800. The regional growth forecast predicts a population of 14,800 for 2005, a 3.1% increase. The Santa Barbara County Economic Outlook estimated a 3.18% population growth rate in Carpinteria from 1990 to 2000.

[Insert] Figure 1.2 Species of Concern in the Carpinteria Creek Watershed

[Insert] Figure 1.3 Geology of the Carpinteria Creek Watershed