

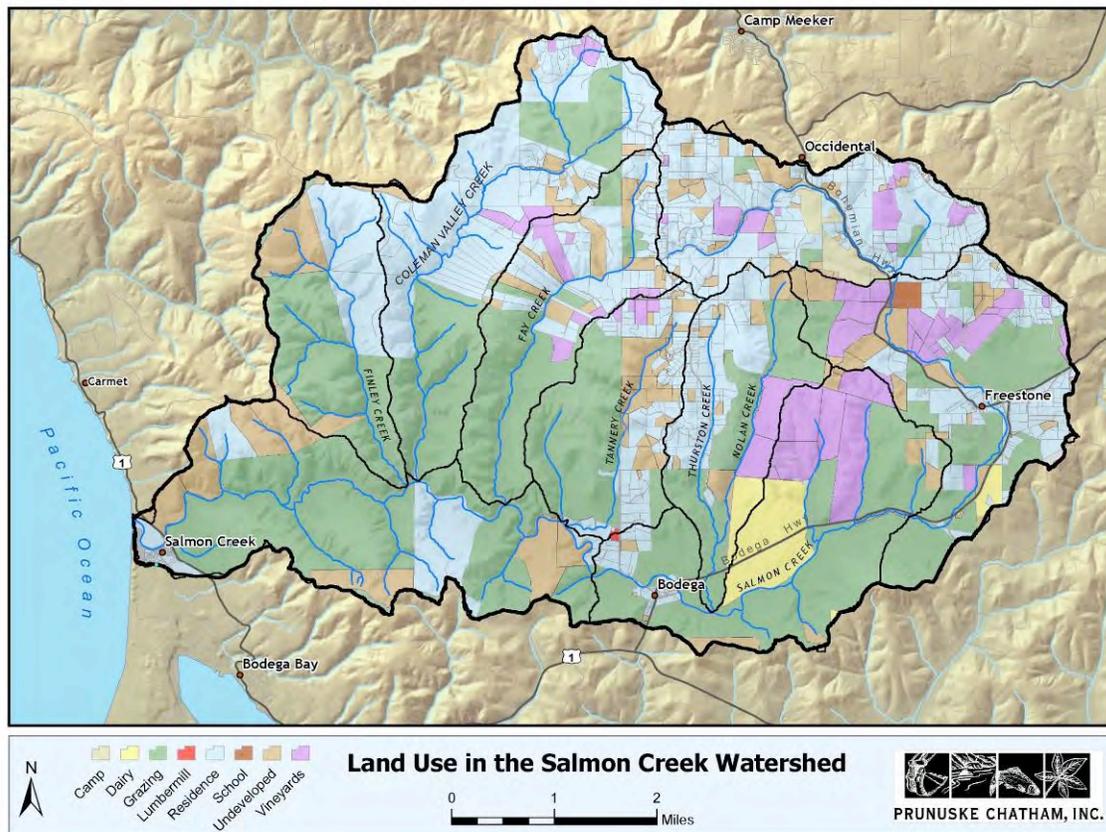
CHAPTER 1: INTRODUCTION

Background

The Salmon Creek Watershed covers approximately 35.3 square miles in coastal Sonoma County and is a salmonid-bearing stream that drains to the Pacific Ocean immediately north of the Bodega Marine Life Refuge Critical Coastal Area (CCA). Salmon Creek has 6 major north-south trending tributaries: Finley, Fay, Tannery, Nolan, Thurston, and Coleman Valley Creeks. The watershed also contains 17 unnamed, smaller tributaries. From its highest point at 797 feet, the mainstem of Salmon Creek runs south through Occidental and makes a westerly curve near Freestone before reaching the ocean 3 miles north of Bodega Bay. The watershed's terrain is characterized by steep topography and soils that are highly erosive and sensitive to disturbance. Vegetation occurring in the watershed is a combination of deciduous and mixed coniferous forests and grasslands.



Figure 2. Land use in the Salmon Creek Watershed.



The Salmon Creek Watershed is almost completely privately owned (95%). Primary land uses include rangeland, viticulture, timber, rural residential, and urban. Current and historic land-use activities have degraded the natural environment, impaired water quality and aquatic habitat, and increased the rate and amount of sedimentation.

The watershed once had a thriving anadromous fish population, vibrant stands of vegetation, and exceptional water quality. (See Figure 1. Salmon Creek Watershed Location Map.) The precipitous decline in salmonid populations in the watershed has all but decimated the local fishery, once a key local industry. Although Salmon Creek is not on the federal Clean Water Act §303(d) list of impaired waterbodies, it is an important coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Onchorhynchus mykiss*) stream. The SWRCB's Watershed Management Initiative (WMI) states that "concerns have been raised by the public regarding increased sedimentation, water temperature, nutrients, and salmonid habitat" in Salmon Creek.

However, the California Department of Fish and Game (CDFG) considers Salmon Creek¹ a fully restorable salmonid stream (CDFG 2004d). In both December 2008 and 2009, CDFG reintroduced approximately 500 adult coho salmon into the creek as part of their broodstock program. In the face of climate change and a sharp regional decline in salmonid populations over the past two years, the stakes for supporting the newly reintroduced coho salmon and the returning steelhead trout are very high.

The Salmon Creek Watershed is becoming regionally renowned for its forward thinking, collaborative, non-regulatory driven restoration program and is often cited as a model for other watershed efforts. In 2005, GRRCD received grant funding from the SWRCB to develop the *Salmon Creek Integrated Watershed Management Plan* (Plan). The Plan strives to integrate environmental management, natural resource protection, agricultural sustainability, and community goals to provide a guide for improving watershed health.

The planning process has been a multi-faceted, multi-partner program, begun in earnest, to address poor habitat conditions in the Salmon Creek Watershed through prioritized implementation and long-term outreach and education. The goal of this plan is to develop a program that, if implemented effectively, will improve the rankings of several key habitat condition indicators (e.g., summer rearing baseflow, primary pools and shelter, large woody debris (LWD), and turbidity), currently ranked as "Poor" for coho salmon using NOAA's "Conservation Action Planning" (CAP) process (NOAA Fisheries, Southwest Region, 2009 draft in press), to "Good." Activities to date include development of a watershed-wide water supply planning, management and outreach program aimed at reducing impacts to streamflow and water quality, installation of estuary habitat structures to increase smolt rearing success, road and gully fine-sediment reduction projects, instream habitat (LWD) improvement projects, and riparian revegetation and fencing.

¹ Salmon Creek is located within the Bodega Hydrologic Unit (HU) in the CCC Evolutionary Significant Unit (ESU). Salmon Creek is part of the Sonoma Coast State Marine Conservation Area, a State Marine Protected Area (MPA) (California Marine Life Protection Initiative 2007).

Vision

The Plan offers the following vision for the Salmon Creek Watershed and its tributaries:

The Plan reflects common ground between landowners, program partners, and resource agency staff. The primary aim of this Plan is to better understand and address the conditions necessary for ensuring a healthy and functioning watershed ecosystem, to develop a program to improve habitat for native species, and to promote conservation oriented land management practices while safeguarding the economic viability of the watershed's agricultural heritage.



*Salmon Creek Watershed Planning Meeting,
December 1, 2009*

Planning Process

The Plan is the culmination of years of commitment by landowners (both agricultural and rural residential), SCWC, Occidental Arts and Ecology Center (OAEC), LandPaths, PCI and GRRCD, as well as agency staff from CDFG, State Coastal Conservancy (SCC), NCRWQCB, the USDA Natural Resources Conservation Service (NRCS), the University of California Cooperative Extension (UCCE), and the National Oceanic and Atmospheric Agency's Restoration Center (NOAA). Each of these groups was represented during the planning process at Technical Advisory Committee (TAC) meetings, which were held quarterly except for a one-year period when the State of California experienced a severe fiscal crisis, and planning efforts had to be put on hold. The TAC included members with expertise in hydrology, geomorphology, biology, fisheries, water quality science, agriculture, watershed education, and conservation planning.

Each TAC member offered a unique set of skills and knowledge, and, although there was some disagreement, everyone was respected and heard. Local rural residential and agricultural landowners provided history and familiarity to ensure an accurate representation of land use in the watershed. Other members offered organizational direction, funding, and technical expertise. All members contributed to the planning vision, goals, recommendations and actions presented in this plan. GRRCD, as the lead agency, was responsible for creating an atmosphere of trust that allowed groups with varying interests to learn from the others' points of view.

A History of Partners in Stewardship

The Salmon Creek Integrated Watershed Management Plan represents a significant step towards a more cooperative results-focused way to protect our natural resources that incorporates local values and knowledge in a way that sustains our local agricultural community, the economy, and the environment.

Residents, local watershed groups, and public agencies have worked to assess the ecological health and functioning of the Salmon Creek Watershed and to document specific sites and/or activities that may be degrading the riparian system and impairing critical fish habitat.

The partners involved in this planning process were originally brought together in 2003 by funding from CDFG to GRRCD to perform a baseline assessment and develop a “plan of action” for stream restoration activities in the watershed. This first planning grant was envisioned by the SCWC and resulted in the *Salmon Creek Watershed Assessment and Restoration Plan* (PCI and GRRCD 2007). The grant helped build the organizational capacity of GRRCD and led to implementation of priority conservation projects throughout the watershed.²

Planning efforts continued through funding from SCC to OAEC, which produced the *Salmon Creek Estuary Study and Enhancement Plan* (PCI 2008) and led to the ongoing Salmon Creek Water Conservation Program. The *Salmon Creek Water Conservation Plan* (PCI et al. 2010) presents strategies and recommendations to increase dry-season flow while supporting the freshwater needs of residents. Assessments of watershed and stream conditions have also been completed (CDFG 2002; PCI 2006; GRRCD 2007). The collaborative spirit of the SCWC helped rally landowners together to participate in an assessment of rural roads (PWA and GRRCD 2008). This continuity of public input has allowed the core project team (consisting of landowners, SCWC, PCI, and GRRCD) to provide a vision for protecting and improving the condition of the watershed.

The team understands that agriculture is an important mainstay of the local economy. Agricultural producers in our coastal watersheds are under dual pressures of increasing regulatory oversight and the competitive demands of the marketplace. We believe that sustainable ranching and livestock productions can maintain a living, while at the same time improve the overall conditions of soil, water, grasslands, and riparian resources. The financial benefits of sustainable ranching include reductions in property loss due to soil erosion, improved forage production, improved livestock health, higher product values, market diversification, and greater market accessibility. Chapter 7 provides a more detailed strategy for improving the health of the watershed and the long-term preservation of its habitats and natural capital through a continued partnership with the agricultural community.

Planning Goals and Objectives

Land-use practices in the Salmon Creek Watershed have resulted in altered stream channels, reduced riparian zones, and reduced access to suitable spawning habitat. Streambank alterations have resulted in a loss of natural habitat complexity (i.e., riffles, pools, and other *refugia*), effectively limiting the capacity for freshwater streams to serve

² Salmon Creek Ranch Enhancement Design and Implementation Grant Agreement Nos. 03-005, 06-027 and 06-115 (State Coastal Conservancy); Bodega Coastal Streams Restoration Project Agreement No. 03-175-110 (State Water Resources Control Board); Save Our Salmon – Salmon Creek Habitat Rehabilitation Program –Phase I NA09NMF463236 (NOAA Restoration Center); Mache Ranch Stream Restoration I and II, Fay Creek Revegetation Project, and the Salmon Creek Roads Assessment Project (CDFG).

as spawning, rearing, and migratory habitat for a viable coho salmon population. The removal of riparian vegetation has caused increases in temperature and fine sediment, as well as reduced instream complexity as a result of fewer sources of LWD.

If coho salmon recovery in the watershed is to be realized, there is no doubt that targeted actions need to be taken.



*Fay Creek "Young of the Year", June 29, 2009.
Photo courtesy of Joe Pecharich (NOAA Restoration Center)*

Some of the existing limiting conditions in the watershed include:

- High turbidity and sediment loads from roads and riparian and gully erosion;
- Low streamflow during the dry summer months;
- Poor instream habitat from lack of channel complexity; and
- High summer water temperatures from lack of adequate canopy cover.

However, the team has reached consensus that the Salmon Creek Watershed ecosystem can be considered healthy and functioning if we achieve the following goals and can measure results. All may not be achievable in the current generation, or our children's generation, but we must strive to achieve the ideals outlined below.

1. Water supply in the Salmon Creek Watershed is adequate for the needs of the landowners and the ecosystem.

The amount of the streamflow in the tributaries and in the mainstem of Salmon Creek support the ecosystem such that:

- Freshwater quantity is sufficient to support the needs of the rural residential and agricultural landowners.
- Freshwater quantity is sufficient to support the needs of the native terrestrial and aquatic ecosystems.

2. Water in the Salmon Creek Watershed is clean and of consistent high quality.

Water in the tributaries and in the mainstem of Salmon Creek meets or exceeds regulatory requirements, and both point and nonpoint pollution sources have been reduced in order to support freshwater, estuary, and upland ecosystems.

- Sediment loading does not exceed the level consistent with the requirements of fish and other aquatic species.

- Nutrient pollution from human and other sources is minimized to the point that it is no longer detectable in fresh water.
- Loadings of any pollutant do not exceed levels that may impair healthy ecosystem functions.

3. The quality of life for residents in the Salmon Creek Watershed is supported by a healthy and functioning ecosystem.

A healthy Salmon Creek Watershed can support the social and economic vitality of its landowners.

- The natural resources of the Salmon Creek Watershed are ample enough to support agriculture, fisheries, forestry, and tourism.
- The Salmon Creek Watershed's economic prosperity is compatible with the protection and restoration of a healthy and diverse ecosystem.

4. Stewardship activities in the Salmon Creek Watershed build and support landowner capacity to protect and sustain the environment.

Landowners and decision makers have the information and resource capacity necessary to monitor ecosystem health.

- Landowners are provided with the education and technical support needed to make proactive local decisions regarding water resources.
- Coordinated strategies are supported and encouraged at all levels of government.
- GRRCD, other local nonprofits, and conservation-minded organizations are supported and funded in order to participate in collaborative processes at the ecosystem level.



Plan Contents

GRRCD's grant agreement with the SWRCB scope defines individual elements that the Plan will address. The Plan will strive to:

- Define the watershed vision;
- Define watershed goals, distinguishing between short- and long-term;
- Identify the watershed stakeholders and enroll them in the Plan development process;
- Define the geographical and jurisdictional boundaries of the watershed;
- Describe current watershed conditions through assessment and data integration;
- Develop proposed actions and implementation strategies necessary to achieve watershed goals;
- Identify the persons, organizations, and public agencies responsible for implementing the proposed actions, and enroll them in the watershed improvement projects;

- Outline a schedule and plan for implementing proposed improvement actions with realistic time frames and target dates and a process for adapting the Plan over time;
- Establish a program for project and watershed improvement measure effectiveness monitoring; and
- Establish a system for evaluating and responding to proposed projects based on impacts on natural resources and beneficial uses.

The Plan describes actions for addressing watershed issues and for providing future opportunities for multiple organizations and the community to become involved in restoration and recreation activities in the streams. Stakeholders in the Salmon Creek Watershed have been actively involved in identifying the issues and developing the Plan's goals, objectives, and actions. The following chapters identify pertinent natural resource goals and context, along with implementable actions and the scientific basis for those actions. The integrated watershed approach combines several management strategies to achieve sediment load reductions, water conservation, and riparian and instream habitat improvements throughout the Salmon Creek Watershed. In addition, watershed-wide, landowner-driven erosion prevention, education, restoration and revegetation, better agricultural practices, and other improvements, such as new zoning regulations and enhanced opportunities for easements, will be needed for long-term success.

Conclusion

A large part of the work that went into developing this plan involved characterizing and assessing the ecological processes of the watershed based on both a compilation of existing studies, as well as the creation of new information derived from field analysis of geomorphic and water quality conditions and land uses. Numerous interviews were conducted with watershed residents over the course of this planning study to gain valuable information about historical changes in the watershed and the value of its resources.

The implementation of the Plan is one of many steps that still need to be taken and is designed to be a living and adaptable document that will be updated as necessary over the 10-year implementation schedule. The Plan will not solve all the outstanding issues of the watershed, but it can serve to guide the State of California, County of Sonoma, GRRCD, other conservation-oriented organizations, landowners, and resource agencies in the right direction.

Bodega Dairy Cows, 2009



Bees as part of Gold Ridge RCD Pollinator Program, 2009

