

# **Saving Steelhead in Corte Madera Creek Watershed**

*Study Completed to Pave Way for Action Plan*  
2000

The Friends' year-long study on steelhead in the watershed, funded by CALFED, is now complete. Based on this study a steelhead trout plan is being developed to improve fishery resources in the Corte Madera Creek watershed. Here is a summary of the purposes of the study and results of the field studies.

## **Fishery Resources-A Summary of Findings.**

The Corte Madera Creek Watershed and its tributaries are among the few streams flowing to San Francisco Bay which retain a steelhead trout population. The Friends of Corte Madera Creek Watershed (Friends) are interested in restoring the watershed. As part of the watershed project, Friends contracted with A. A. Rich and Associates (AAR) to undertake a fishery resources investigation and prepare a technical report that included a Steelhead Restoration Plan. **AAR** is a San Anselmo-based fisheries and ecological consulting firm owned and managed by Dr. Alice A. Rich.

As part of the project, Alice Rich undertook the following field surveys in the watershed in 1999: water temperature monitoring, beginning in the spring and extending through the summer; habitat surveys during the dry months; and fish population surveys during the dry months. The results of the study, including the proposed restoration and monitoring suggestions are part of a comprehensive watershed plan to improve water quality, fishery resources, and native vegetation and wildlife in the Corte Madera Creek watershed. The fishery resources report identifies how the declining trend in the steelhead population can be reversed:

- Identifying the factors limiting the steelhead trout population
- Formulating corrective actions
- Describing how to monitor the success of those actions, and
- Presenting an action plan for restoration of the watershed as long-term steelhead trout habitat.

The results from the water temperature monitoring demonstrated that, despite potentially thermally stressful conditions in many areas of the watershed, there appeared to be cooler areas where the trout could reside during the hotter summer months, especially in upper San Anselmo and Cascade creeks.

The results of the habitat survey on Corte Madera Creek confirmed that this creek is highly channelized, as a result of various activities (e.g., U.S. Army Corps of Engineers' concrete flood control channel and landowners' retaining walls) undertaken to control flooding during the winter months. The flood control channel serves only as a migration route for the anadromous steelhead trout. The upstream areas of Corte Madera Creek consisted of long lateral scour pools alternating with riffle areas, habitat used by a variety of fish species, none in great abundance.

San Anselmo Creek has the greatest variety of habitats of any of the creeks within the watershed, probably due to the fact that it flows through towns, but its origin lies in the relatively unimpacted reaches within the Cascade Canyon Open Space Preserve. Throughout its length, it is characterized by alternating pools and riffles. In the lower more urban reaches, the lateral scour pools are associated with retaining walls and rip rap, whereas in the upper more natural areas, they are associated with bedrock. The creek along Cascade Road in Fairfax was dry for more than a mile when the surveys were conducted, but substrate consists almost entirely of gravel suitable for trout in the wet season.

Although short on water by the end of summer, Cascade Creek offers the best trout habitat of the entire creek system. It is characterized by bedrock pools and cascades, abundant canopy, and clean clear water. Although there is no spawning gravel, the pools provide rearing habitat for trout. The uppermost boundary for fish migration is the Cascade Falls.

Sleepy Hollow Creek is characterized by low flows, and a heavily urbanized channel with retaining walls, bridge pillars, and concrete in the creek. In the lowermost reaches, the habitat during the late summer months was suitable for stickleback and roach; higher up in the drainage, there were some

appropriate pools for trout. Although dry throughout much of the upper sections, the substrate is gravel suitable for trout spawning.

At the time of the habitat surveys, most of Ross Creek was dry. The only area where there was flowing water and pools suitable for trout was within Natalie Coffin Greene Park.

From the results of our spot check observations, it appears that Fairfax Creek had little water in it by the end of the dry season. There are lateral scour pools and shallow riffles throughout the creek, the substrate consists of gravel, sand and silt, and there is abundant vegetative cover.

Fish species collected in the Watershed included rainbow/steelhead trout, three-spine stickleback, California roach, sculpin species, and Sacramento sucker. The major limiting factors for trout production are lack of stream flows and high water temperatures. Of the five fish species collected, trout were the most abundant in San Anselmo, Cascade, and Ross creeks and only trout were collected in Cascade and Ross creeks.

Based on the size distribution, the juvenile rainbow/steelhead were probably from three to four different age classes. Most of the trout were young-of-the-year (i.e., hatched last spring) fish, but there were some older fish in both San Anselmo and Sleepy Hollow creeks. The greatest variety of age classes came from these two creeks as well, suggesting there is a self-sustaining population, albeit small, of rainbow/steelhead trout in the watershed. Of particular interest was the variety of age classes in the first bedrock pools sampled in the Cascade Canyon Open Space Preserve, upstream of the dry creek bed which extended over a mile in length.

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