

RECOMMENDATIONS FOR THE MANAGEMENT OF ARROYO CORTE MADERA DEL PRESIDIO
AND OLD MILL CREEK, MARIN COUNTY, CALIFORNIA¹

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INTRODUCTION

On January 29, 1946, a survey was made of Arroyo Corte Madera del Presidio, known also as Widow Reed Creek, and a tributary, Old Mill Creek, Marin County, by the writer, accompanied by Mr. Herbert H. Shapiro, sportsman, and Mr. Robert Baumberger, City Manager of Mill Valley. The purpose of the survey was to determine what measures could be taken to bring angling in these streams to the highest possible level.

DESCRIPTION OF THE STREAMS

Arroyo Corte Madera del Presidio is tributary to Richardson Bay, an arm of San Francisco Bay. The total length of the main stream, which is named Widow Reed Creek on the Tamalpais Quadrangle of the U. S. Geological Survey and the Corps of Engineers, U. S. Army, is approximately 4.5 miles. The principal tributary is Old Mill Creek, about 2 miles long, which enters from the west approximately 1.8 miles above the mouth. Two other tributaries, one called Widow Reed Creek locally and the other known as Warners Canyon Creek, enter Arroyo Corte Madera del Presidio below its junction with Old Mill Creek. Both of these streams are inconsequential and go dry during the summer months.

The lowermost portion of Arroyo Corte Madera del Presidio meanders

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through a tideland marsh area, part of which has been filled in for residential and business construction. Originally, the drainage basin was covered by a stand of Coast Redwood and other vegetation typical for the area. Now, the middle section of Arroyo Corte Madera del Presidio and the lower portion of Old Mill Creek flow through the center of the city of Mill Valley; their junction is in the heart of the business district. The upper portions of both streams pass through hilly, wooded and brushy terrain, over which scattered residences are located.

Both Arroyo Corte Madera del Presidio and Old Mill Creek are of small size, but are reported to possess constant flows. Arroyo Corte Madera del Presidio upstream to its junction with Old Mill Creek contains good spawning grounds, but few pools or other shelter for any except small fish. In the vicinity of their junction the two streams flow in large part through concrete culverts, so that both spawning areas and shelter are largely absent. In its central portion, particularly in the vicinity of Old Mill Park, a city park containing a stand of Coast Redwood, and the site of the first sawmill in Marin County, Old Mill Creek has excellent spawning gravels, suitable for salmon or sea-run steelhead. The upper portions of both streams cascade over bedrock and boulders and contain good pools and shelter for fish of medium size. Temperatures are generally suitable for trout and salmon.

Information on specific characteristics of the two streams was obtained in the course of the survey and has been entered on standard stream survey forms of the California Division of Fish and Game. For the purposes of this report, it will suffice to say that on January 29

the flow of Arroyo Corte Madera del Presidio was about 4 second-feet below its junction with Old Mill Creek and one second-foot above the junction, and that the flow of Old Mill Creek was $1\frac{1}{2}$ to 2 second-feet.

Fish present are trout of the steelhead-rainbow series. The streams are heavily fished, probably mostly by boys and girls. Since the streams are paralleled by roads and are otherwise accessible and very close to heavily populated areas, very few fish have a chance to grow to a size of six inches before they are caught.

On January 23 Mr. Shapiro told the writer that years ago steelhead ascended the streams, but that later they were hampered or blocked in their ascent by artificially-created changes in the lower channel. Recently, he stated, the City of Mill Valley had restored the lower stream to its natural course, so that steelhead were once again able to enter freely.

About March 28 Mr. Shapiro telephoned the San Francisco office of the California Division of Fish and Game for Mr. Baumberger to report that steelhead were then ascending the streams. He stated that five fish had been seen and that perhaps more were present. Little is known in regard to the size of the steelhead spawning run.

It may be of interest to review former conditions, as reported to the Division of Fish and Game in 1912 by Warden Sheridan G. Smith:

"Depth about 6 inches in summer. The Mill Valley stream starts at southeast side of Mt. Tamalpais, runs through Mill Valley, and empties into Richardson Bay, Sausalito. There are 3 dams. Two have fish ladders and the farthest one has no ladder, but the stream runs dry early in summer above this one. Never has been stocked. But there are young steelhead fish caught from this stream every season."

It is possible that in past years, and perhaps even in recent times,

Silver Salmon have also utilized these streams for spawning purposes.

The two dams with fish ladders referred to in the 1912 report apparently have now been removed or opened so as to be passable to upstream fish. The uppermost dam, without a fishway, is probably the one still existent on Old Mill Creek, about 1.6 miles above its mouth. It forms Cascade Reservoir, which was drained completely when seen on January 29, 1946.

Sea-run steelhead and other upstream salmonids are hampered in their migration at several points in Old Mill Creek below Cascade Reservoir. Proceeding upstream, the first point at which they are impeded in their ascent is an inclined concrete apron under the bridge on Cascade Drive, in Old Mill Park. Farther upstream they are hampered, in places seriously, by small natural falls over bedrock.

DISCUSSION

From the foregoing account it is evident that Arroyo Corte Madera del Presidio and its principal tributary, Old Mill Creek, because of their small size and proximity to heavily populated areas, cannot be expected to produce extensive angling of good quality, at least without expensive stocking with large fish. However, they possess water of good quality and permanent flow, excellent spawning areas in some sections, and good pools and shelter in other sections. Because of this combination of characteristics, then, they present both a challenge and a promise. If managed properly, they can serve as a definite asset to the attractive community of Mill Valley, not only from an aesthetic viewpoint, but also by providing healthful recreation in the form of angling for boys and girls, and serving as nurseries for sea-run steelhead, some of which would be taken in the winter sport fishery in

tidewater and in San Francisco Bay. If a run of Silver Salmon could be established in the streams, these waters would also serve as nurseries for this valuable commercial fish, which has been badly depleted in central California in recent years.

It is realized that the contribution made by these two small streams to the production of adult sea-run steelhead and salmon could not be large, but it is the belief of the writer that if each stream of comparable size in the San Francisco Bay area would be managed properly, that is, developed to the maximum of its productive capacity, a definite improvement in both the sport and commercial fisheries of the area could be effected, even with the existent dams, diversions of water, and changes in ground cover.

With these considerations in mind, and with the hope that the streams under discussion can be made into examples and models of the efficient management of small coastal streams in heavily populated areas, the following recommendations are made.

RECOMMENDATIONS

1. Remove or improve all barriers so that the streams can be readily ascended by upstream trout and salmon during the period November 1 through May 29. Specifically, the inclined concrete apron under the bridge on Cascade Drive, in Old Mill Park, and also the bedrock falls in Old Mill Creek upstream from this bridge, should be improved in such a way as to permit upstream fish to make a straight jump from pool to pool. At the present time at low-water stages fish are forced to ascend by swimming through steep chutes or making diagonal leaps.

2. Retain stream-side trees and shrubs wherever possible, to prevent erosion, furnish shade, and provide a source of supply of insects and other fish foods.
3. Encourage observance of angling regulations.
4. Encourage angling by boys and girls under 16 years of age and discourage summer angling by others.
5. When fish are available, make initial plants of rainbow, steelhead, and Silver Salmon, as follows:

Rainbow: Stock 100 ounces in upper Arroyo Corte Madera del Presidio (above junction with Old Mill Creek) and 200 ounces in Old Mill Creek. At the recommended size of 10 fish per ounce this will mean 1,000 rainbow for the former and 2,000 for the latter. Scatter the fish as much as possible.

Steelhead: Stock 750 ounces in Arroyo Corte Madera del Presidio (below junction with Old Mill Creek) and 750 ounces in Old Mill Creek. At the recommended size of 1 fish per ounce this will mean 750 steelhead for each stream. Scatter the fish as much as possible.

Silver Salmon: Stock 750 ounces in Arroyo Corte Madera del Presidio (below junction with Old Mill Creek) and 750 ounces in Old Mill Creek. At the recommended size of 1 fish per ounce this will mean 750 Silver Salmon for each stream. Scatter the fish as much as possible.

In connection with the above recommendations, it may be noted that Mr. Robert Baumberger, City Manager of Mill Valley, has expressed willingness and desire to cooperate in making such physical improvements as are desirable. Accordingly, a copy of an article on fishways by John Spencer, which appeared in the quarterly publication California

7

Fish and Game, is being sent to him and also to Mr. Herbert Shapiro. This article explains the principles of fishway construction and will serve as a guide in creating jumps in the inclined concrete apron under the bridge on Cascade Drive, in Old Mill Park, and also in blasting the bedrock falls in Old Mill Creek in such a way as to permit upstream fish to make straight jumps from pool to pool.

At the present time there exist no regulations which limit the angling in certain waters to boys and girls under a stated age. At some time in the near future it may be desirable to promulgate such legislation for streams comparable in size and character to those under discussion.