

## Arroyo Corte Madera Del Presidio &amp; Tributaries (Major) Marin

Richardson Bay	Headwaters	5 mi.		
Richardson Bay		15	6W	34

Personal observations, local residents and City Hall personnel

EXTENT OF OBSERVATION - Name of Surveyor - Glenn Brackett; Date of Observation - July 16, 1963. The stream was surveyed by car and on foot. This section surveyed refers to the length of not only this main stream, Arroyo Corte Madera Del Presidio, but also its tributaries: Cascade, Mill and Warner Creeks.

LOCATION - This stream drains the Mill Valley watershed which is found on the southeast slope of Mount Tamalpais.

RELATION TO OTHER WATERS - (1) Relatively important drainage, Domestic water supply originates from this stream for the Mill Valley Area, (2) Important spawning and nursery area for steelhead and possibly salmon. Adequate summer flows are maintained for fish life.

GENERAL DESCRIPTION - Watershed - The topography is moderately steep at the headwaters and gently sloping in the valley regions (the town of Mill Valley). This drainage is typical coastal type topography. Vegetation varies: Dense stands of second growth redwood are dominant near the stream's edge and up slope for a short distance. A transition occurs above these stands, where a dense cover of grease wood and deer brush are predominate. Soils are an aggregate of rock and detritus, thus constituting a deep loamy soil profile. Most soil types are residual in origin. Sandstone is the predominant substrate material.

Immediate Drainage Basin - (1) Size of approximately 6 square miles. (2) Basin: Steep sided; narrow valley; characteristic of mature topography. (3) Direction of discharge: Southeast. (4) Streamside vegetation is order of abundance: Redwood, bay, ash and maple. The effect is complete shade over the entire stream.

Altitude - 0 to 800 feet.

Gradient - Steep in headwaters, 600'/mile; moderate in valley, 100'/mile; sluggish below Mill Valley, influenced by tidewater.

Width - Average, 2 1/2'; Riffles - 1 1/2'; Pools - 10'

Depth - Average, 5": Riffles 2": Pools 9"

Flow - At time of survey, measured main stream - .843 cfs. (above Mill Creek confluence). Mill Creek - .985 cfs combined figures - 1.828 cfs. (See stream flow measurement card file).

Velocity - Is adequate to support fish Life. Slowly moving to rapid in headwaters.

Bottom - Below the town of Mill Valley the bottom is composed mainly of clay, mud and silt. At and above the town of Mill Valley the bottom is composed of (compiled as an average) 25% fine, 10% coarse gravel, 15% sand, 15% rubble, 5% bedrock, 20% mud and silt, and 10% detritus.

Spawning Areas - The gravel that is available for spawning purposes is heavily silted. Of the 3 1/2 miles of available spawning stream, an estimated 20% can be utilized for spawning purposes. The lower spawning areas are composed of fine and coarse gravel while in the headwater regions coarse gravel and fine rubble are found predominant. Mill Creek and part of Cascade Creek are important to this stream system both as spawning and nursery areas and also important summer flows, .985 cfs. Spawning conditions conform with the rest of the stream system as described above. However, higher stream temperatures were measured, 68° F., which seems to be related to the presences of Cascade Reservoir. Cascade Reservoir is maintained for fire protection in the Mill Valley area. Its 1/2 acre surface is exposed to direct sunlight most of the day. This condition could be the cause of the higher temperature.

Pools - In the headwater regions (this constitutes approximately 3 miles of the 7 miles of stream surveyed) 30% of the stream area was classified as pools. These pools measured in average 5' x 2' x 8" in size. These pools provided adequate shelter for fish life which was observed on several occasions. These pools were connected with a steep stream gradient. Pools of the middle stream sections were more abundant, 50%, then in the headwater region. The stream section below town is relatively sluggish with long pools and little riffle area.

Barriers - Upper limits of fish migration have been noted on the attached map. Natural obstructions such as gradient conditions are the only limiting factors to fish migration. About 90% of the stream is accessible. However, two conditions were observed: (1) The dam on Mill Creek; (2) Small flood control dams along various sections of stream running through the residential areas. The dam on Mill Creek obstructs all fish migration while the smaller flood control dams have little effect on fish migration. No diversions from the natural stream channel were observed.

Temperatures - On Arroyo Corte Madera Del Presidio Creek above town - W.T. 55° F., A.T. 78° F. On Mill Creek above town W.T. 68° F., A.T. 78° F.

Food - Mayfly larvae were most abundant form of aquatic life present.

Aquatic Plants - Heavy algae blooms were observed in waters in and below the town of Mill Valley. Blue-green algae is abundant in waters above town, but doesn't present a problem.

High Water Marks - No definite signs of high water were observed but it would be possible to predict winter flows might reach 3 to 4' above existing water levels. Local residents and city personnel have stated that the stream channel has always provided for high water conditions. The water is not being utilized for any purposes other than what has already been mentioned. Some very limited fishing is done by juveniles.

Springs - Springs are an important source of summer flows. They're scattered throughout drainage system. No large ones were noted however.

FISHES PRESENT AND SUCCESS - The only salmonids observed were fingerling and yearling steelhead. Size range was observed from 2 - 6". Most fish observed were in the 2" category. Propagation success appears to be poor as related to the small number of fish found, 10 per 100' of stream was estimated. The only other fishes observed were sticklebacks found in tidewater and what appeared as a roach.

OTHER VERTEBRATES - Deer, raccoons, salamanders, and snakes.

FISHING INTENSITY - Very light. The local juveniles appear to be the only ones fishing. None were observed.

OTHER RECREATIONAL USES - Picnicking, hiking and riding.

ACCESSIBILITY - See attached map for streets. Access is excellent. Roads maintained by City of Mill Valley.

OWNERSHIP - Unknown. Many landowners throughout valley area. Heavy penetration of homes along most of stream area constituting a residential area.

POSTED OR OPEN - Most of the stream is open, however, the upper headwaters are posted (private and City ownership).

IMPROVEMENTS - Small flood control dams scattered throughout stream. These were photographed; none appear to exceed 2 feet. Constructed of concrete. Presently in poor condition. All are passable.

PAST STOCKING - None known.

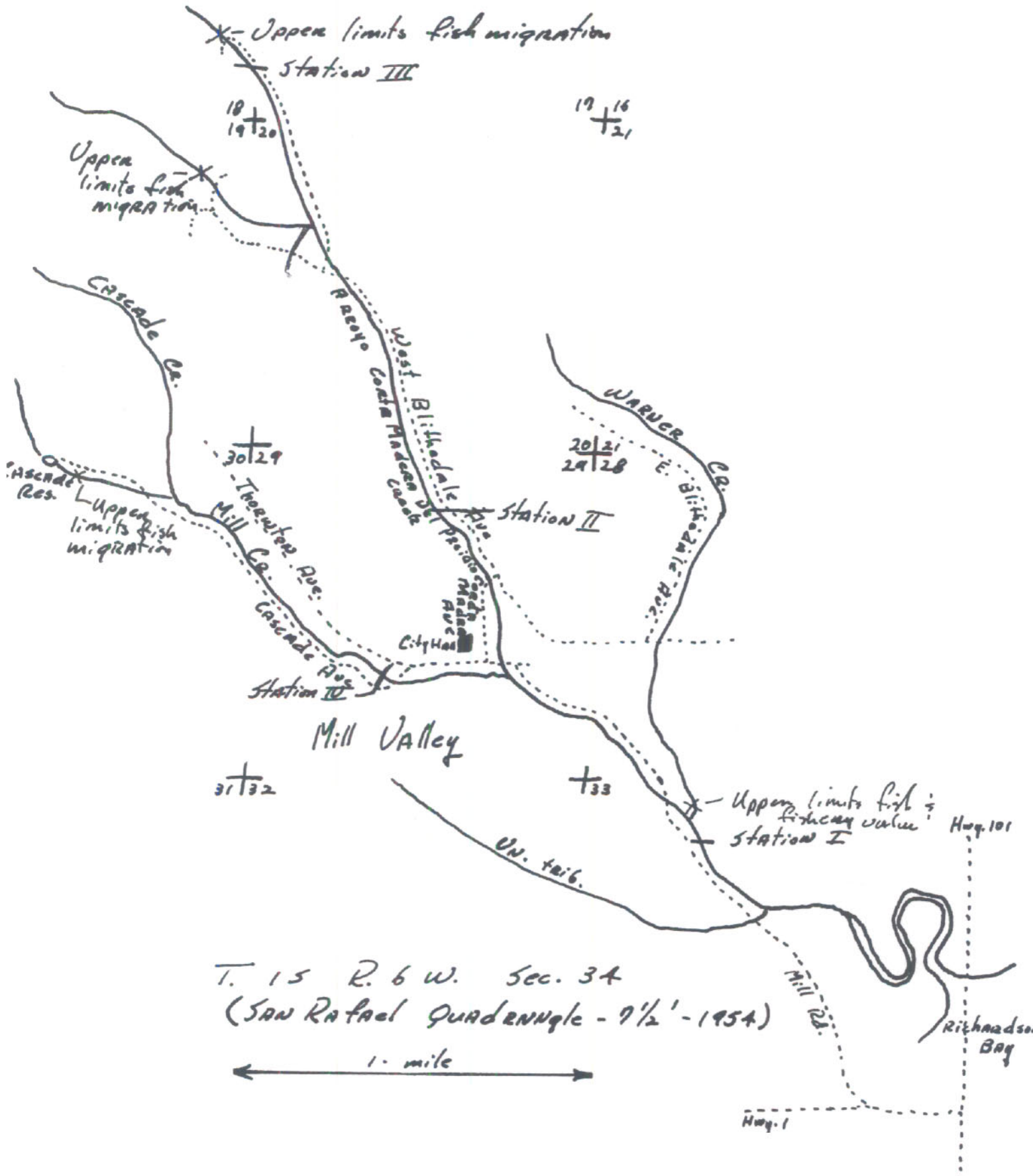
GENERAL ESTIMATE - Arroyo Corte Madera Del Presidio Creek, as an independent stream system, is considered of importance in maintaining a steelhead and possibly (or at least at one time) salmon run. Three and one half miles of stream are utilized for spawning and rearing purposes. Survival appears to be low as related to the lack of good spawning gravel on riffle areas. The stream channel throughout is very narrow and the steep gradient has been suppressed by flood control dams. Flows are sufficient for this type of channel and gradient being slow throughout the areas of fish life and rapid in the upper headwaters. Some intermediate flow sections were observed but were not considered harmful. The stream channel that runs through the main part of town has been converted at some points. The stream channel in tide-water is leveed. The stream channel adjacent some property lines has been retained.

RECOMMENDED MANAGEMENT - To be managed as steelhead and nursery area. Periodic checking of summer flow conditions, channelization problem and flood control activities. Minimum flows of 1.5 cfs on natural flow should be maintained as measured at the town of Mill Valley.

SKETCH MAP - Attached.

REFERENCES AND MAPS - U.S. Department of Interior Geological Survey 7.5 Minute Series San Rafael Quadrangle, 1954.

Glenn Brackett/rc



County Marin  
River System \_\_\_\_\_

Stream Arroyo Corte Madera del Presido Creek  
Tributary to Richardson Bay, San Francisco Bay

<u>Date</u>	<u>Location</u>	<u>Flow</u>	<u>Velocity</u>			<u>Depth</u>			<u>Width</u>
		<u>cfs</u>	<u>Max.</u>	<u>Ave.</u>	<u>Min.</u>	<u>Max.</u>	<u>Ave.</u>	<u>Min.</u>	<u>ft.</u>
7/16/63	T1N, R6W, S29	.843	.60	.33	.30	.2	.16	0	3.5

F&G3 6/61 100  
RFE:cd

County Marin

Stream Old Mill Creek

River System \_\_\_\_\_

Tributary to Arroyo Corte Madera, del  
Presidio Creek

<u>Date</u>	<u>Location</u>	Flow cfs	<u>Velocity</u>			<u>Depth</u>			<u>Width</u>
			Max	Ave.	Min.	Max.	Ave.	Min.	ft.
7/16/63	T1N,R6W,S29	.985	.60	.32	0	.6	.4	.2	4.5

F&G3 6/61 100  
RFE:cd

California Department of Fish and Game - Region 3  
Stream Flow Measurement

Gaging of Arroyo Corte Madera Del Presidio At, near Marquerite Ave. Bridge Crossing

Date: July 16 19 63 Time 1230 A.T. 75°F W.T. 55°F Meter No. 601969

Measured by Brackett Notes by Brackett Comp. by Brackett Checked by \_\_\_\_\_  
 Method .6, .2, and .8 other .4 Gage Height \_\_\_\_\_ Location \_\_\_\_\_

Dist fr init Pt	Width Ft.	Depth in Ft.		Revolutions	Time Sec.	Velocity Mean in Sec.	Area Sq. Ft.	Q.	Remarks
		Total	of Obs						
2'	1	.5	.2	4	30	.30	.5	.150	
3'		.5	.2	11	30	.37	1.55	.185	
4'		.6	.2	18	30	.60	.6	.360	
5'		.4	.2	11	30	.37	.4	.148	
5 ½'	.5	.2	0	0	30	0	.2	0	
Total						.33	1.70	.843	

California Department of Fish and Game - Region 3  
Stream Flow Measurement

Gaging of Old Mill Creek - Trib. to Arroyo Corte Madera Del Presidio At, near Lovell Ave bridge Crossing

Date: July 16 19 63 Time 1330 A.T. 78°F W.T. 68°F Meter No. 601969

Measured by Brackett Notes by Brackett Comp. by Brackett Checked by \_\_\_\_\_  
 Method .6, .2 and .8, other .4 Gage Height \_\_\_\_\_ Location \_\_\_\_\_

Dist fr init Pt	Width Ft.	Depth in Ft.		Revolutions	Time Sec.	Velocity Mean in Sec.	Area Sq. Ft.	Q.	Remarks
		Total	of Obs						
5 1/2	.5	.2	0	0	30	0	.10	0	
6	1	.5	.2	10	30	.33	.50	.165	
7	1	.6	.2	18	30	.60	.60	.360	
8	1	.5	.2	18	30	.60	.50	.300	
9	1	.4	.2	12	30	.40	.40	.160	
10	1	.2	0	0	30	0	.20	0	
4.5	Total	.4				.32	2.30	.985	

Sheet No. 1