

Yolo Co.

REPORT ON PROPOSED REHABILITATION OF SALMON
AND STEELHEAD RUNS IN CACHE AND
PUTAH CREEKS ↓

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The present report cannot be considered as a complete or comprehensive outline of the possibilities of rehabilitation or establishment of salmon and steelhead runs in Cache Creek, Clear Lake and tributaries, and Putah Creek, but is simply a collection of notes gathered during brief observations and also discussions with interested persons.

Cache and Putah creeks nominally are tributaries of the Sacramento River on its west side, but at least in recent years no water or practically no water from these streams has reached the Sacramento River through their original channels. The system of water use and flood control in the lower reaches of these streams is complex enough and unknown enough to me not to be discussed in this report. However, reports indicate that at least in years of heavy rainfall some King Salmon ascend Cache Creek via the Yolo By-Pass.

It is the desire of the Clear Lake Wildlife Council and other interested parties to "rehabilitate" the runs of salmon and steelhead in Cache and

↓ Submitted March 11, 1940.

Putah creeks. The use of the word "rehabilitate" may be questioned, for some persons believe that these streams never had such runs, at least of any consequence. Both Cache and Putah creeks are generally similar in physical characteristics, containing many miles of potentially fine spawning grounds. If it is true, then, that these streams never contained appreciable salmon and steelhead runs, the only ostensible reason for the fact must be lack of water in the lower courses of the streams during the dry season. This seems possible from the report of McGlashan (1929). There has been no flow in Cache Creek at Yolo in some months of many years since 1902, when records were started. Similarly, there has been no flow in Putah Creek at Winters in some months of many years since 1905, when records were started. However, it should be noted that the periods of little or no flow have increased in length and frequency in both streams, especially since 1918-19. Therefore, the present absence of flow in the lower reaches of the streams during dry seasons may be an artificial condition, caused by diversion of water.

In order to present a better understanding of the topography and location of Cache and Putah creeks, the following general description is quoted from McGlashan (1929).

CACHE CREEK

The Cache Creek drainage basin lies on the eastern slope of the Coast Range in Lake, Colusa, and Yolo Counties, immediately south and west of the south end of the Stony Creek Basin and north of the Putah Creek Basin. The upper part of the area, comprising about 824 square miles, lies in the central part of Lake County, south of the divide

separating the Eel River and Cache Creek Basins. It is roughly rectangular in shape, and contains Clear Lake in its center. From Lake County the basin extends southeastward to the Sacramento Valley as a strip about 50 miles long and 10 miles wide. The total area of the basin is 1,290 square miles.

"Cache Creek is the only known outlet of Clear Lake. The lake is very irregular in shape and has an area of 65 square miles and an altitude of 1,325 feet at mean level. Its length is 20 miles and its greatest width 7 miles. The upper part, or main lake, has a maximum depth of 35 feet, but the lower neck has a few small areas as much as 50 feet in depth. The drainage area tributary to the lake is about 417 square miles, chiefly toward the south and west. The principal creeks flowing into the lake are Scotts, Middle, and Clover from the west, and Doba, Kelsey, and Cole⁸ from the south. They are torrential during the rainy season, but are practically dry in the summer.

"From the lake Cache Creek flows southeastward to the Yolo Basin and ultimately into Sacramento River through sloughs. Its total length is about 80 miles.

"The largest and most important tributary of Cache Creek is the North Fork, which drains 250 square miles in the eastern part of Lake County. The only other important tributary is Bear Creek, which drains the western part of Colusa County. These creeks are very small in the summer, but rarely become dry. All the tributaries are torrential during the rainy season.

⁸ Cole Creek is not named on Punnett's map of Lake County or on the sketch map accompanying Water-Supply Paper 45 (Pl.I).

"The upper part of the Cache Creek drainage basin in Lake County is mountainous and very rugged. Some of the peaks reach an altitude of 6,000 feet above sea level, and their slopes, as well as those of the lower ranges, are very steep. About 5 miles below the outlet the creek enters Cache Creek Canyon, in which it flows for 25 miles on an average grade of 35 feet to the mile. In some places the canyon walls are vertical cliffs 300 feet high. Below the canyon the creek enters Capay Valley, from 1 to 3 miles wide and 20 miles long, through which it winds for a distance of nearly 30 miles before entering the Sacramento Valley.

"On the northern slope of the ranges around Clear Lake are fine belts of fir, oak, and pine. Elsewhere on the high ranges the vegetation consists of a dense growth of greasewood and chaparral. A strip along the northern edge of the basin is included in a national forest.

"The mean annual precipitation ranges from 17 inches in the Sacramento Valley to 40 inches or more on the mountainous summits in Lake County, where much of it occurs as snowfall in the winter.

"The upper part of this basin contains springs, a number of which, especially in the North Fork Basin, have medicinal properties that attract many visitors."

PUTAH CREEK

"The Putah Creek Basin lies on the eastern slope of the Coast Range south of the Cache Creek Basin and north of Napa Valley. It

some of it occurs as snowfall in the winter, about 65 inches. Helen Mine, on the northern slope of Mount St. Helena, receives almost 100 inches annually.

"Below the foothills is a large area of rich irrigable land, which could be supplied with water from Putah Creek. Some of this land is already irrigated and has been proved to be susceptible of the highest state of cultivation.

"At least two good reservoir sites exist on the main stream, one near Winters and the other near Guenoc."

As far as I know, there are at present only two dams on Cache Creek, both owned by the Clear Lake Water Company of Woodland. The upper dam, located in T. 12 N., R. 6 W., section 6, at an elevation of 1250 ft., is known as the Clear Lake Impound. Dam. It was constructed in 1914 at a cost of \$117,773. It is of the gravity-straight type. The distance from crest to stream bed is 33 ft., and to foundation 36 ft. The length of crest is 260 ft. There is no spillway. The storage capacity is 420,000 acre-feet and the drainage area 420 sq. mi. There is no fishway, but at high water some fish can get past the dam with some difficulty, since at such times the outlet gates, which are located at the bottom of the dam, are opened. The caretaker at the dam told me that he has seen large "chapaul", Ptychocheilus grandis (Ayres), pass upstream through these gates, but that he has never seen adult salmon or steelhead at the dam.

I did not see the lower dam, which is known as the Capay Dam and is located near the small town of Capay, Yolo County. Insofar as I

know, this dam has no fishway, either. However, during the wet winter of 1937-38 considerable numbers of King Salmon are reported to have reached this dam (newspaper reports and reports of supposed eye-witnesses) and the caretaker at the upper dam told me that some salmon got past the dam at the time.

Mr. Martin, of Nice, Lake County, told me that in 1937-38 steelhead ascended Cache Creek past both dams and were taken in Clear Lake.

Both Mr. Martin and Mr. Corson, also of Nice, told me that Mr. Lambert, public relations man of the Clear Lake Water Co., had told them that his company would construct fishways at both dams if the stream were otherwise made suitable for adult salmon or steelhead.

According to Mr. Martin, another obstacle to runs of salmon and steelhead in Cache Creek is found in the form of rock slides caused by old construction of a bed for a railroad. As I understand it, at times of low or medium flow the water filters through these slides, but at high water goes over them. The railroad was never constructed, I believe.

Finally, as I understand it, the water in lower Cache Creek does not reach the Sacramento River by means of its original channel, but flows into the Yolo By-Pass, through which salmon and steelhead enter Cache Creek. In order to pass the water in lower Cache Creek directly into the Sacramento River, dikes 5 or 6 ft. high would have to be constructed, according to Mr. Martin.

Local residents report that the upper portions of the North Fork of Cache Creek and its tributaries are fine trout fishing streams with good flows.

I have little information regarding Putah Creek, but very probably the situation is quite comparable. The only dam that I know of is located in T. 8N., R. 1W., section 22, at an elevation of 107 ft., in Yolo County. It is owned by the City of Winters and is known as the Putah Creek Dam. It is of the gravity type; flashboards are used. The distance from crest to stream-bed is 11 ft., to foundation 18 ft. The crest length is 170 ft. The cost of construction was \$15,168. The storage capacity is 177 acre-feet and the drainage area 655 sq. mi.

With the data at hand, it would be difficult for me to venture an opinion as to whether it would be feasible to attempt to produce runs of salmon and/or steelhead in Cache Creek and/or Putah Creek. My information is that the U. S. Bureau of Fisheries workers now engaged in the study of the Shasta Dam salmon salvage problem dismissed Cache and Putah Creeks from consideration as streams of possible use in salvage of the salmon runs now going past the site of the Shasta Dam, principally because of low water conditions during the dry season, and secondarily because of the distance from Shasta Dam.

My understanding is that U. S. Army Engineers are now engaged in a study of water conditions in the vicinity of Clear Lake and that there is a possibility that dams will be constructed on Cache Creek and on tributaries of Clear Lake. There is also a possibility that the channel of Cache Creek will be deepened, straightened, and/or freed from

obstructions. Without rendering final judgement, it seems to me that the possibilities of utilization of Cache and Putah creeks for salmon and steelhead will to a large extent depend upon the nature of such possible work by the U. S. Army Engineers.

REFERENCES

Coleman, George A.

1930. A biological survey of Clear Lake, Lake County.
Calif. Fish and Game, Vol. 16, No. 3, July, 1930,
pp. 221-227, fig. 69.

McGlashan, H. D.

1929. Surface water supply of the Sacramento River Basin,
California, 1895-1927. U. S. Geological Survey,
Water-Supply Paper 597-E, pp. I-VI, 189-250, 1929.

MAPS

Calif. Division of Forestry.

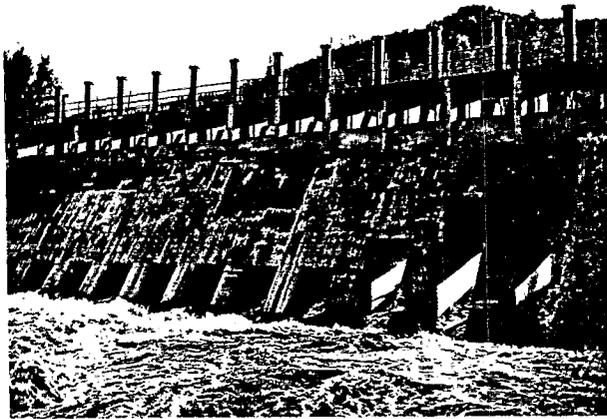
1937. Administrative map of Lake County.

U. S. Forest Service.

1935. Mendocino National Forest. $\frac{1}{8}$ inch scale. Contour
interval 200 feet.

U. S. Geological Survey.

1938. Lakeport Quadrangle. Scale 1:62500. Contour interval
50 ft.
1939. Plan and profile of Cache Creek, with dam sites.
3 sheets. Scale 1:31680.



Clear Lake Impound. Dam (upper dam) on Cache Creek.
Outlet gates at bottom of dam open. March 7, 1940.



Cache Creek, with Clear Lake Impound. Dam in background.
March 7, 1940.

Photos by Leo Shapovalov.



North Fork of Cache Creek. View downstream at State Highway 20 bridge. March 7, 1940.



North Fork of Cache Creek. View upstream at State Highway 20 bridge. March 7, 1940.

Photos by Leo Shapovalov.



Farm-house on North Fork of Cache Creek along State Highway 20, after flood of March, 1940.

North Fork of Cache Creek at extreme left center of photo. March 7, 1940.

Photo by Leo Shapovalov.