

A PARTIAL CHEMICAL TREATMENT OF SULFUR CREEK, SONOMA COUNTY

[As told to H. E. Pintler by Warden Harley Groves]

INTRODUCTION

An experiment to remove the rough fish in a portion of Sulfur Creek with rotenone bearing powder was attempted in the fall of 1952. A preliminary investigation by Messrs. Herbert Pintler and Bruce Kimsey in August of 1952 of the fish population in Sulfur Creek between Squaw Creek and the Geysers resort found that the fish population was primarily made up of rough fishes. Electro sampling and rotenone sampling were the tools used for the determination. With this data and its analysis, an experimental program was drawn up to attempt to eliminate the fishes in Sulfur Creek with the use of rotenone bearing powder.

THE TREATMENT

The program of chemically treating Sulfur Creek was started the first week of October 1952. Treatment was started one mile below the Geysers Resort and just above the Buckman mine. The creek was treated for the first mile with approximately 15 pounds of rotenone powder. The powder was applied by patting approximately two pounds in a burlap sack then dousing the sack in the riffles and pools until the content was exhausted. Each pool or riffle was treated by dousing the sack up and down until the tan colored ooze from the sack had out the treated area. The following day, treatment was continued down to the confluence of Squaw creek, a distance of 2½ miles.

A reconnaissance over the treated area on October 9 revealed all fish were killed and that the effects of rotenone had destroyed all fishlife a half mile below the area treated. Fish were not affected, however, in the isolated side pools, below the treated area. The side pools were treated and chemical treatment was continued down to Frazier Creek a distance of 1.3 miles. This section of creek was treated with approximately 12 pounds of rotenone powder.

The following day Wardens Harley Groves and Ray Bruer, accompanied by Herbert Pintler, went up little Sulfur Creek to the falls. This was three miles above its confluence with Sulfur Creek. Little Sulfur was treated for a distance of two miles by the named personnel with the aid of a burlap sack. Approximately 20 pounds of rotenone bearing powder was used.

The following day it was noted that the chemical had drifted down to Sulfur Creek a distance of one mile below the treated area. The isolated pools below the treated area were treated at the time of reconnaissance. One hundred yards of Devil's Den Creek, of tributary of Little Sulfur, was treated at the same time. It was found that this creek was relatively free of rough fish except for a 100 yard stretch adjacent to its mouth. Treatment was started again on Sulfur Creek, October 12, at the confluence of Little Sulfur with Sulfur Creek and carried down to the Hale ranch, a distance of two miles. This area was treated with approximately eight pounds of rotenone. The treatment was discontinued until October 20, a week later. The area treated was from where work had stopped on Sulfur Creek to the Grainfield Hill falls. The chemical was applied by Wardens Harley Groves and Jack Wilson. This was a distance of 2½ mile. The volume of water was the largest so far treated in a two mile stretch. To adequately treat this section of water, approximately 40 pounds of rotenone bearing powder was used. Further, treatment of the creek was postponed until October 20. The chemical treatment was concluded after 150 yards of Frazier Creek was treated above its confluence with Sulfur Creek. This was done to enable back-checks to be made and to evaluate the success of the program.

Results

The post checks of the areas chemically treated in the Sulfur Creek drainage showed that the program was successful. The creek contained no trout in the section first treated; however, hundreds of rough fish were killed, the bulk of them being roach. The second day of treatment killed hundreds of rough fish and one trout. The trout was located near the mouth of Squaw Creek. The section of stream between Squaw Creek and Frazier Creek yielded 12 trout but hundreds of rough fish were killed. Only three of the 12 trout were found in the channel of Sulfur Creek, the 9 others were in isolated pools adjacent to the creek. A reconnaissance on Little Sulfur after its treatment revealed a similar fish population complex. In the pool below the falls on Little Sulfur no trout were seen; the hole possessed approximately 20 squawfish ranging in length from 12 to 22 inches and a few large suckers. Inspection of the creek above the falls revealed trout were present in numbers. It was estimated one trout 6 to 8 inches long was in each hole accompanied with a few trout 2 to 3 inches in length. One-quarter of a mile below the falls in rough water 60 trout were recovered. These fish ranged in size from 5 to 10 inches in length. It was estimated at the time that there were as many 3 and 4 inch trout as the larger ones picked up. No trout under three inches was found. A check of the section of Devil's Den Creek treated showed a small population of squawfish, 20, ranging in size from 3 to 4 inches in length. A hole 20 foot long, 8 feet wide and averaging 3 feet deep above the tested area possessed approximately 100 trout ranging in size from 1½ inches to 6 inches. A number of small trout were found in the riffles of Devil's Den Creek above the treated area. An inspection of Little Sulfur Creek from Devil's Den to Sulfur Creek, a distance of three miles, revealed no living fish. Approximately 40 trout were found in with the numerous rough fishes killed. Suckers and

squawfish were present in the hundreds. In one hole near [the mouth of] Devil's Den Creek there were approximately 30 squawfish ranging in size from 12 to 23½ inches. It was noted that wherever large squawfish were found, there would only be a few; however, where there were smaller squawfish averaging 8 inches in length in a hole there would be hundreds. A check between the confluence of Little Sulfur Creek and Sulfur Creek down to Hale ranch, a distance of 1½ miles, only 9 trout were picked up. Large numbers of rough fishes were noted, primarily roach and suckers. In the cutoff pools between these two points, approximately 300 trout were killed with equal numbers of rough fish. These fishes ranged in size from 2 to 4 inches in length. A reconnaissance of the creek from the Hale ranch to its mouth, a distance of 3½ miles, revealed the creek possessed only a few 8 and 10 inch trout and numerous rough fishes. Only 9 trout were found between the Hale ranch and the Grainfield Hill falls, a distance of 2½ miles. A check of Squaw Creek revealed an infestation of squawfish 4 inches in length in one-quarter of a mile of the creek where it joined Sulfur Creek. An estimated 1500 to 2000 trout were killed in the quarter mile of Squaw Creek. These trout were approximately two inches long. A few 7 to 14 inch trout were also killed in Squaw Creek. A check of 150 yards of Frazier Creek that was treated showed it possessed a few small, 3 to 4 inch squawfish. Approximately 450 yearling trout were eliminated in this section of creek along with the rough fishes.

Approximately 18 miles of this Sulfur Creek drainage was chemically treated. This was accomplished in 12 days with the aid of 5 men, working 30 mandays. Reconnaissance of all areas treated revealed a complete fish kill. The kill was accomplished with 150 pounds of rotenone. It can be assumed that the application of rotenone bearing powders to eliminate fish life in small shallow streams is possible if all parts of a creek are treated, e.g. isolated pools. It can also be assumed that this management tool will be very useful in population manipulation in streams.

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Herbert E. Pintler **PLACE** Box 415, Lakeport
TO: J. Bruce Kimsey **DATE** October 8, 1958
SUBJECT: Sulphur Creek, Sonoma County - Observations and chemical treatment.

On Saturday, October 4, 1952, when we were checking the subject creek and continuing a brief chemical treatment, I took a few notes which you may want for the survey file. They are reproduced below.

Locality: Vicinity of "The Geysers" Resort.

Pool we shocked earlier (Aug. 16, 1952) -

Many Hesperoleucus, but no other species as far as could be recognized. All fish 6" or less.

A few small, 2"-4", trout in riffles above.

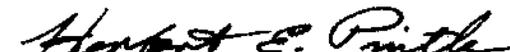
Deep pool between old and new foot bridges below resort -

Water temperature, 2:40 p.m., flowing, shade, was 80°F.; air temp. 88°F. Chemical treatment applied at 2:50 p.m. Small fish showed distress by 3:00 p.m. Larger fish appeared by 3:30 p.m. Only Hesperoleucus and suckers were observed. There were no Mylopharodon, Ptychocheilus or trout.

Dam mentioned by Shapovalov ("Report on Survey of the Streams in the Vicinity of Cloverdale, Calif.". Administrative Report to Bureau, March 1932, p. 10) has washed away, and only concrete abutments remain.

Material in parenthesis above was added here for the sake of completeness.

cc: Dir. Fish Conserv.


Assistant Fisheries Biologist