NH

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF SACRAMENTO

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NATIONAL AUDUBON SOCIETY and MONO LAKE COMMITTEE,

Petitioners,

vs.

STATE WATER RESOURCES CONTROL BOARD,

Respondent.

DEPARTMENT OF WATER & POWER OF THE CITY OF LOS ANGELES

Real Party in Interest.

And Consolidated Action No. 336715

COPY

No. 336712

--oOo--

DEPOSITION OF ELDEN H. VESTAL

--oOo--

DEPOSITION EXHIBITS

--oOo--

Reported by: KATHLEEN SOLOAGA, CSR No. 6957

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Elden H. Vestal
Deposition Exhibits

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2.	Map - Mt Lyell Quadrangle
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4.	Map - Pumice Valley
5.	Photograph of an adult female Brown Trout taken by E.H. Vestal dated 10-16-39
6.	(2) Photographs taken by E.H. Vestal dated 5-2-39
7.	(2) Photographs taken by E.H. Vestal, one dated 7-19-39 and one dated 1940
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11.	Exhibit omitted (duplicate of exhibit #8)
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15.	Reprint from California Fish and Game April 1954, Article written by E.H. Vestal entitled "Creel Returns From Rush Creek Test Stream, Mono County, California, 1947-1951"
16.	(3) Field notes made by E.H. Vestal dated 4-10-47 Rush Creek Test Stream, 6-19-47 Grant Lake (Rush C.), and 5-5-49 Rush Creek L.A. Ventura Weir

Exhibit #	Document
17.a	(2) Field notes made by E.H. Vestal dated 2-21-47 Rush Cr. Test Stream
17.b	(2) Letters - one dated 3-17-41 from E.H. Vestal to J.E. Jones of DWP and reply of Jones dated 3-24-41
18.	Various handwritten notes of E.H. Vestal from 1985 through 1987
19.	Memorandum dated 12-5-84 from Dept. of Fish and Game to Phil Pister re Rush Creek Electrofishing Survey, November 9, 1984
20.	Declaration of E.H. Vestal dated October 11, 1985
21.	Rush Creek Test Stream - Progress Report For 1955
22.	Rush Creek Test Stream, Mono County: Summary Report
23.	Hess recreation map
24.	Box of slides (not included)
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29.	Pacific Flyway Waterfowl Investigations Population Data
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QUALIFICATIONS OF WITNESS

NAME: Elden H. Vestal

FORMER POSITION: Fisheries Management Supervisor (Retired 12-31-78)

LAST EMPLOYER: State of California, Department of Fish and Game, Region 3, Yountville, CA., 94599

HOME ADDRESS: 3042 Donna Drive, Napa, CA., 94558
Ph: (707) 224-3543

EDUCATION: University of California, Berkeley
Bachelor of Arts Degree, Letters and Science, 1934
General Secondary Teacher's Credential, 1935
Master of Arts Degree, Zoology, 1936
Graduate Work, Zoology, January - May, 1937

LENGTH OF EMPLOYMENT WITH DEPARTMENT OF FISH AND GAME: 41 years

EXPERIENCE: California Division of Fish and Game

1938-1940: Junior Inland Water Fisheries Researcher Participated in California Trout Investigations (Jan.-July 1938); assisted fisheries survey of Eel River watershed; participated in salmon and steelhead life history studies at Waddell and Scott Creeks and South Fork of Eel River (Aug. 1938-April 1939). Assigned District Biologist in charge of fisheries investigations and management in the Inyo-Mono Region of California (May 1939-June 1940). Principal activities included organizing and conducting a continuing inventory of all waters in the area; planning and conducting biological survey and fisheries and limnological studies at June and Gull Lakes; and planning, testing, and conducting first large-scale chemical treatments of inland lakes and streams in California for eradication of undesirable fish.

1940-1950: Became, in succession, Jr. Fisheries Biologist, Jr. Aquatic Biologist, Sr. Fisheries Biologist, Assistant Fisheries Biologist, and District Fisheries Biologist. Remained in charge and supervised all fisheries investigations and management in the Inyo-Mono Region from July 1940 to November 1950, including planning and

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1950-1951: District Fisheries Biologist. Transferred to 9-county San Joaquin-Sierra Region 4 with headquarters in Fresno; in charge and supervision of fisheries investigations and management (December 1950 to December 1951). Activities all broadened by diversity and complexity of watersheds with increasing number of investigations and studies on dams, diversions, and other water quality development and problems and effects on anadromous and inland fisheries and wildlife resources.

California Department of Fish and Game

1952-1953: Continued as District Fisheries Biologist, in charge and supervision of fisheries investigations and management in 9-county San Joaquin-Sierra Region 4 (Jan. 1952-June 1953) with headquarters in Fresno.

1953-1960: Became Fisheries Biologist III and continued in charge and supervision of fisheries investigations and management in 9-county, San Joaquin-Sierra Region 4 (July 1953 through 1959) with headquarters in Fresno.

1960-1964: Assigned as Fisheries Biologist III to coordinate and supervise all water projects activities affecting fish and wildlife resources in 9-county Region 4.

1964-1966: Continued to November 14, 1966, as Fisheries Biologist III to coordinate and supervise all water projects activities affecting fisheries resources in 9-county Region 4.

1966-1971: Appointed Fisheries Management Supervisor for 15-county Central Coastal Region 3, (November 15, 1966-1971) with headquarters in Yountville, to coordinate and supervise all inland, coastal and bay-estuarine fisheries investigations and management activities concerning hatchery production and fish planting, habitat maintenance and improvement or rehabilitation, fish rescue, water projects and water quality, and anadromous fisheries.

1971 to Date: (Same as above, excluding water quality.)

PUBLICATIONS: Numerous reports and special articles (Calif. Fish and Game)
Co-author: Mammoth Lakes Sierra - A Handbook for

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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CALIFORNIA
MT LYELL QUADRANGLE

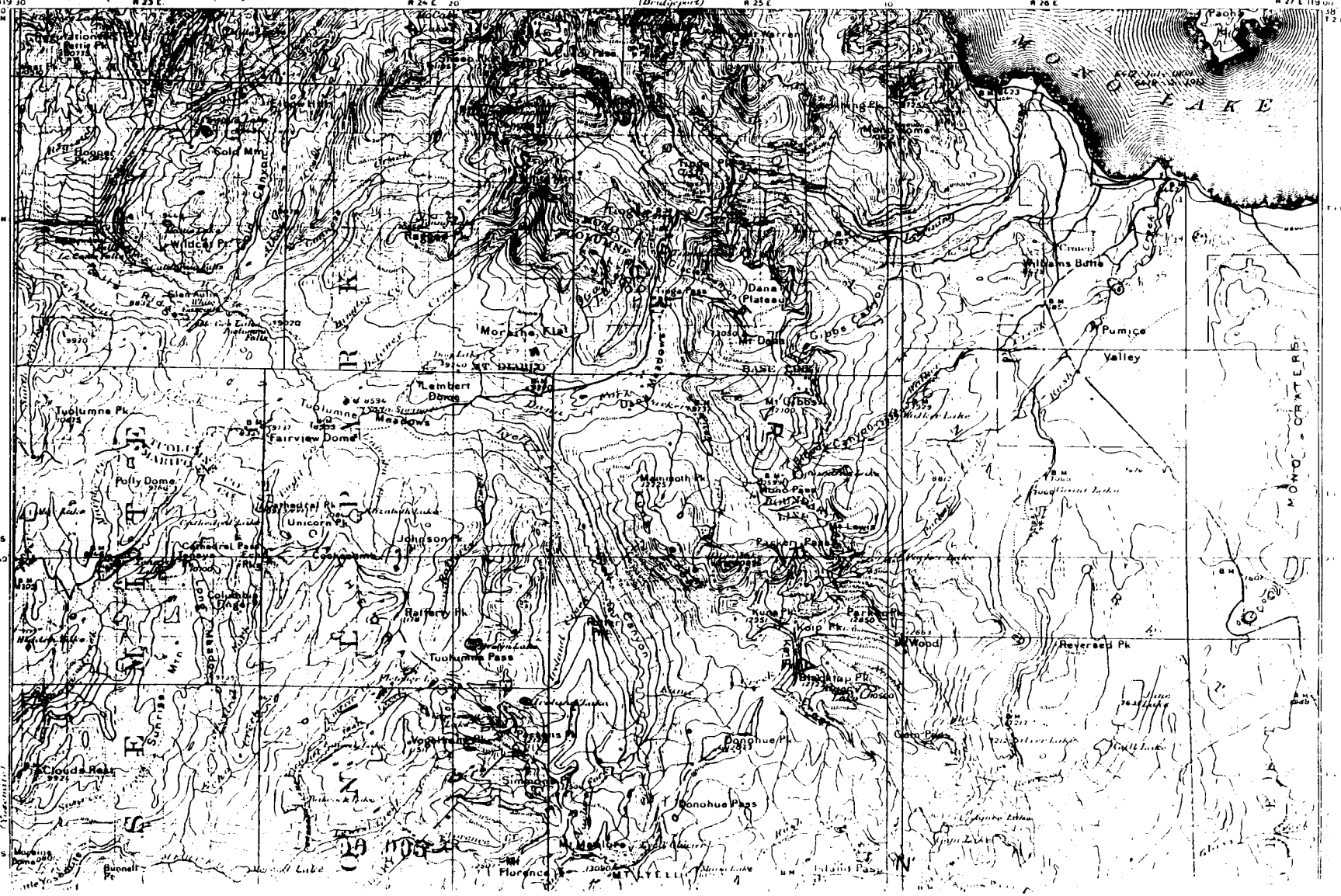

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EXHIBIT 3
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MONO CRATERS QUADRANGLE
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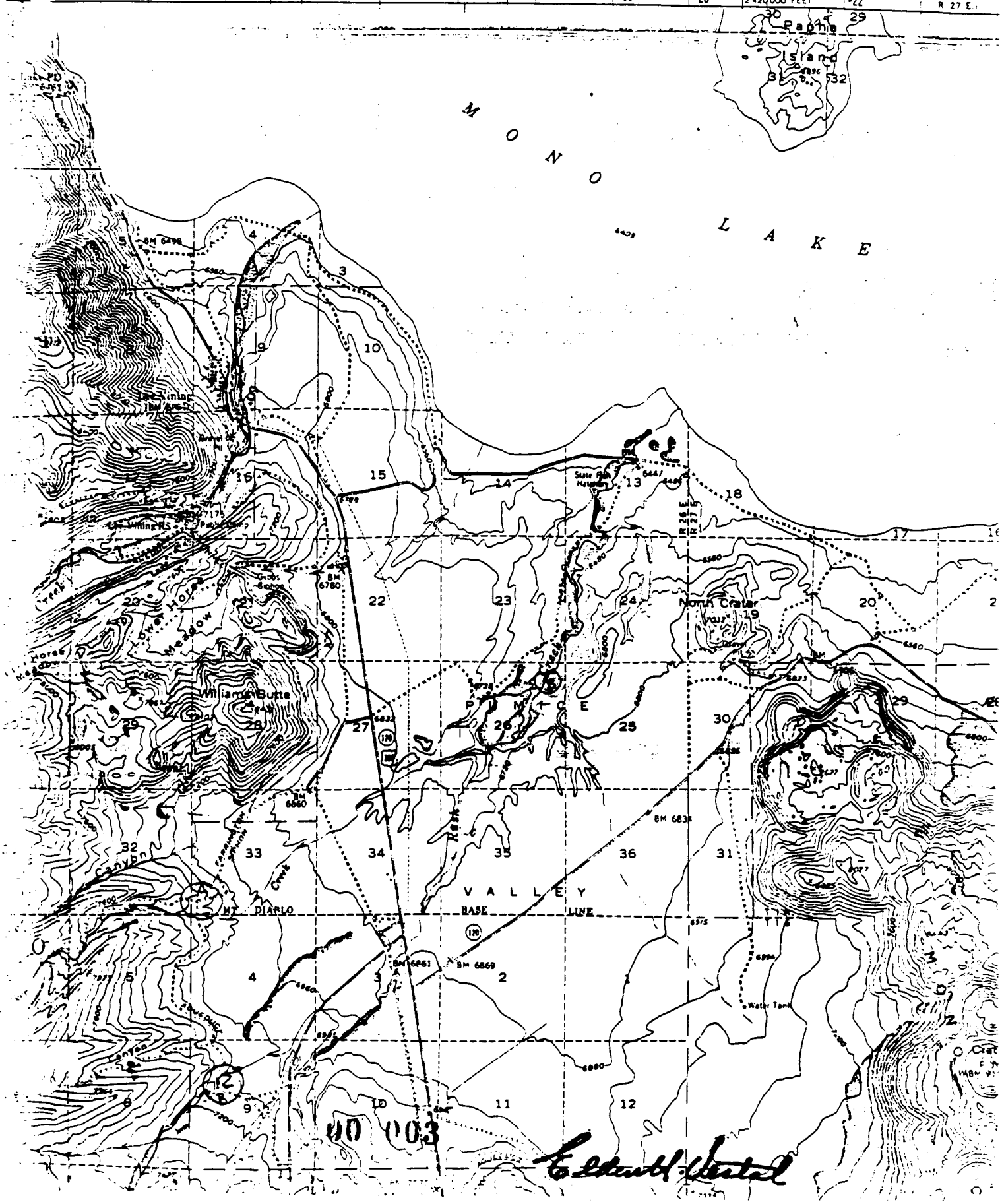
15 MINUTE SERIES (TOPOGRAPHIC)



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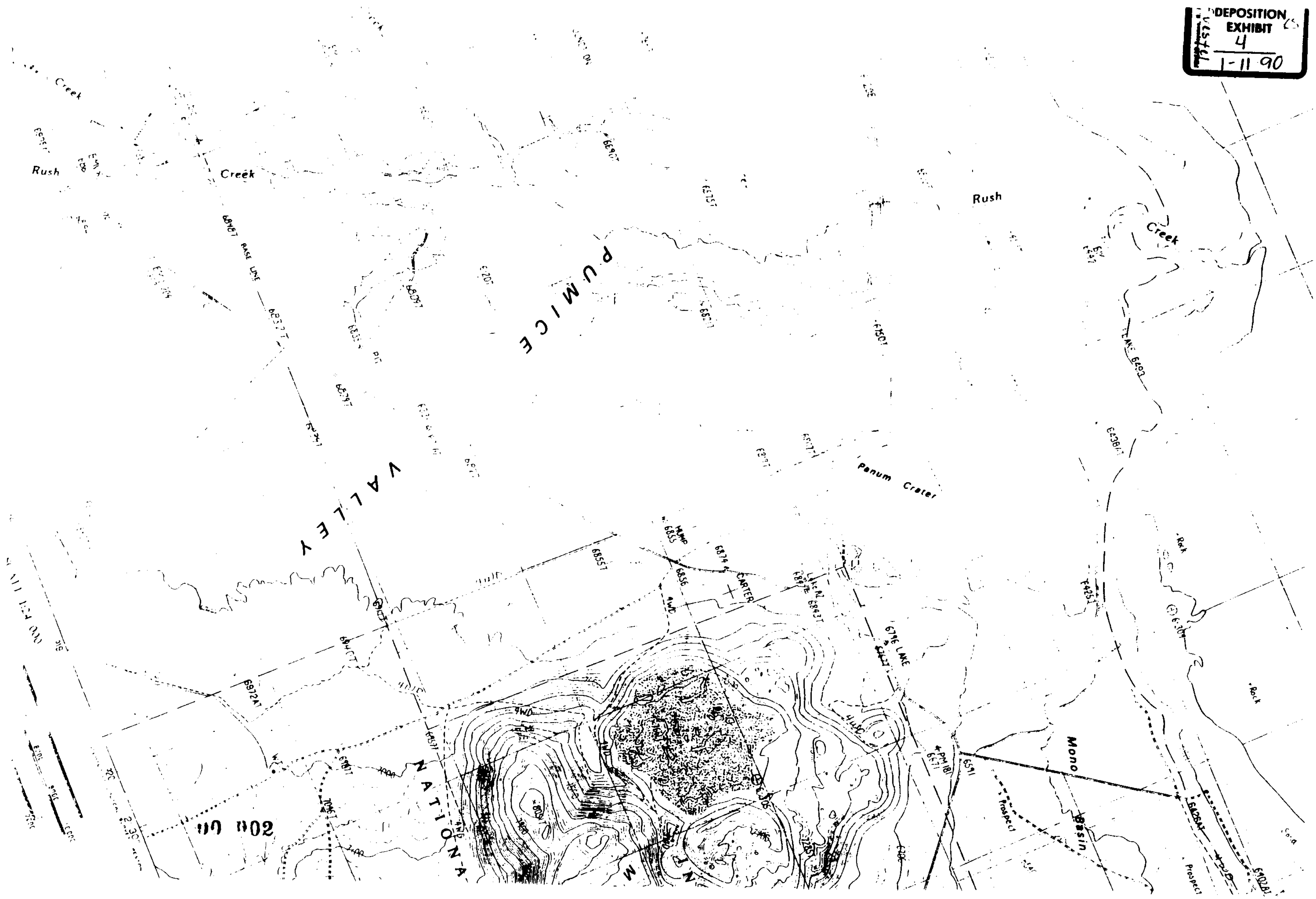

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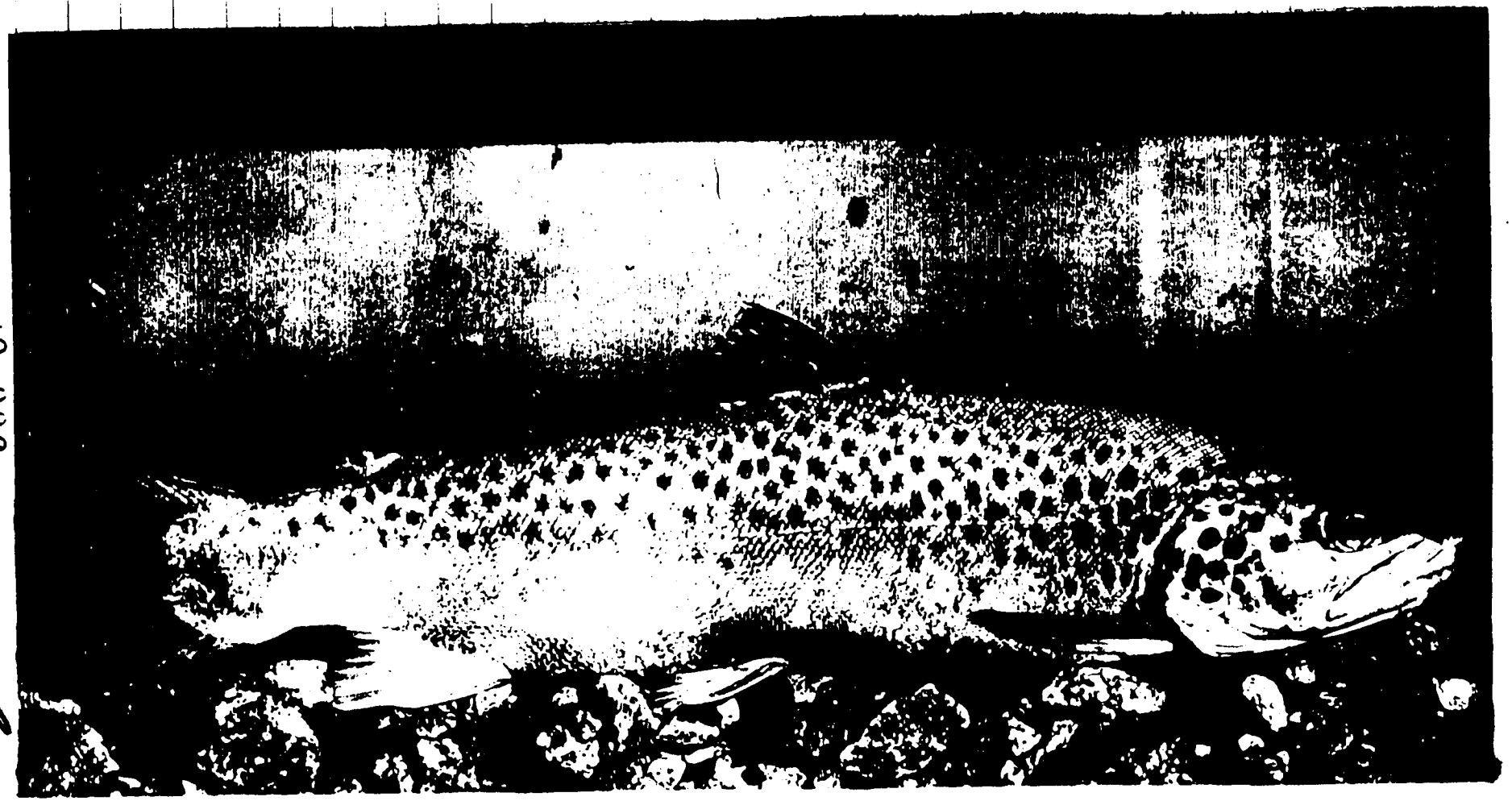

Adult female Paramuriaenat, length 18 inches, photographed 10/16/39 at Rivals Co. Egg Taking Station
Photo by Eldon N. Vestal, in portable aquarium.

Exhibit

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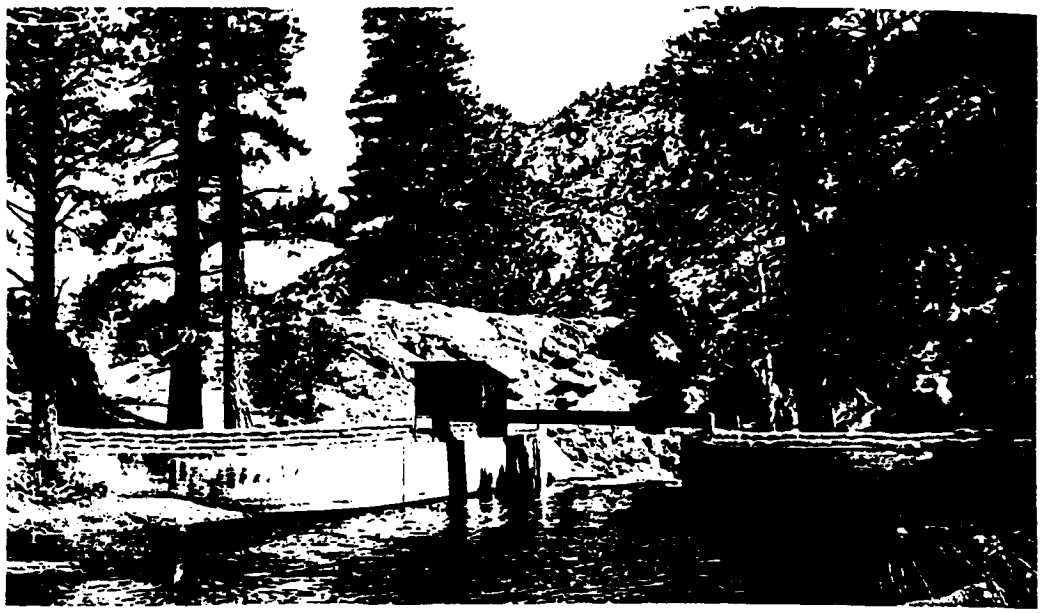

L.A. Venturi weir on Pearl Cr., below Silver Lake, Nevada Co. Photo by Eldemd Vestal, 5/2/39. Note high water marks.

L.A. Venturi weir on Middle Fork Creek, below Silver Lake, Nevada Co., Cal., looking upstream into throat of the weir. Photo by E.H. Vestal, 5/2/39. Hydraulic flume for structure in Parshall Flume.

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Grant L., Mono Co.: View toward dam, east side, and Mono Craters. Photo by Edwin H. Vestal, circa July 19, 1939.

View generally downstream along lower Rush Cr., from foot of road below Grant L., toward Mono L. Photo by Edwin H. Vestal, July 19, 1939. Note the destruction of trees.

Rush Cr., Mono Co.: View upstream from old U.S. 395 highway bridge, Tioga Crest. Photo by Edwin H. Vestal, June 19, 1939. Exposure 1 [illegible].

Edwin H. Vestal

Russian R. Egg-taking station for Brown Trout, below L.A. Venturi Weir & Salmon Lake. Photo by E.H. Vestal, 10/16/39. Racks & trap in use and crew quarters active for Nov-Dec work. Stream flow is high, ±200 cfs, in order to keep attract BN upstream.

Delta section of Russian R., from below lower bridge, looking toward Jenner (Pacific Est, left center). Photo by E.H. Vestal, 21 Feb. 1947. At flow of 152 cfs recorded by City of L.A. Hydrographer, Charles Jones, at that time.

Russian R. Test Stream, Sonoma Co., CA. Downstream weir and spillway. Photo by E.H. Vestal, 10 April 1947. Flow est. 20 cfs.

Elbert H. Vestal

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Rush Cr., Mono Co., CA. Gorge 3 miles above Mono Lake, looking upstream toward [illegible] natural dropoff for proposed barrier site. Note indications of high flow channel. Photo by E.A. Vestal, 10 April 1947. Riparian corridor is predominately willows and black cottonwood. Note high water marks. Flows ca. 10 cfs.

Rush Cr., Mono Co., CA. Middle section of Gorge from above, showing site of vertical barrier. Note indications of high flow channel. Photo by E.A. Vestal, 10 April 1947. Riparian corridor shown is mainly black cottonwood. Flows ca. [illegible] cfs.

Edward A. Vestal

Fish planting, Upper Rock Cr., above Weak h. J. K. Tatum, packer, and Leon Talbott, hatchery man (CDFG) in photo. (Roger Peak in background). Flow at this point was about 100 cfs (est.). Photo by Eldwell, 6/13/39

Upper Rock Cr., below Weak h. Flow controlled at Weak h. Dam, so stream is not at normal level. It is very doubtful if flow shown here was above 5 cfs (est.). Photo by Eldwell, 6/13/39.

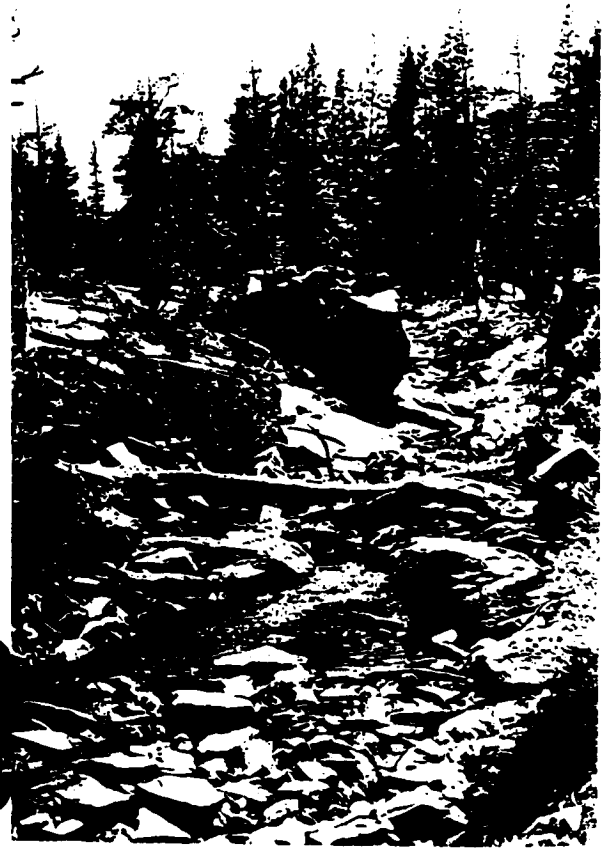

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EXHIBIT 13
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Parker Cr. inlet 1/2 mi. above Parker Falls, Mono Co. Photo by [illegible], 6/2/50. Riparian cover is predominately lodgepole pines and willows. Flow at bridge est. 10 CFS

Parker Cr., 30 yds. above mouth at Parker Falls, Mono Co. Photo by [illegible], 6/2/50. Dist. Emp. Wk. [illegible] at left. Riparian cover is willows & willows; note high flow marks. Est. flow 12 cfs.

Cedar Creek, Mono Co., 1/2 mi. below Parker's outlet. Photo by [illegible], 6/2/50. Riparian cover is lodgepole pines, willows [illegible]. Est. flow 3 cfs

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Edward Postal

Parker Creek, Juneau, 1½ mi.
from Lake outlet. Photo
by Edward Vestal 5/2/50
Flow est. 30 cfs.

Parker Creek, Juneau, 400
yds below lake outlet.
Photo by Edward Vestal, 5/2/50
Flow est. 30 cfs.

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Edward Vestal

Rush Creek - fre

REPRINT FROM

CALIFORNIA FISH and GAME

"CONSERVATION OF WILD LIFE THROUGH EDUCATION"

VOLUME 40 SAN FRANCISCO, APRIL, 1954 NUMBER 2

CREEL RETURNS FROM RUSH CREEK TEST STREAM, MONO COUNTY, CALIFORNIA, 1947-1951

ELDEN H. VESTAL

Inland Fisheries Branch, California Department of Fish and Game

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Elden H. Vestal

CREEL RETURNS FROM RUSH CREEK TEST STREAM, MONO COUNTY, CALIFORNIA, 1947-1951[1]

ELDEN H. VESTAL
Inland Fisheries Branch, California Department of Fish and Game

INTRODUCTION

The rise in angling pressure on California's roadside trout waters since 1944 has been tremendous. Poorer catches have been accompanied by demands from the angling public for increased plants of catchable trout.[2] In response to these demands the California Department of Fish and Game is rapidly expanding hatchery production of "catchables." It is vitally important to get the greatest possible number of these expensive fish back into the anglers' creels. The Rush Creek experiments were designed to find out how this could be done in a representative stream in the great Inyo-Mono recreation area.

The experiments of the first five years, 1947 through 1951, dealt primarily with catchable rainbow trout. Smaller rainbow and brown trout were also planted during the first three years to determine their survival to following seasons, and to learn if such plants were more economical, in terms of fish in the angler's creel, than in-season plants of catchable trout.

This paper marks the completion of the rainbow trout phase of the project, the first four years of which were under the direction of the writer. Comparable experiments with brown trout are now under way.

DESCRIPTION OF THE TEST STREAM

The lower portion of Rush Creek was in many ways ideal for use as a test stream. Its location (Figure 1) in the Inyo-Mono vacationland only three miles from U. S. Highway 395 assured both heavy fishing and ready accessibility for planting. The stream was fairly typical of heavily fished trout streams on the east slope of the Sierra Nevada. Absence of tributaries prevented emigration of planted trout. The section available was large enough for heavy planting and yet, with but one access road, could be controlled from a single checking station with a minimum of personnel and facilities.

Rush Creek Test Stream is located in central Mono County of eastern California, four miles east of Lee Vining, about 10 miles east of the eastern boundary of Yosemite National Park, 67 miles north of Bishop, and 330 miles by good highway from Los Angeles. It includes 3.7 miles of lower Rush Creek from a rocky defile known locally as The Gorge downstream to the mouth of Rush Creek at Mono Lake (Figure 2)

[1] Submitted for publication January, 1954.
[2] In California there is no minimum size limit. The term "catchable" applies in this paper to trout about seven inches in length (or longer).

Trout are unable to live in Mono Lake because of its extremely high salinity. Gill-netting and observations during 1947 failed to indicate any loss of fish to Mono Lake, but as a precaution a weir and trap were installed in the delta section of Rush Creek early in 1948 and thereafter checked after each planting. Upstream migration was prevented by a seven-foot high rock-masonry barrier built in the center of The Gorge early in 1947.

Since the construction in 1939 of Grant Lake Dam and the Mono Tunnel by the City of Los Angeles for diversion of Mono Basin water

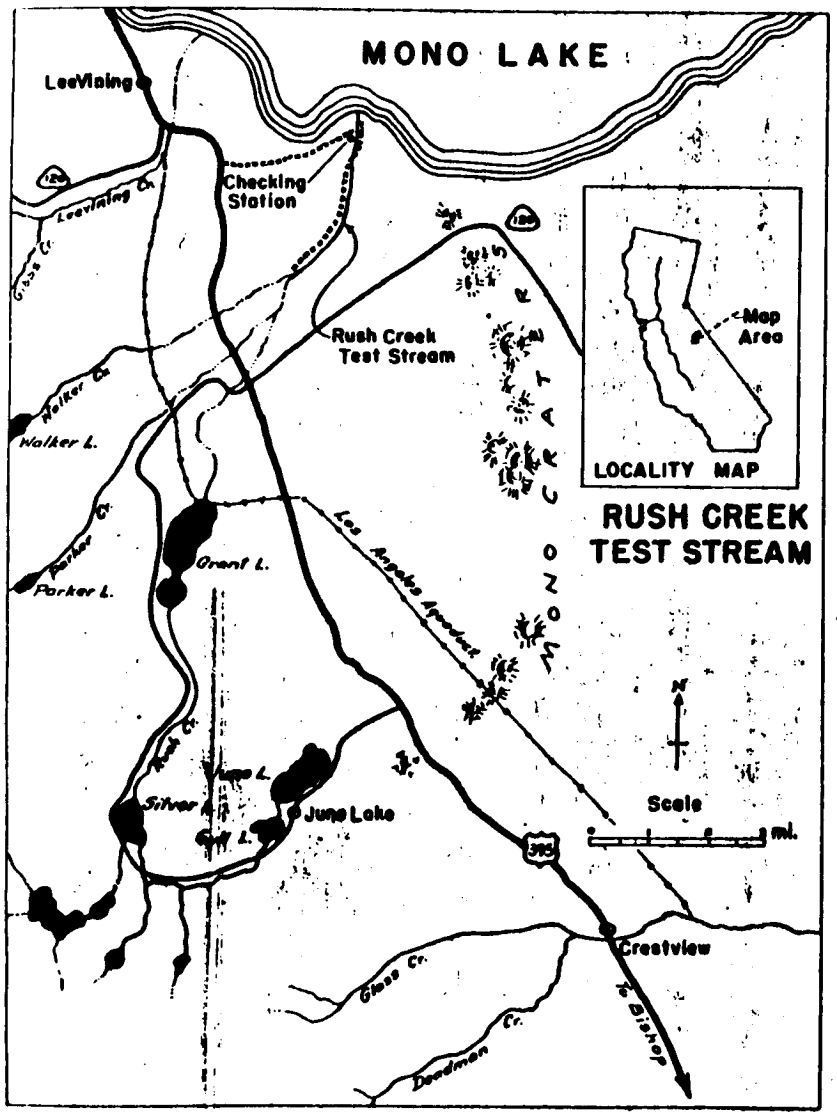

FIGURE 1. Location map of Rush Creek Test Stream, Mono County, California.

into the Los Angeles Aqueduct system, the natural flow in Rush Creek has been controlled and diverted. Tributaries of Rush Creek below the dam have also been diverted, by means of the Mono Basin Aqueduct. Since 1947 the City of Los Angeles has released no water into Rush Creek from Grant Lake Dam during the entire trout season. As a result the test stream at the upstream barrier was completely dry by late August in 1948 and by mid-July in 1949, and the entire summer flow has been supplied by the springs just below this barrier. Without water

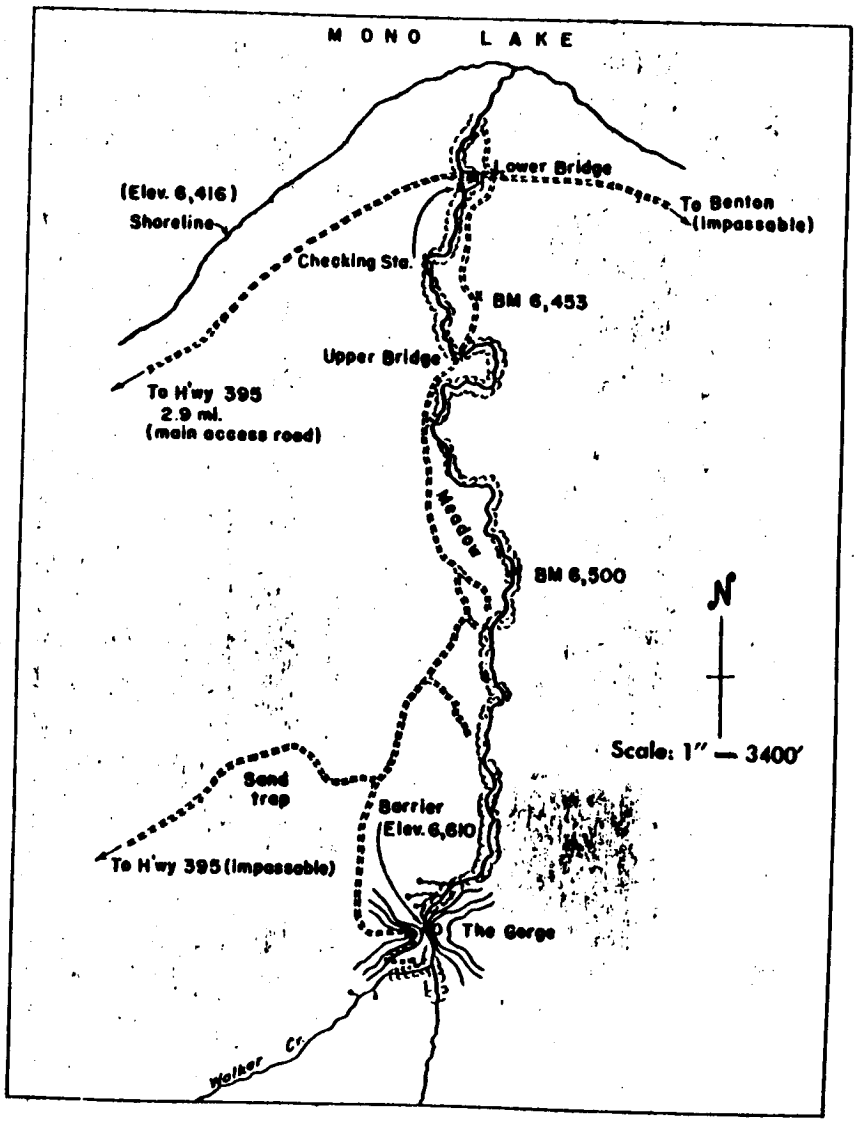

FIGURE 2. Map of Rush Creek Test Stream, Mono County

to replenish water tables in the valley floor, these springs have declined steadily; the minimum flow in the test stream has fallen from 24 c.f.s. in 1947 to 12 c.f.s. in 1948, 13 c.f.s. in 1949, and 2 c.f.s. in 1950 and 1951. Mean flow during the 1951 season was only 2.5 c.f.s.

Prior to diversion the flow in lower Rush Creek normally reached spring maximum of about 175 c.f.s., but in very wet years it rose to more than 300 c.f.s. Spring run-off from Parker and Walker Creeks supplied some 50 c.f.s. of this total, and most of the rest was overflow from Grant Lake.

Lower Rush Creek formerly averaged about 20 feet in width during the trout season, with a depth of some seven inches on the riffles and four or five feet in the long delta pools. By 1951, however, these dimensions had been reduced by more than two-thirds.

The temperature of lower Rush Creek fluctuates daily during the summer between about 50 degrees and 70 degrees F., with trout season extremes of 37 degrees and 72 degrees F. in 1948 (Table 1). As the

TABLE 1

Average and Range in Temperatures at Rush Creek Test Stream, Season of 1948

Month	Air temp., deg. F.	Stream temp., deg. F.
March	38.8 (20-55)	47.1 (36-59)
April	48.7 (33-68)	52.0 (40-65)
May	57.1 (35-78)	56.1 (40-69)
June	65.4 (47-83)	59.0 (47-71)
July	73.9 (61-87)	60.0 (46-72)
August	72.6 (59-83)	59.0 (48-70)
September	65.9 (36-85)	53.9 (42-65)
October	53.9 (28-73)	47.7 (37-58)

flow has declined temperatures have shown somewhat greater extremes. Air and stream temperatures were recorded at the checking station at 8 a.m., 12 noon, and 4 p.m. daily.

Winter temperatures are often severe, although snowfall is rarely great enough to bridge the stream.

The gradient of the test section is moderate, with an average fall of 52 feet per mile. Riffles containing excellent spawning gravels make up the bulk of the test stream; pools are comparatively scarce. Rubble and boulders are found in The Gorge, while the delta section contains thick deposits of lapilli and pumiceous dust derived from the Mono Craters (Russell, 1889).[3]

In general, life-zone characteristics are those of Great Basin Upper Sonoran (Figure 3).[4]

[3] The test stream has not changed its course since the Tahoe glacial period. Till deposits from the Tahoe and Tioga periods underlie the surface blanket of ash and pumice sand from the Mono Craters, which flank the drainage on the east side. Rush Creek Gorge was cut through a shallow rhyolitic cap, and the sediment created a small flood plain below, across which lower Rush Creek now flows.

[4] Chief plant association of the Mono Basin is comprised of Three-toothed Sage (*Artemisia tridentata*) and Bitter Brush (*Purshia tridentata*). Lower Rush Creek streamside cover is characterized by dense jungles of willows (*Salix* sp.) interspersed with Black Cottonwoods (*Populus trichocarpa*), though open stretches are found at intervals along the low banks of the stream (Figure 4). Jeffrey Pines (*Pinus ponderosa* var. *jeffreyi*), once common, are still present in the vicinity of The Gorge.

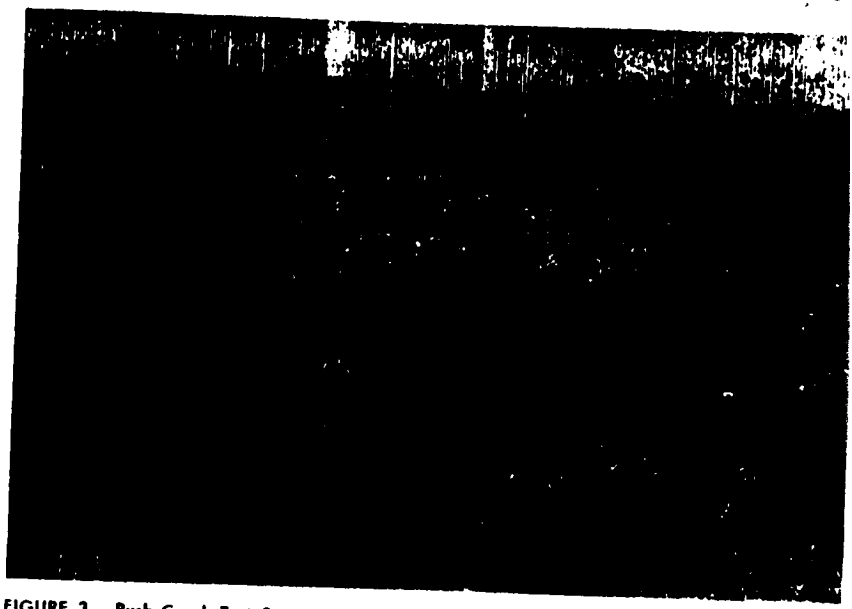

FIGURE 3. Rush Creek Test Stream project area looking northeasterly from The Gorge. Mono Lake and Paoha Island in the background. *Photograph by Elden H. Vestal, April 10, 1947.*

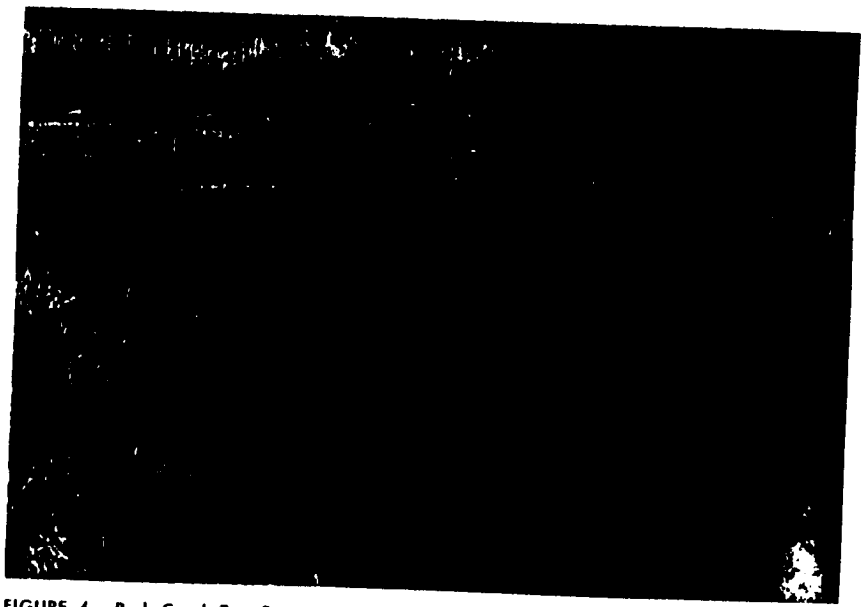

FIGURE 4. Rush Creek Test Stream, Mono County, California. Section one-half mile above the upper bridge. *Photograph by Elden H. Vestal, May 2, 1948.*

Predators common to many streams in California are found along the test stream.[5]

Grazing animals are a nuisance at intervals during the trout season. Some 4,000 sheep are watered along the stream, roiling the water and causing a temporary decline in catches and angling effort.

HISTORY OF TROUT IN RUSH CREEK

Originally there were no trout in any of the streams of the Mono Basin. The first plants were reportedly made about 1880, and according to the "old-timers" of Lee Vining cutthroat trout and steelhead[6] were present in lower Rush Creek around the turn of the century. Brown Trout (*Salmo trutta*) fingerlings were introduced some 15 miles above the mouth probably in July, 1919. Eastern Brook Trout (*Salvelinus fontinalis*) and Lahontan Cutthroat Trout (*Salmo clarki henshawi*) were planted in 1931 and 1932, but apparently had little effect on the brown trout population, which was by that time said to be producing excellent fishing in lower Rush Creek. The fingerling brown trout plants continued until 1942, after which they were replaced by annual plants of unmarked catchable Rainbow Trout (*Salmo gairdneri*) until 1947 (Table 2).

TABLE 2

Fish Planting in Lower Rush Creek, 1940-1946

Species	Size	Number planted							
		1940	1941	1942	1943	1944	1945	1946	Total
Brown trout	Fingerling	11,530	10,010						21,530
Rainbow trout	Catchable			2,000	2,000	2,170	[illegible]	2,220	12,392
Grand total									33,422

TEST STREAM MANAGEMENT

The Planting Program, 1947-1951

Large plants of catchable rainbow trout were made in the test stream during each of the five years of this census period (Table 3). All of these trout were fall-spawning rainbow[7] which averaged about six fish per pound and [illegible] inches in length. All were marked by the removal of one or more fins. Generally five plants of equal size were made each year a few days before the expected vacation angling peaks: opening day (May 1 or Saturday nearest thereto), Memorial Day, the Fourth of July, the middle of August, and Labor Day.

[5] Mink (*Mustela vison*) and Coon (*Procyon lotor*) are present. The fall of a great Blue Heron (*Ardea herodias treganesi*) is an occasional visitor; one killed October 29, 1947, contained 21 newly planted fingerling rainbow and a 10-inch brown trout. American Mergansers (*Mergus merganser americanus*) have also been seen occasionally along the test stream. Pied-billed Grebes (*Podilymbus podiceps*), Eared Grebes (*Colymbus nigricollis californicus*), and California Gulls (*Larus californicus*) occur along the shore of Mono Lake, and probably capture a few trout in the delta section. The Wandering Garter Snake (*Thamnophis ordinoides vagrans*) is common along the stream during the summer and may take a few trout.

[6] Probably Lahontan Cutthroat Trout (*Salmo clarki henshawi*) and Steelhead Rainbow Trout (*Salmo g. gairdneri*).

[7] A strain developed at Hot Creek State Hatchery, California, by selective breeding.

TABLE 3

Rush Creek Test Stream Marking and Planting Program, 1947-1951: Catchable Rainbow

	1947	1948	1949	1950	1951
Number planted	10,000	19,945	19,975	10,000	9,984
Mark (fins removed)	LV	RV	Both V	RV	Both V
Dates of planting	5/18, 5/28, 6/23, 7/14, 8/4	4/28, 5/26, 6/23, 7/21, 8/11	4/29, 5/26, 6/23, 7/15, 8/4, 8/29	4/28, 5/26, 6/23, 7/15, 8/9	4/20, 5/24, 6/28, 8/2, 8/30
Average size in:					
Number per pound	6	6.7	5.6	6	6.2
Inches	7	7	7-1/2	7	7

V = ventral fin; L = left; R = right.

The 1947 plant of 10,000 catchables was increased to 20,000 in 1948 and 1949 in order to test the effect of larger plants on individual catches and total yield. In 1950 and 1951 stocking was restored to the 1947 level.

Two additional size classes of trout were used in planting experiments of the first three years: "subcatchables" and "fingerlings"[8] (Table 4). These were also all marked by fin removal.

In 1947 and 1948 equal numbers of spring-spawned and fall-spawned subcatchable rainbow were planted late in the season in an attempt to learn which strain gave greater over-winter survival.

The 1948 and 1949 fingerling plants of rainbow and brown trout were made for a comparison of the return of the two species to the angler. The small fingerling rainbow planted in 1948 were typical of fingerling rainbow planted in California streams at the time.

Subcatchables and fingerlings were not planted in 1950 and 1951, to prevent confusion of fin marks and to provide opportunity for the earlier plants to exhaust themselves in the catch.

All plants were distributed more or less equally throughout the test section, with the exception of the extreme upper and lower one-half miles, which were not accessible to the planting trucks.

Regulations

The test stream was operated in accordance with California's general summer trout angling regulations:

Season—May 1st or Saturday nearest thereto through October 31st.
Fishing hours—one-half hour before sunrise to one-half hour after sunset.
Bag and possession limit—15 trout.
No minimum size limit.

With the following exceptions and special regulations:

In 1948 a three-day test stream closure followed each of the four in-season plants of catchable rainbow.

In 1951 the test stream was closed at 7 p.m. daily.

Throughout the project, camping was not permitted in the test stream area.

[8] The term "subcatchable" and "fingerling" apply in this paper to [illegible] about four inches and two inches long, respectively.

TABLE 2

Rush Creek Test Stream Marking and Planting Program, 1947-1951: Fingerling Rainbow and Brown Trout and Subcatchable Rainbow

Date of planting	Species	Mark	Number	Average size: Number per pound	Average size: Length in inches	Hatchery stock
Fingerlings						
July 14, 1948	Rainbow	D	4,000	72	1¾	Mt. Whitney spring-spawned
July 20, 1948	Brown	LV	19,000	36	2¼	Rush Cr.-Mt. Whitney
Aug. 26, 1949	Brown	RV	7,000	18	2¼	Rush Cr.-Mt. Whitney
Aug. 29, 1949	Rainbow	LV	3,000	13	2¾	Mt. Whitney spring-spawned
Subcatchables						
Sept. 27, 1947	Rainbow	AdLV	2,000	4	6	Mt. Whitney spring-spawned
Sept. 27, 1947	Rainbow	AdRV	2,000	4	6	Mt. Whitney fall-spawned
Oct. 12, 1948	Rainbow	AdD	4,000	7	5	Mt. Whitney spring-spawned
Oct. 13, 1948	Rainbow	Ad	4,000	13	4¾	Mt. Whitney fall-spawned

Ad = adipose fin; V = ventral fin; D = dorsal fin; L = left; R = right.

Recording the Data

Information obtained from anglers upon arrival at the checking station included name, address, and time of arrival. A combined map and information circular describing the test stream was given to each registrant. Illustrated signs along the stream called further attention to the fact that all planted trout were marked, and to the need for a complete creel check. Road signs directing anglers to Rush Creek were set up on U. S. Highway 395 at the June Lake Junction and the turn-off to the test stream.

As anglers left the test stream the checker recorded the time of departure, calculated the elapsed fishing time, and tabulated all trout by species and mark.

A total of 12,298 cars registered at the checking station during the first four seasons. Only 13, a small fraction of one percent, failed to check out. Since it is virtually impossible to reach or leave the test stream without passing the checking station, the creel census was for all practical purposes complete.

CREEL RETURNS

Creel returns from the test stream for the five seasons, 1947 through 1951, are summarized in Table 5. The test stream was fished on 875 of a total of 911 days which made up five legal angling seasons. A total of 33,431 anglers fished 118,408 hours and caught 65,935 wild and planted trout, 6,573 (10 percent) of which were unmarked wild fish and 59,362 (90 percent) marked hatchery fish.

Wild Trout

Of the 6,573 wild trout caught, 5,716 (87 percent) were brown trout, 791 (12 percent) rainbow trout, and 66 (1 percent) eastern brook trout. It is remarkable that the wild brown trout population was able to sustain itself in the face of the unusually heavy fishing pressure and continued competition with huge numbers of alien trout for food and living space. The wild populations of rainbow and eastern brook trout were not, judging by yearly catches, able to sustain themselves under such conditions.

Catchable Rainbow Trout

Of the total of 69,904 catchable rainbow planted, 57,863 were caught during the season of planting and 152 in following seasons (including 34 caught in 1952), for an over-all return to the creel of 58,015 or 83 percent (Table 6). The catches during the season in which the fish were planted averaged 82.8 percent, with a range of 70.5 percent in 1951 to 92.1 percent in 1948. Catchables caught in later fishing seasons added an inconsequential 0.2 percent to the total yield.

The excellent yields obtained at Rush Creek demonstrate conclusively the value of in-season, spaced plantings of catchable trout for maintaining reasonably good angling in a small, heavily fished stream. It is doubtful that satisfactory fishing can be maintained in such waters for any great number of anglers by any other method.

Angling Data From Rush Creek Test Stream 1947-1951

	1947	1948	1949	1950	1951	1947-1951 Combined	Yearly average
Length of season (days)	184	172	184	184	187	911	182
Number days fished	180	169	179	178	171	875	175
Number angler days	5,778	8,384	10,004	5,806	3,460	33,431	6,686
Total hours fished	19,509	31,962	36,417	19,070	11,390	118,408	23,682
Average angler day (hours)	3.4	3.8	3.6	3.3	3.3		3.5
Catchable trout planted	10,000	19,945	19,975	10,000	9,984	69,904	13,981
Catchable trout caught in season of planting	8,881	18,362	15,995	7,584	7,041	57,863	11,572
Percentage return to creel[1]	88.8	92.1	80.1	75.8	70.5	82.8	82.8
Catchable trout caught in season following planting[2]		11	17	23	77		
Subcatchable trout planted	4,000	8,000				12,000	
Subcatchable trout caught	126	694	171	[illegible]	0	994	
Percentage return to creel						8.3	
Fingerling trout planted		7,392	6,008				
Fingerling trout caught		20	360	149	[illegible]	13,396	
Percentage return to creel						326	
						2.9	
Total catch planted trout	9,009	19,087	16,363	7,746	7,157	59,262	11,872
Total catch wild trout	1,251	1,292	1,657	1,082	1,341	6,573	1,315
Brown trout[3]	1,104 (81.7%)	1,131 (87.5%)	1,373 (82.6%)	933 (90.9%)	1,170 (94.3%)	5,716	1,143 (87.0%)
Rainbow trout[3]	214 (15.8%)	140 (10.8%)	279 (16.8%)	92 (8.9%)	66 (5.3%)	791	158 (12.0%)
Eastern brook trout[3]	33 (2.4%)	21 (1.6%)	5 (0.3%)	3 (0.3%)	5 (0.4%)	66	13 (1.0%)
Total catch all trout	10,260	20,379	18,020	8,778	8,498	65,935	13,187
Percentage planted trout	87.8	93.7	90.8	88.2	85.8		90.0
Percentage wild trout	12.0	6.3	9.2	11.8	14.2		10.0
Average catch per angler day	1.8	2.4	1.8	1.5	2.4		2.0
Average catch per angler hour	0.53	0.64	0.49	0.46	0.74		0.56
Number zero catches	2,856	2,287	4,160	2,687	1,083	14,471	2,894
Percentage zero catches	49.2	39.2	41.6	33.9	31.5		43.8

[1] In-season yield only; for total yield, see Table 6.
[2] 1952 catch includes 23 trout from 1951 plants and one from 1950 plants.
[3] With percentage of total wild trout catch.

TABLE 6

Returns of Catchable Rainbow to the Creel at Rush Creek From Plantings Made From 1947 to 1951

Year	Mark	Number planted	Yield to the creel 1947	1948	1949	1950	1951	1952	Total yield	Percent yield first season	Percent yield next season	Percent total yield to creel
1947	LV	10,000	8,881	11	1	0	0	0	8,893	88.8	0.11	88.9
1948	RV	19,945		18,362	16	0	0	0	18,378	92.1	0.08	92.2
1949	Both V	19,975			15,995	13	2	0	16,010	80.1	0.06	80.2
1950	RV	10,000				7,584	75	1	7,660	75.8	0.75	76.6
1951	Both V	9,984					7,041	33	7,074	70.5	0.33	70.8
Totals and averages		69,904	8,881	18,373	16,012	7,597	7,118	34	58,015	82.8	0.21	83.0

V = ventral fin; L = left; R = right.

Fingerling Rainbow and Brown Trout and Subcatchable Rainbow

The yield to the creel from summer-planted fingerling rainbow and brown trout and from fall-planted subcatchable rainbow during the census period is summarized in Table 7.

Only 386 (2.9 percent) of a total of 13,395 fingerlings planted were caught. Rainbow gave a slightly greater return (3.2 percent) than brown trout (2.6 percent) planted at the same time.

The somewhat larger subcatchables gave an appreciably greater return than the fingerlings: 994 (8.3 percent) of 12,000 subcatchables planted during the census period were caught. Although Table 7 apparently indicates superiority of the spring-spawned strain, with a 12.5 percent return, over the fall-spawned strain, with a 4.1 percent return, the data are inconclusive. In fact, nearly the entire difference between the yields of the two stocks arose from the fall, 1948 plants. Four thousand rainbows of each strain were planted on the same day, October 13th, and yet during the remaining 18 days of the fishing season 444 of the spring-spawned group and only three of the fall-spawned group were removed. The two plants were apparently made, contrary

TABLE 7

Returns of Fingerling Rainbow and Brown Trout and Subcatchable Rainbow Stocked in Rush Creek, 1947-1951[1]

Mark	Time of plant	Number planted	Seasonal yield						Total yield	Yield in percent of total plant
			1947	1948	1949	1950	1951	1952		
Fingerlings										
Rainbow trout										
D	Summer, 1948	4,000	...	19	105	8	0	0	131	3.3
LV	Summer, 1949	3,000	...	...	9	67	3	0	80	2.6
Total		7,000	...	...	...	...	...	...	211	[illegible]
Brown trout										
LV	Summer, 1948	3,393	...	3	76	18	0	0	98	2.9
RV	Summer, 1949	3,002	...	...	9	34	38	4	85	2.8
Total		6,395	...	...	...	...	...	...	183	2.6
Total, all fingerlings		13,395	...	20	190	168	38	0	386	2.9
Subcatchables										
Rainbow trout (spring-spawned)										
Ad-LV	Fall, 1947	2,000	14	175	3	0	0	0	192	9.6
Ad-D	Fall, 1948	4,000	...	444	314	7	0	0	765	19.0
Total		6,000	...	...	...	...	...	...	957	15.9
Rainbow trout (fall-spawned)										
Ad-RV	Fall, 1947	2,000	114	72	0	0	0	0	186	9.3
Ad	Fall, 1948	4,000	...	3	54	0	0	0	57	1.4
Total		6,000	...	...	...	...	...	...	243	4.1
Total, all subcatchables		12,000	128	694	171	1	0	0	994	8.3

Ad = adipose fin; V = ventral fin; D = dorsal fin; L = left; R = right.
[1] For size of fish and dates of planting see Table 4.

to instructions, in different parts of the stream, and as a result were subjected to greatly different fishing intensities.

The low over-all return from the fingerling and subcatchable plants illustrates the impracticability of maintaining satisfactory angling by fall planting of trout in small, heavily fished streams.

Angling Intensity and Angling Success

During the five seasons of this census period each mile of the test stream supported an average of 10 anglers and 35 angling hours per day. Average catch per angler was 0.56 trout per hour and 2.0 trout per day. Forty-three percent of all anglers caught nothing, despite the heavy plants of catchable trout. Thus, most anglers still had only poor to fair fishing, with the bulk of the fish caught by a minority. This emphasizes the desirability of a reduced bag limit on waters under this type of management in order to distribute the fish more equitably

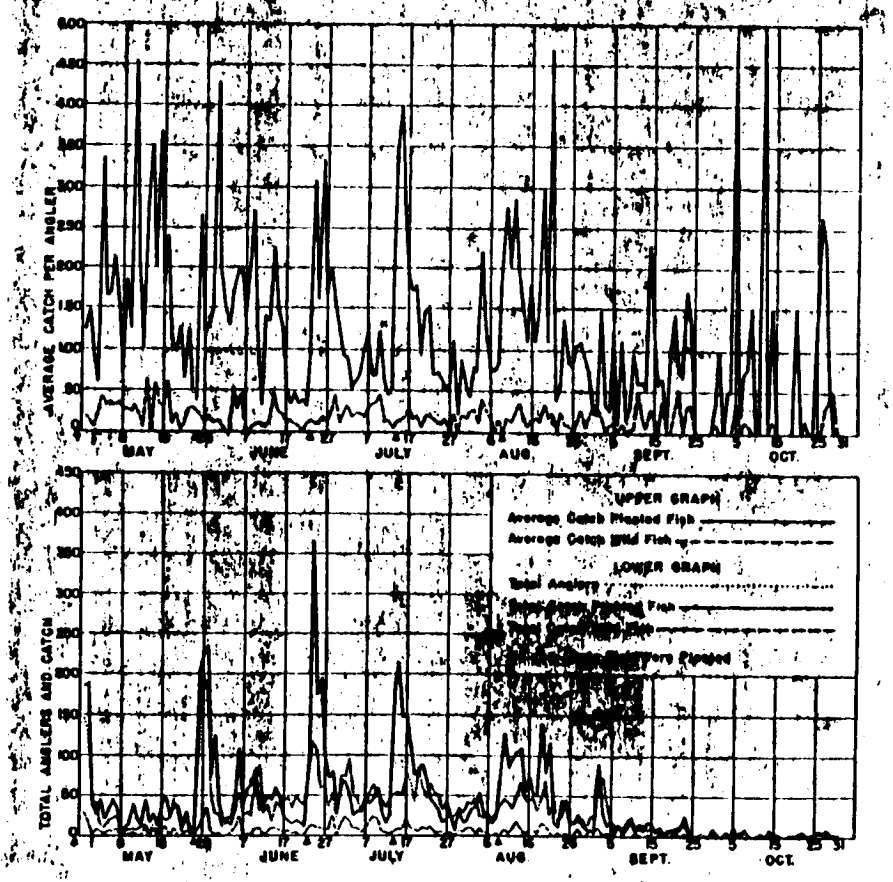

FIGURE 5. Graph of anglers' daily catches from Rush Creek Test Stream, Mono County, California, season of 1950.

and to give the less expert anglers a better opportunity to catch some of them.

Angling success (as measured by catch per day and catch per hour) varied somewhat from year to year (Table 5), apparently with little correlation with the size of the plant, the number of anglers, or the decreasing stream flow. It is probable, however, that angling success would have been greater in 1948 and 1949 if the increased plants in those years had not attracted correspondingly more anglers.

The catchables were normally recaptured very rapidly. This is shown strikingly by the graphs in Figure 5. In 1950, a typical year, 45 percent of the seasonal catch was taken during the five five-day periods immediately following stocking, which amounted to only one-seventh of the total fishing season. The plants gave the fishery a "shot in the arm," with a high yield for the first few days, followed by a diminishing catch until the next plant. Each plant also briefly increased the take of wild fish, and was followed shortly by a decrease in the catch of such fish as well.

In 1948 a special three-day post-planting closure was tested as a possible means of spreading the catch. It actually had the opposite effect, however, since reopening of the stream resulted in extraordinarily heavy fishing pressure. The percentage of return that season was the greatest recorded during the census.

The great increase in fishing intensity and success following stocking which occurred so consistently at the test stream suggests the desirability, particularly during the summer vacation season, of more frequent plants well-scattered along the stream. The stocking pattern for California streams is being shifted rapidly in this direction.

FIGURE 6 nglers fishing the meadow section of Rush Creek Test Stream. hotograph by Elden H. Vestal, May 2, 1948.

RECREATIONAL VALUES

During the five-year period covered by this report, 33,431 days of angling were spent on Rush Creek. This recreation was primarily developed by stocking 70,000 catchable trout, at an estimated total cost of $10,500 (15 cents per fish). Without such stocking, fishing would have deteriorated early in the season each year.

The value of a day of trout angling is believed to be in the neighborhood of $10, on the basis of the costs to the fisherman, although accurate estimates for the Inyo-Mono area are not available. On that basis, recreational values exceeding $300,000 were sustained at Rush Creek over a five-year period with only $10,500 worth of fish.

ACKNOWLEDGMENTS

The Rush Creek project was fortunate in having the continued support of a number of persons and agencies. Mr. J. B. Clover, acting for the Finley Estate, has continually aided the project by making portions of the test site available from year to year. The writer is pleased to credit especially Mrs. Venita R. McPherson, former Supervisor of District 3, Mono County, and the Inyo and Mono County Boards of Supervisors for financial support in bridging Rush Creek and in access road maintenance from US Highway 395. The Inyo National Forest, the Nevada-California Electric Corporation, the Mono County Western Conservation Club, and interested residents of Lee Vining and June Lake aided in bridge construction and fish planting. The City of Los Angeles Department of Water and Power kindly provided stream flow records and granted access to city-owned portions of the stream.

Mr. Walter L. Dombrowski was employed as principal recorder at Rush Creek checking station from 1947 until the close of the 1949 season. Mr. Valjean Clark was recorder for the 1950 angling season and Mr. George Murphy was principal recorder in 1951. A succession of student biologists, including Messrs. John F. Williams, James R. King, Robert R. Ehlers, and Edwin Pister, aided these men.

The project benefited greatly from the guidance of Messrs. Alan C. Taft and Brian Curtis.

Mr. Ralph V. Beck assisted in operation of the checking station and marking of trout through the season of 1950. In 1951 Mr. Beck, under the supervision of Mr. Scott M. Soule, assumed direction of the project. The writer is grateful for the opportunity to incorporate the results of his work during the 1951 season in Table 5 of this paper.

SUMMARY

1. This paper reports results of the first five years (1947 through 1951) of a continuing complete creel census on Rush Creek Test Stream, a 3.7 mile section of a small California trout stream.
2. Rush Creek Test Stream was established by the California Department of Fish and Game to test the success of existing planting procedures and to find ways of improving them. Large in-season plants of marked catchable rainbow trout were made each year. Smaller plants of marked subcatchable rainbow ut and marked

fingerling rainbow and brown trout were made in the first three years to determine over-winter survival of such fish.

3. During the five-year census period, 33,431 anglers fished 118,408 hours and caught a total of 65,935 wild and planted trout. Planted trout contributed 59,362 (90 percent) of the total catch, while wild trout contributed 6,573 (10 percent).
4. The catch of wild brown trout remained about the same each year, despite the heavy fishing pressure, while the catch of wild rainbow and eastern brook trout declined.
5. Of 69,904 marked catchable rainbow planted, 58,015 (83 percent) were caught by anglers; 82.8 percent in the season of planting and 0.2 percent in succeeding seasons. This excellent yield demonstrates the value of in-season, spaced plantings of such fish for maintaining reasonably good angling in a small, heavily fished stream.
6. Of 13,395 fingerlings planted, only 386 (2.9 percent) were caught. Rainbow gave a slightly greater return (3.2 percent) than brown trout (2.6 percent). Of 12,000 subcatchables planted, 994 (8.3 percent) were caught. The spring-spawned strain gave a better return (12.5 percent) than the fall-spawned strain (4.1 percent), but data were insufficient to prove any superiority. These low returns illustrate the impracticability of maintaining angling in a small, heavily fished stream by stocking fry or subcatchables.
7. The five-year average intensity of use was 10 anglers and 35 angling hours per mile of stream per day.
8. Average catch per angler day was 2.0 and the average catch per angler hour was 0.56. The average angler day was 3.5 hours.
9. Forty-three percent of all anglers caught nothing, despite the heavy planting program. A reduced bag limit would probably distribute the fish more equitably and give the less expert anglers a better chance.
10. Catchables were recaptured rapidly. In 1950, a typical year, 45 percent of the total seasonal catch was taken in only one-seventh of the total fishing season. This suggests the desirability of more frequent plants well-scattered along the stream.
11. The estimated total cost of stocking 70,000 catchable rainbow trout during the five years of the census period was $10,500. Placing a value of $10 on a day of trout angling in the Mono-Inyo area of California (based on probable costs to the fisherman), a total recreational value exceeding $300,000 was sustained at Rush Creek mainly by this stocking.

LITERATURE CITED

Russell, Israel C.
1889. Quaternary history of Mono Valley, California. U. S. Geological Survey, Eighth Annual Rept. (1886-87), p. 259-394.

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96041 4-54 3: printed in CALIFORNIA STATE PRINTING OFFICE

Date 10 March 1947 Locality Rush Creek Test Stream Subject

22179 3-43 200 BKS OF 50 SPO

E.W. Vestal

At 1 p.M. observed flow of about 270 CFS down ... released in several steps the past few days by City of ... evidently still work on bridge around week 6 mi. above Rush Cr. Ranch. Flow has exceeded low banks + flooded upper meadow; creek is quite turbid + fast at Rd ... although stream only milky at Hiway 395 crossing at City Weir at Crain Ranch.

17 3/4" LL = Age 3 1/2 yrs
15" RT = Age 2 1/2 yrs.

Date 19 June 1947 Locality Grant Lake (Rush Cr.) Subject

22179 3-43 200 BKS OF 50 SPO

E.W. Vestal

Notes made by

Av. + range in Lock Leven = 16.2 (14-27 inches)
Av. + range in Chubs = 7.4 (5-11 inches)
Av. sport catch per gill net hour = 0.87 (good for that ... fish)

Lack of fish under 14 inches conspicuously indicates unbalanced fishery due to several causes, among which are:

1. Under-fishing
2. Under-stocking + low survival of fingerling ...
3. Abnormal (distributed) spawning migration

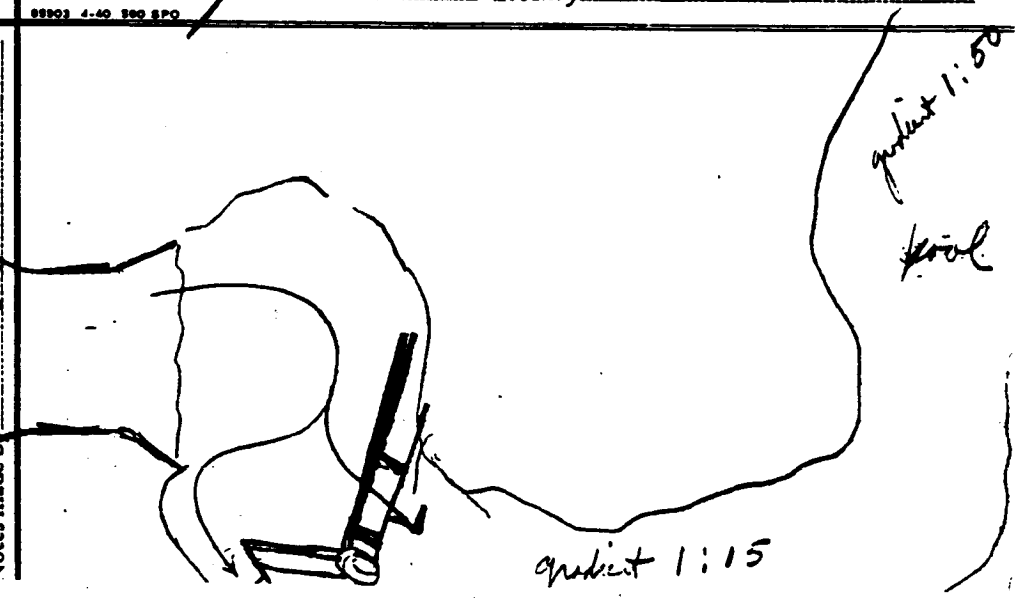
Rush Creek L.A. Vanturi Weir Subject

Date 5 May 1949 Locality

99903 4-40 200 SPO

E.W. Vestal

Notes made by



00 026

DEPOSITION EXHIBIT KS
E. Vestal
16
1-11-90

Edward Vestal

EXHIBIT A

Subject ①

Date 21 Feb 1947 Locality Rush Cr. Test Stream

22179 3-43 200 SHS OF 50 SPO

Notes made by Subscribed

According to Mr. Charles James total flow at head of gorge above last reported, 15 cubic feet per second including 14.3 c.f.s. from Grant Lake. (Additional flow approx. 10 c.f.s.). Drop approx. 120 yds long & produced by ridge of granite running E & W across stream. Stream flow on this date almost unnoticed with solid white cement from head of entire gorge. Av. width 10'.

Sta. 1, ±100 yds below end of gorge; Temp. 43°F 12:20 P.; pH 7.0; clear; rapid; Av. width 25 ft.; excellent gravel; O_2 = 8.6 p.p.m.;

Sta. 2: approx. 7 mi. below gorge; Temp. 12:55 P. 45°F; Av. width 20 ft.; fast; excellent gravel; mottled w/ mounds; pH 7.2; O_2 = 8.6

Sta. 3: at Ford. Temp. 47°F (1:20 P); Av. width 30 ft.; rapid;

Subject ②

Date 21 Feb 1947 Locality Rush Cr. Test Sta. (cont'd)

22179 3-43 200 SHS OF 50 SPO

Notes made by Subscribed

pH 7.2; O_2 = 10.6 p.p.m.; favorable; will run with netting upper place for fishing accessibility.

Sta. 4: 200 yds above mouth, Temp. 2:25 P 47°F; stream less rapid; Av. width 40 ft.; pH 7.2; 8.3 p.p.m. stream slightly muddy; bottom not open & entirely accessible to lake on East side.

1" = 2000'

9.8" (map measure) = 19,600' or 3.7 miles

DEPOSITION EXHIBIT KS 17 (1st) 1-11-90

00 027

Eldwood Vestal

EXHIBIT B

June Lake, California
March 17, 1941

Mr. James E. Jones
Department of Water and Power
207 South Broadway
Los Angeles, California

Dear Mr. Jones:

During my trip of inspection on March 10, I examined Rush Creek below the new Grant Lake dam and was dismayed to find that no flow, whatsoever, was occurring in the stream. Later, information from Mr. Ralph Goodman, in Leevining, confirmed the several statements from sportsmen and Mono Basin residents that slight, if any, water has been seen in the stream bed since about October 15, 1940.

In view of the excellent trout fishing that I saw on the stream on May 1 of last year and in view of the fact that the lower section of Rush Creek, when given a chance, is highly productive of aquatic foods for trout and provides an excellent habitat for fish, I would greatly appreciate the Department turning in and maintaining a flow in this part of Rush Creek at all times of not less than 5 cubic feet per second. This amount would assure maintenance of fish life therein in good condition, would permit a regular stocking policy for the stream by the Division of Fish and Game, and would provide for such irrigations as Mono Basin, in the vicinity, seasonally requires.

I am also directly concerned with the problem of the constant or fluctuating level in the new Grant Lake in relation to the Grant Lake fishery. To what extent will the level of Grant Lake be allowed to fluctuate through the season? In my mind, a most excellent inland fishery could be developed at Grant Lake, if all the agencies concerned therein could amalgamate on the question of water volume for the reservoir.

I would greatly appreciate information on the above matters at an early date.

00 028

Very truly yours,

H. A. VAN NORMAN
CHIEF ENGINEER AND
GENERAL MANAGER
OF WATER WORKS

DEPARTMENT OF WATER AND POWER
CITY OF LOS ANGELES

207 S. BROADWAY
LOS ANGELES
MICHIGAN 4211

BUREAU OF WATER WORKS & SUPPLY

March 24, 1941

Mr. Elden H. Vestal
June Lake,
Mono County, California.

Dear Sir:

Replying to your letter of March 17, 1941, concerning the waters of Rush Creek.

The Division of Fish and Game of the State of California and the Department of Water and Power of the City of Los Angeles have entered into an agreement relative to the operation of the Grant Lake and Long Valley Reservoirs, and it is suggested that you contact your central office to make yourself familiar with the terms of that agreement.

Very truly yours,

H. A. Van Norman
Chief Engineer & General Manager

BY J. E. Jones
J. E. Jones, Civil Eng.

JEJ:hm

* See Rush Creek Hatchery agreement (copy in file + Hat Creek; 1 copy + S.T. office (+ 1 copy [illegible] 00-7 [illegible] +).

00 029

(Over) Notes on trib. & Mono L. 9/29-9/30

Mon. 9/29/86 PC Leaving Cr: Culvert just below Rangr Stn.: stream ±10' wide; av. depth flow here approx 1": est. 5 cfs (?); excell. sp. gravel; willows w/ grass-lined banks; arboreal riparian cover consists of LP, Aspen, willows; good pools + riffles; LP gone about Rgr. Stn. area; forest Ridge + above (boulder, gravel, rubble, mixed riffles, + runs. Looking to be an excellent small trout stream. (Flow est. made by "eye" not

Below culvert: stream more rapid w/ boulder + lg rubble; also somewhat deeper pools; LP, Jeffrey Pine, Aspen, willows, w/p + more at stream back in place.

Division (City of L.A.): Above forebay level, magnif. stream ×10 of + below + culvert below Rgr. Stn.; flow here probably 50 cfs; + rubble; coarse gravel; width 20-50 ft wide, crystal clear; rip cover incl. more lg aspen. (vs U.S.G.S. US Paper ?). LAWP Venturi weir located ± 1000 ft above division.

9/30/86: Leaving Cr. 395 Ridge above PH: Boulders + heavy rubble; many small pools; some 1½'-2' deep; abundant white water; makes but very small trout stream @ ±5 cfs (considering time of year + second lowest). Riparian cover dominated by Black Cottonwood, Jeffrey Pine; wild rose thickets; Sager Brush, brush. Stream grade tends to lessen + become somewhat more open after leaving town. Many good pools; some small potholes; spawning gravel; + workable fishing stream at this flow (+ again, time of year + season); from here "500 yds below" spillway or wildlife cmp, stream more graded in descent to Mono Lake; formed lake edge on, all of present lake level. Note: gummite slick opposite PH should be elimin. to facilitate fish movement (local migration) up + down. In my opinion, stream flow should never be reduced below the volume, so long as non-controlled, at any season of year.

Rush Cr.: examined after crossing bridge in lower section; terrific erosion + bank destruction from flood flows even! year ago. Willows + grassy flats riparian + stream all or nearly all wiped out; flow est. 10-15 cfs (?); see pix taken up + downstream at the point + re-examine in detail.

Trib. Walker + Parker dry at US 395 meadows; water still green + fresh; creeks div. for some irrigation (or more likely total flow is being taken City of L.A.

Rush Cr.: pix taken @ old bridge above U.S. 395, up + down at 1000 lns; est. flow 10-15 cfs (check this ?): note absence of riparian cover + few Jeffrey Pines; riparian w/ Ethel in pic. towards Parker L.; some riffles; coarse gravel + med. rubble; good pools + runs + some white water; see pix carefully for details; pic. Sibah. outlet to

Note: Search old pix and notes for stream + riparian cond. comparison. After Mitchell [illegible] data, it did not take many years for Jeffrey — not other arboreal cover to wither + die. Longer, longer fast tree were logged off + used by the Forest Service. Early aerial pix of area + Bennett would show pre-division conditions. (see pix.)

Photo

Photo

Photo

Photo

DEPOSITION EXHIBIT KS 18 1-11-90

Vertel color photos

Vertel color photos

Note:

On August 12, 1986, Mono Co Superior Ct. Judge Edward Denton ordered DWP to release a minimum of 10 cfs from their diversion dam above Lee Vining Ranger Station "... to keep trout alive until the ..." suit against LADWP by the Mono Lake Committee in the matter of flows in Lee Vining Cr. is brought to trial on Jan. 15, 1987.

The Rush Cr. case vs the City has been put on hold until such time as the Calif. DFG can study the stream & determine the flows needed to sustain a healthy fishery. Meanwhile, at least 19 cfs will continue to flow down Rush Creek & Mono Lake instead of down the aqueduct to Los Angeles

Pub. by mail on Sept 28th for upcoming meeting

Calaveras County Digest 27/8 9/

Re: Leeming Creek

Phone conversation (+ inquiry by) Ilene Mandelbaum, E. Sierra Reps., Mono L. Committee

P.O. Box 29

Leeming, CA. 93541

Ph. (619) 647-6386

or " " 6595

(Home " " 6620

Calaveras:

rel. trout study

5937: Fish downstream in good condition

This does not mean "a fish" is what was for unknown sufficient minimum a fishery, normal population (no population, food, etc for a season of year) in good condition, i.e. all normal, healthy stages.

[Leeming Cr.: usually at least as intake as of Rudolph c 10 cfs/ 35 cfs/sec/day. Roughly in proportion to size of stream. Has been enough, but probably all stream flows were fishable — not so turbulent.

discussion of pre-dev conditions along Leeming Cr. from dev point to mouth (stream type, cover, fish life, etc). I said I felt 10 cfs or min. would be absol. min.; perhaps addit. 15 cfs would be required in such worst conditions to get clear through to mouth.

Fish: a few EB (small 7.) but mostly RT and BN. BN most able to survive naturally over the year and reached good size for Leeming Cr., i.e. 13-15".

Fishing: difficult in early spring due to high flows (turbulent, great deal of white water, plunging, rapid) then got better as stream settled down after main snow melt period. Good deal of fishing by locals, but was also used by visitors — div. down back of town toward mouth. I did not recall an established trail — but certainly not impossible. Fishing by short rod method due to abundant streamside & riparian cover.

Rev. div. site - Bebe Bauta & Hans Broe

fishing frq. & SWF '132 — others

mid. wally McPherson

Pub. by mail on Sept 28th for upcoming meeting

E. may not have planted T. late, ahead of BN for stocking & RT from Hot Creek. EB may be land locked pockets from Hot Creek. Fishing pressure BN where accessible. LL - Other BN where not accessible. Hard to estimate numbers. Wind blows.

NP fish stocking

Local rel.

Lee Vining Cr.

5 4 3 2 1 2 10 9

The normal pattern of stream flow consisted of:

A Late Winter & Early Spring: Gradually increasing flows as rainfall and ice melted.

B Mid-Spring & Early Summer (Late May-June): Gradually augmented flows due to runoff from melting snow & ice in upper watershed. During this period there was usually considerable turbidity & abundant white water, as the stream coursed along on comparatively more level.

C Summer & Early Fall: Gradually reduced flows, clearer stream, gradually lowered

(31-330)

	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Friday, February 1

Fall: Reparian lg of land and wind detritus increase surface pollution for fish & game and fish, when flows are declining due to upstream pressures & lessened runoff.

Q: Was any study by sections done of water qual in the 3 mile reach?

A: No concerted study was done 1947-1951.

Q: Pollution of the stream (if any) due to sewage from the PH. or town of Seven might also not be discernible potential in presence of 20-30 cfs or more of normal flow bottom in low C.. All also notices mine pollution

BN in the past 12 yr all results N — no cost to you

Wednesday, January 30

S.F.

by phone 10/9/85 — mid-afternoon Audubon

Bruce Lodge (Atty) — refers, Mono Lake Committee; planning a new action [illegible] — [illegible] during no discussion time — [illegible] W[illegible] — [illegible] statement

Rush Creek
Parker
Leevining
Walker
Mill Creek

11/12/92 12/92 1/11/93

(Merritt Davis — exec dir. of Mono L. Committee)

"--- District Fisheries Biologist --- I held that position until [illegible] of 1950, effective for approximately four years during WW. (Inspections varied, but usually monthly — sometimes weekly in Spring]

To do: Recheck U.S.G.S. sheets — Mt. Lyell, 1901 (reprinted 1944) & Mono Craters, Calif, 1953

Parker Cr.: DWP div. @ elev. 7120; ± 1 1/4 mi. to m. @ Rush Cr. from div. pt.; entered Rush Cr. above H-395 @ elev. ± 6,900 ft — a drop of 220 ft.; N infiltration — no [illegible] — same for Waller Cr.

Waller Cr.: ± 2 1/2 mi. stream to Rush Cr. from DWP div. @ elev. 7140 (entered Rush Cr. just above Gorge @ elev. ± 6640); through meadow/gradient thru Farrington Ranch; total fall of 500 ft.

Leevining Cr.: DWP div @ elev. 7150; ± 3 1/2 mi to m. @ Mono L. @ elev. 6409 (drop of 741 ft.); div. pt. about 0.6 mi. above Leevining RS; N infiltration — no stocking anywhere below DWP div. dam.

Mono Basin: Transition meadow; willow/riparian; meander thru extensive grassy meadows w/ abandoned [illegible] in Spring

1110 035

First saw the Mono Basin streams in Spring of 1935 (Leaving Creek, Walker Cr., Parker Cr., and Rush Creek), but in more detail in Spring of 1939, when I was assigned as District Biologist by the Division of Fish & Game.

Of the 4 streams Rush Creek and Leaving Creek were the largest in terms of flow, length of stream, and fish-producing habitat.

I was charged with conducting a biological survey and inventory of all the fishable lakes and streams in Mono and Inyo Counties to assess the production and ~~fish producing~~ security as well as fishability of District trout waters.

Rush Cr. – 70 cfs
Parker Cr. – 25 cfs
Walker Cr. – 25 cfs
Leaving Cr. – 50 cfs
+50 cfs

Rush Cr.: (See report for details)

Parker Cr.: Willow riparian; EB & RT offer reaches of some BN lower reaches; although diverted for stock range irrigation, still quite fishable and produced some fine trout fishing. Basically fed from Parker L. and upper stream basin to Parker Pass.

Walker Cr.: Essentially similar stream type to Parker Cr.

Neither Parker or Walker Creek was stocked by DFG – relied on good NP in stream.

Leaving Creek:

Jeffrey Pine, Lodgepole Pine, willow riparian; meandering meadow habitat higher gradient in canyon below Ranger Station with many fine pools & short stream runs to Mono Lake; Spring flows exceed 50 cfs from snow & ice melt from Tioga Pass and Bitts Creek basins; EB but RT and BN more common; good NP and popular and, attendant, heavily fished & abandoned Mono L. Was regularly stocked w/ RT from Hot Cr. by DFG. Diversion by DWP was severe loss to fishable stream along Tioga Pass road and below H 395 upstream Leaving to Mono.

Leaving near Rock Creek

Bruce Dodge phone (415) 777-6215 Calif. State

— Calif. Trout Investigations — High Sierra lakes + stream surveys (where are records and reports by field teams?)

— Inventory ~~[illegible]~~ N trout lost + stream sections below by DWP div. each spring + summer, especially during period of snow melt + runoff from upper watershed.

Water Pollution:

Impact many tribs. + Rush Cr. — dep/growth of (?), trout/food production + contribution + Rush Cr.

— streams went intermittent + dry after div. by DWP !

Sum: fitration created by DWP div. led to remnant fisheries below pts. of div. due to lack of sustaining flows and severe constriction of streambed, year after year. Once fine fisheries were all but destroyed.

See notes Ellen re: Hower Rush Cr. egg station

Rushville matter

Originally Vista

6/12/86

Francis Silva (tel) [0900 hrs from Santa]
— Jones & Stokes firm referred to City of L.A.!
— hired by a law firm for City of L.A., DWP.
(??? [Kronick, Moskovitz, Tiedemann & Girard] Santa, CA.

Re: Rushville Egg-Station:
— asked about eggs taken at sta. on Hower Rush Cr.

I said undoubtedly taken to hatchery & reared there to be planted later on (?) — some no doubt allocated back into the parent stock stream. These were called "local lean" in those days — now all called BN or Brown Trout.

Re: "State Fish Hatchery on Rush Cr." → I do not have any notes or records on the exact location or operation of this station as a State facility. But if State utilized it, there had to be large numbers of big CT and BN present in Hower Rush Creek in order to justify the effort & expense. Just when the State moved its installation to the site above Bonita I do not know.

Search DFG for fish hatchery records

Hurricane and Mount Streets ?

note USGS Quad

(not on topo map of 1901 & Upland 1944) & not on topo map of 1930.

Hower Creek, 1953

T R S of "State Fish Hatchery"

T1N
R26E
Sec 13 NE¼ of SW¼ 8

UO 138

MMM MMM III

Note: Long Rock Creek
Mono Co

5/21/86
1305 – 1320 hrs.
(by telephone)

1949
1938

Ernie Silva, employed by or representing Jones & Stokes (Sacto), phoned — wanted information on Long Rock Creek fishery conditions prior to 1930's (my estimate of same). J/Stokes are consultants to (?) DWP

!!

_____ in (?) _____

(current legal proceeding regarding flows to mountain Rock Cr. & Mono Lake). Wanted "independent, accurate, historical information on situation" prior to diversion.

Qex: Who hired Jones & Stokes in the Rock Cr. matter?

Cover!

I described stream in its pristine condition, w/ abundant seasonal flows and fish population (RT, BN, & EB) consisting of MS Spring-run steelhead & wild strains of rainbow, w/ abundant Chinook salmon & steelhead. BN & EB have seen this stream with us & have experience of motorized fish appearing in the river. Lower Rush Creek is a spring-fed stream. Thus, because of a prior water right, Stole's Bill or water rights have not yet withdrawing Rush Creek for a number of years. The adult fish can upstream thru "Granite hole" & Silver L. & beyond before being stopped by Rush Creek west of City of L.A.

Hyjome and Mount Streets
Napa, California
Dear experience motorized

State of California

The Resources Agen

Memorandum

To : Phil Pister

Date : December 5, 1984

DEPOSITION EXHIBIT 19 1-11-90

From : Department of Fish and Game

Subject: Rush Creek Electrofishing Survey, November 9, 1984

The Wild Trout Project stream survey crew consisting of Dennis McEwan, Glenn Sibbald, Joe Knarr, Mike Suplee, and Rae Deley surveyed two sections of Rush Creek below Grant Lake to obtain population data. This was done in accordance with the 1984 Sierra Nevada stream inventory (pursuant to SB 192, the Trout and Steelhead Conservation and Management Act) and to obtain information on possible impacts to the fishery from a proposed reduction in flow from Grant Lake. The crew was assisted by D. Dahlgren from the Mammoth Fly Rodders.

Section 1 was established approximately 1 mile above Mono Lake (approximately 300 yards upstream from Old State Fish Hatchery, 100 yards downstream from an old structure foundation on east bank) in a representative area of the lower Rush Creek gorge. The length of the section was measured and block seines were installed at both ends to close the population. Two passes were made using two electrofishers which resulted in the capture of a total of 41 brown trout and 2 rainbow trout. The population estimates (N) for brown trout was calcualted using the Seber-Lecren two-step method. The rainbow trout population estimate was assumed to be the total catch because of low numbers captured. The results of the survey are summarized in Table 1. One threespine stickleback was also observed.

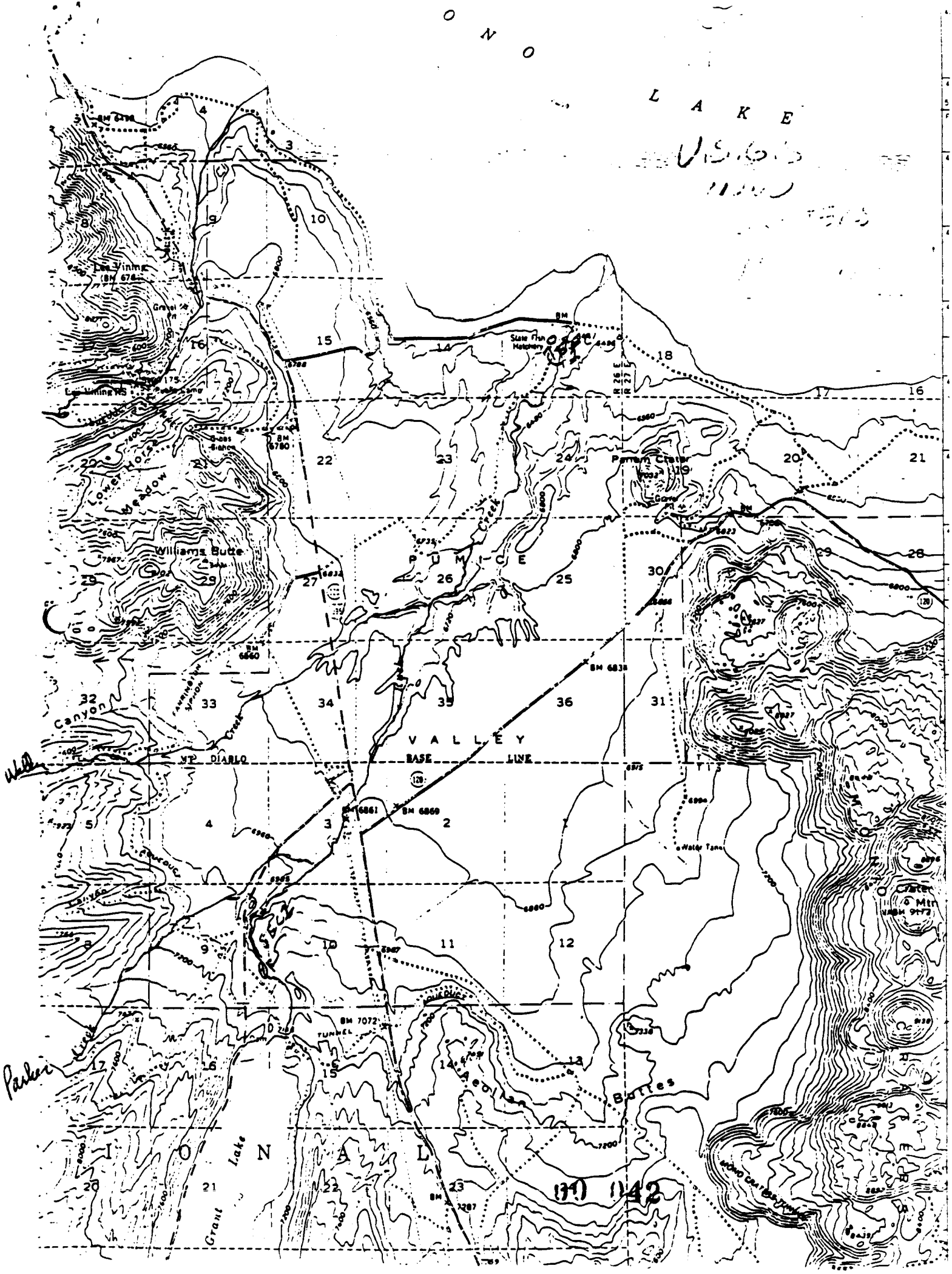
TABLE 1. Section 1 stream survey results

	Total catch	Pop.* est.	Ave. Wt. (g)	Biomass (kg)	Standing crop (lb/ac)	Fish per* mile
Rainbow trout	2	2	-	0.15	1.9	28
Brown trout	41	42±3	145.5	6.14	78.6	584±42

Length of Section: 380 ft.
Ave. Width: 19.6 ft.
*Confidence intervals are at 95% confidence.

Section 2 was established approximately 1/2 mile below Grant Lake Dam (approximately 300 yards below junction of old creek bed and return flow from aqueduct).

Edward H. Chadwick


O N O
L A K E
Lee Vining
Lee Vining HS
Lower Lost Meadow
Williams Butte
State Fish Hatchery
Panum Crater
P U M I C E
Creek
V A L L E Y
Canyon
Mt DIABLO
BASE LINE
Water Tank
Aeolian Buttes
Grant Lake
MONO CRATER TUNNEL
Parker Creek

(11) 142

The upper end of the section was 10 yards upstream from lone Jeffrey Pine on west bank. This section differed from Section 1 by having higher flows, more available cover (primarily plunge pools and submerged rock), and better bank stability. The length of the section was measured and a block seine was intalled at the lower end. A cascade was used at the upper end. Two passes were made using two electrofishers which resulted in the capture of a total of 443 brown trout, 18 rainbow trout, and 1 brook trout. The Seber-Lecren two-step method was used to calculate population estimates, except for brook trout, in which case $\hat{N}$ was assumed to be equal to the total catch. Results of this survey are summarized in Table 2.

TABLE 2. Section 2 stream survey results

	Total catch	Pop.* est.	Ave. wt. (g)	Biomass (kg)	Standing crop (lb/ac)	Fish per* mile
Brook trout	1	1	-	0.20	2.9	16
Rainbow trout	18	18±1	68.4	1.20	17.6	284±16
Brown trout	443	452±8	120.7	54.60	802	7124±126

Length of Section: 335 ft.
Ave. Width: 19.5 ft

*Confidence intervals are at 95% confidence.

16
284
7124
7,424/mi
7,424 x 7 mi = 51,96

Dennis McEwan
Graduate Student Assistant

DM:cd

cc: Deinstadt
von Geldern
Files

I, ELDEN H. VESTAL, declare as follows:

Each of the following statements is made of my own personal knowledge, and if called upon to testify concerning these matters, I could do so.

1. I first visited the Mono Basin in the spring of 1938. In March of 1939 I became the District Biologist for the Division of Fish and Game, State of California, with responsibility for the Mono Basin, specifically including the tributaries to Mono Lake called Rush Creek, Lee Vining Creek, Parker Creek, and Walker Creek. I held that position of District Biologist until 1949, except for approximately four years during World War II.

2. In my capacity as District Biologist, my duties included regular inspection of the four streams mentioned above in order to observe the state of the fishery in each and to make recommendations to supplement that fishery by stocking, if necessary, based on the use by the public.

3. Prior to the diversions by LADWP of these four streams commencing in approximately 1941, all four streams had good trout populations sustained almost entirely by natural propagation (i.e., there was very little planting). Rush Creek and Lee Vining Creek, much the larger two of the four, were outstanding fisheries. All four streams were extensively fished by the public.

4. After the diversions by LADWP commenced, the fishery in these four streams downstream of LADWP's diversions deteriorated. By 1949, when I left the area, the fishery in all four was in dire straits, the streams being intermittent

Elden H. Vestal

to dry during a substantial part of each year. From 1941 to 1949, in those years when there were spills over DWP's diversions, there was what I referred to as "remnant" fishing for certain months of the year (primarily in the Spring runoff period); for the rest of the year, there was a minimal or nonexistent fishery -- very poor compared to what existed prior to diversions.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 11, 1985, at Napa, California.

Elden H. Vestal

ELDEN H. VESTAL

00 045

Email
file
DWPS1A-018/R/07/1

RUSH CREEK TEST STREAM - PROGRESS REPORT FOR 1955 1/

P. E. GIGUERE and C. E. VON GELDERN, JR.
Inland Fisheries Branch
California Department of Fish and Game

INTRODUCTION

This report concerns the results of the third year (1955) of the brown trout (Salmo trutta) phase of the Rush Creek Test Stream investigations. A previous progress report (Best and Wales, 1955) summarized the results of the 1953 and 1954 seasons.

A five-day-per-week creel census which included all holidays, Saturdays, and Sundays was substituted for the complete census of 1953 and 1954. The estimates which appear in the data were derived in the manner described by Best and Boles (1956).

Marked catchable brown trout have been planted in a three-mile section of the test stream since 1953. Planted and resident fish are retained in the test area by a natural barrier on the upstream end and the high salinities of Mono Lake below the test section.

On the days censusing was done, all fishermen leaving the area were interviewed at a checking station located on the only passable access road. Mr. George W. Murphy operated the checking station for the third consecutive year.

The City of Los Angeles Water Department cooperated in solving problems relating to water flow and access. Personnel of the Department's Region V Bishop office and hatcheries assisted in planting and marking activities.

DISCUSSION OF DATA

The brown trout planted in Rush Creek in 1953 were of the "wild" California strain reared at Black Rock Rearing Ponds. Those stocked in 1954 were similar, but were reared at Mojave River Hatchery. Two different groups of fish were planted in 1955: one (April 23) was of the California strain from Black Rock, while the other (July 14) was of an eastern (Cape Cod, Massachusetts) hatchery strain reared in a private hatchery in Yuba County. The planting record for the three years appears in Table 1.

1/ This work was performed as part of Dingell-Johnson Project California F-8-R, "Trout Management Study", supported by Federal Aid to Fish Restoration funds.
Submitted March 15, 1956.
Inland Fisheries Administrative Report Number 56-14.

TABLE 1

Planting Record - Rush Creek - 1953-1955

Date of planting	Number of brown trout	Size (Number fish per pound)	Strain	Mark
April 30, 1953	1,650	6.0	California	RV
May 27, 1953	2,690	7.8	California	RV
August 14, 1953	660	4.0	California	RV
	5,000			
April 22, 1954	2,000	8.7	California	LV
July 3, 1954	1,000	4.0	California	LV
July 19, 1954	2,250	3.0	California	LV
	5,250			
April 23, 1955	2,018	3.7	California	AD-RV
July 14, 1955	4,000	7.6	Massachusetts	AD-LV
	6,018			
Total	16,268			

An estimated 1,918 angler days resulted in an estimated catch of 3,289 brown and 4 rainbow trout (Salmo gairdneri) (Tables 2 and 3). There was a decrease in effort of 1,365 (42 percent) angler days and a decrease of 816 (19 percent) fish from the 1954 season. In relation to the 1953 season there was a slight decrease of 142 angler days but an increase of 1,620 (91 percent) fish. With respect to the 1955 catch it is important to note that 4,000 fish (Massachusetts strain) were planted on July 14 and were not available for the first two and a half months of the season.

In 1955 the anglers averaged 1.8 fish per day or 0.7 fish per hour as compared with the respective values of 1.3 and 0.5 fish for the 1954 season. The catch per unit of effort has increased each year since 1953 (0.3 to 0.7 fish/hour) despite the variations in total catch and pressure. During the 1955 season 63 percent of the anglers were unsuccessful, as opposed to 64 percent in 1954.

Of 9,210 brown trout caught in the three years, 3,342 or 36 percent were "wild" fish (Table 4). Of 16,268 brown trout planted in the three years, 5,869 (36 percent) were creeled. Although the harvest of planted fish was relatively low, the progeny of earlier plants are making a decided contribution to the catch. The net effect has been that 67 fish were caught for every 100 planted in 1955. Over a three-year period 58 fish have been caught for every 100 planted. In addition, electro-fishing operations during the past season revealed great numbers of unmarked (born in the stream) yearlings present in the stream. Almost 50 percent of the fish captured by "shocking" a typical section of the test stream were unmarked "wild" fish which ranged in size from 5.9 to 8.9 inches.

Of particular note is the apparent difference in the rate of return of the California (24 percent) and Massachusetts (45 percent) brown trout. The relatively high degree of "catchability" of the Massachusetts strain was particularly pronounced during the first two weeks following the plants. Their 45 percent return becomes even more significant when it is recalled that they were planted in midsummer, while the California browns were available for 75 more days of fishing and were planted at a much larger size.

It might be suspected that the greater rate of harvest of the Massachusetts strain is attributable to a long history of hatchery domestication. On the other hand, it might be assumed that such fish would, in time, revert to the wariness so notorious of brown trout. Hybridization, which could result in the loss of desirable characteristics, could logically be expected at Rush Creek. This assumption is somewhat supported by observations made during electro-fishing operations, when a pair of actively spawning browns were recovered from a redd. One of the fish was of the California strain, while the other was of the Massachusetts variety.

Similar differences in rates of capture of the two strains appeared in creel census data from Lower Sardine Lake[2/] in Sierra County (report in preparation). Another eastern strain, from a New Jersey hatchery, will be tested in similar fashion in Rush Creek during the 1956 season.

00 018

2/ Another D-J F-8-R test water included in the Lakes Basin phase of the project.

TABLE 2

Angling Data by Months - Rush Creek - 1955

	April		May		June		July		August		September		October	
	Known	Est.	Known	Est.	Known	Est.	Known	Est.	Known	Est.	Known	Est.	Known	Est.
No. of angler days	44	44	222	263	205	262	551	704	297	402	146	181	54	64
Total no. hours fished	115.5	115.5	522	628.6	651	798.5	1,539.3	1,977.4	690.3	952	349.5	433.5	945	112
Av. hours per day	2.6		2.4		3.2		2.8		2.3		2.4		1.8	
Av. no. fish per angler	2.2		1.5		1.2		2.6		1.3		0.9		0.8	
Av. no. fish per hour	0.8		0.6		0.4		0.9		0.6		0.4		0.4	
No. LV browns taken	5	5	39	48	21	29	47	62	29	36	8	9.5	2	1
No. RV browns taken	0	0	4	5.5	3	4	3	4	3	4	0	0	0	0
No. Ad-LV browns taken	0	0	0	0	0	0	1,065	1,389	225	294	72	88.5	11	14.5
No. Ad-RV browns taken	43	43	132	173	87	112	82	105	23	30	11	13	2	2
No. wild browns taken	48	48	152	184	138	177	210	274	111	148.5	39	48.5	27	34.5
No. rainbows taken	0	0	1	1	1	1.5	0	0	1	1.5	0	0	0	0
Total no. fish taken	96	96	328	411.5	250	323.5	1,407	1,834	392	514	130	142.5	42	54
No. zero catches	27	0	133	152.5	139	173.5	308	397	193	264.5	109	136	42	48.5
Percentage zero catches	62		60		68		56		65		75		77	
No. of limit catches	1	1	1	1.5	1	1.5	18	26	0	0	0	0	0	0

TABLE 3

Rush Creek Angling Data - Seasonal Totals - 1953-1955

	1955		1954	1953
	Known	Estimated	Known	Known
Number of angler days	1,519	1,918	3,283	2,060
Number of individual anglers	1,182	1,492	2,495	1,657
Total number hours fished	3,962	4,017.5	9,198	5,632
Average hours per day	2.6		2.8	2.7
Average number fish per angler	1.8	-	1.3	0.9
Average number fish per hour	0.7		0.5	0.3
Number LV browns taken	152	193	2,008	
Number RV browns taken	13	18	430	955
Number Ad-LV browns taken	1,373	1,786		
Number Ad-RV browns taken	380	478		
Number wild browns taken	725	915	1,730	697
Number rainbows taken	3	4	40	119
Total number fish taken	2,645	3,393	4,209	1,773
Number zero catches	951	1,199	2,114	1,481
Percentage zero catches	63		64	72
Number of limit catches	21	30	23	5

TABLE 4

Comparison of Catch for Years 1953-1955, Rush Creek

Group	Number planted	1953 Number caught	1953 % of catch	1953 % of plant	1954 Number caught	1954 % of catch	1954 % of plant	1955 Number caught	1955 % of catch	1955 % of plant	TOTAL Catch	TOTAL % of plant
RV (1953)	5,000	955	53.9	19.1	430	10.2	8.6	18	0.5	0.4	1,403	28.1
LV (1954)	5,250				2,008	47.7	38.2	193	5.7	3.7	2,201	41.9
Ad-RV (1955-Calif.)	2,018							478	14.1	23.6	478	23.6
Ad-LV (1955-Mass.)	4,000							1,786	52.6	44.7	1,786	44.7
Wild browns		697	39.3		1,730	41.1		915	26.9		3,342*	
Rainbows		119	6.7		40	1.0		3				
Totals	16,268	1,771			4,208			3,393		Browns	9,210	
										Browns plus rainbows	9,372	

*Of 9,210 brown trout caught in three years, 3,342 or 36 percent were "wild" fish.

Of 16,268 brown trout planted in three years, 5,868 or 36 percent were caught by fishermen.

As in 1954, a small (3 percent) group of fishermen accounted for 50 percent of the catch. Bait fishermen were responsible for 90 percent of the catch and effort (Table 5). Eighty-eight percent of all anglers were residents of the following five counties: Los Angeles (67.1 percent), Kern (6.3 percent), San Diego (4.8 percent), Orange, (4.8 percent), and Mono (4.6 percent). A complete list of the counties of origin and the number of anglers for 1954 and 1955 appears in Table 6.

An examination of trout captured with electro-fishing gear during October revealed that the majority of the mature fish were survivors of the 1955 plants. However, many larger fish (presumably of earlier plants or older "natives") were seen in the vicinity of redds. A few males of the 1954 age group (unmarked) were sexually mature.

On October 27, 60 redds were counted in the entire length of the test section. On the same date in 1954, 59 redds were counted. Observations of spawning results for the two years indicate that the numbers of wild fish could reach significant proportions by 1957.

Additional tables (A-1 through A-7) are provided as an Appendix.

SUMMARY

This report presents data from the third year of the Rush Creek Test Stream investigations (brown trout phase).

The general quality of fishing (in terms of catch per unit of effort) has progressively improved (from 0.3 to 0.7 fish/hour) during the three years of the study.

"Wild" brown trout comprised a substantial part (27 percent) of the total catch for 1955 and over the three-year period accounted for 36 percent of the take. Although only 36 percent of all planted fish were creeled during the three seasons, the contribution of the "wild" fish to the catch results in the equivalent of 58 fish (wild and hatchery stock) caught for every 100 planted trout. Furthermore, the present stock of yearlings (born in the stream) indicates that "wild" fish could comprise a major portion of the catch in 1956.

An important facet of the study involves the comparatively high (45 percent) return of brown trout of the Massachusetts strain planted in 1955 at a size of 7.6 per pound. Only 24 percent of the native California fish planted in the same year at a size of 3.7 per pound were harvested. In addition, the California browns were available to the angler for 75 days longer than the Massachusetts fish. Observations of the two strains in the Lakes Basin phase of this project parallel those made at Rush Creek.

Many fish of both strains attained maturity and spawned in the fall of 1955. However, the possibility of hybridization may result in the loss of characteristics unique to the eastern strain.

In general, the 1955 spawning was satisfactory. The number of redds counted in 1955 was equivalent to that observed in 1954 (60 and 59 for the two seasons, respectively).

REFERENCES

Best, E. A., and H. D. Boles

1956. An evaluation of creel census methods. Calif. Fish and Game, vol. 42, no. 2, p. 109-117.

Best, E. A., and J. H. Wales

1955. Rush Creek test stream - report for 1954. Calif. Dept. of Fish and Game, Adminis. Rept. No. 55-18, 13 p.

Email file DWP 51A-024R/c

RUSH CREEK TEST STREAM, MONO COUNTY: SUMMARY REPORT 1/

C. S. KABEL 2/ AND R. L. BUTLER
Inland Fisheries Branch
California Department of Fish and Game

INTRODUCTION

The present report is the third covering the brown trout (Salmo trutta) phase of the Rush Creek Test Stream investigations. The test stream, previously described by Vestal (1954), is a tributary of Mono Lake, Mono County. The work done in 1956, the last year of field activities, is presented and the findings of the study are summarized. Previous reports were made by Best and Wales (1955) and Giguere and von Geldern (1956).

During the 1956 season one plant of 540 catchable brown trout was made in Rush Creek. The eggs were obtained from Hackettstown, New Jersey, and reared to catchable size at Mt. Shasta Hatchery. (A portion - 815 - of these browns was used in similar studies made at Lower Sardine Lake, another test water of Dingell-Johnson Project F-8-R.)

Creel census methods were the same as those used in 1955 and were patterned after Method Number Four reported by Best and Boles (1956). All catch data were expanded from five-day creel checks to the full week. Mr. George Murphy again operated the checking station. (In marking the 1956 test fish, Mrs. Imadeen Hill, seasonal aid, noted that five out of 1,079 had no adipose fin.)

CREEL CENSUS

Fishing Pressure and Catch, 1956

Catch data were recorded for 1,071 angler days spent by 919 individual anglers. The entire catch of 1,154 fish was composed of brown trout. Although Rush Creek had been heavily planted with catchable-sized rainbow trout (Salmo gairdnerii) for several seasons prior to 1953, rainbow trout were not seen in the catches of 1956 (Table 2).

The catch data, expanded from the five-day-week creel check to seven days a week, gave a total of 1,423 angler days spent by 1,221 individuals. Their catch is estimated to have been 1,541 brown trout taken in 3,071 hours of fishing (Table 2).

There were fewer fishermen on Rush Creek in 1956 than in any other year of the rainbow (1947 through 1951) and brown trout (1953 through 1956) studies. Part of this drop in angling pressure may have been due directly to extreme fluctuation in water flow. Melting of snow from one of the heaviest snowfalls on record resulted in high run-off from the lakes above the test section. Periodic water releases from Grant Lake resulted in flows well above 100 second feet in the test stream.

1/ This work was performed as part of Dingell-Johnson Project California F-8-R, "Trout Management Study", supported by Federal Aid to Fish Restoration funds. Submitted December 17, 1959.
Inland Fisheries Administrative Report No. 59-15.

2/ Now with Marine Resources Branch.

90 054

DEPOSITION EXHIBIT 22 1-11-90 E. Vestel

TABLE 1

Brown Trout Planting Record, Rush Creek, 1953 - 1956

Date planted	Number planted	Size (no./pound)	Mark *	Egg Source	Hatchery at which reared
April 30, 1953	1,650	6.0	RV	California	Black Rock
May 27, 1953	2,690	7.8	RV	California	Black Rock
August 14, 1953	660	4.0	RV	California	Black Rock
	5,000	7.1			
April 22, 1954	2,000	8.7	LV	California	Mojave River
July 3, 1954	1,000	4.0	LV	California	Mojave River
July 19, 1954	2,250	3.0	LV	California	Mojave River
	5,250	5.4			
April 23, 1955	2,018	3.7	Ad-RV	California	Black Rock
July 14, 1955	4,000	7.6	Ad-LV	Massachusetts (Cape Cod)	Garden Valley (a private hatchery near Campton-ville, Yuba County)
	6,018				
April 26, 1956	540	6.6	Ad	New Jersey (Hackettstown)	Mount Shasta
Total for the four year period	16,808				

* Mark designation by fin removal: RV, right ventral; LV, left ventral; Ad-RV, adipose and right ventral; Ad-LV, adipose and left ventral; Ad, adipose.

TABLE 2

Angling Data, Rush Creek Test Stream, 1953 - 1956

	1953 Known	1954 Known	1955 Known	1955 Estimated	1956 Known	1956 Estimated
No. of angler days	2,060	3,283	1,519	1,918	1,071	1,423
No. of individual anglers	1,657	2,495	1,182	1,492	919	1,221
Total no. hours fished	5,632	9,198	3,962	4,017.5	2,322	3,071
Average hours per day	2.7	2.8	2.6	2.1	2.2	2.2
Av. no. fish per angler day	0.9	1.3	1.7	1.8	1.1	1.1
Av. no. fish per hour	0.3	0.5	0.7	0.8	0.5	0.5
No. RV browns taken	955	430	13	18	10	12.5
No. LV browns taken		2,008	152	193	18	26
No. Ad-RV browns taken			380	478	20	30.5
No. Ad-LV browns taken			1,373	1,786	31	40
No. Ad browns taken					208	271.5
No. wild browns taken	697	1,730	725	915	867	1,160.5
No. rainbows taken	119	40	3	4	0	0
Total no. fish taken	1,773	4,209	2,645	3,393	1,154	1,541
No. zero catches	1,481	2,114	951	1,199	704	928
Percentage zero catches	72	64	63	63	66	65
No. limit catches	5	23	21	30	4	5

TABLE

Composition of Catch for the Period 1953 through 1956

Group	1953 No. caught	1953 Percent of catch	1953 Percent of plant	1954 No. caught	1954 Percent of catch	1954 Percent of plant	1955 No. caught	1955 Percent of catch	1955 Percent of plant	1956 No. caught	1956 Percent of catch	1956 Percent of plant	Total Percent of catch	Total Percent of plant
RV (1953) (5,000)	955	53.9	19.1	430	10.2	8.6	18	0.5	0.4	12.5	0.8	0.2	1,415.5	28.3
LV (1954) (5,250)				2,008	47.7	38.2	193	5.7	3.7	26	1.7	0.5	2,227	42.4
Ad-RV (1955) (Calif.) (2,018)							478	14.1	23.6	30.5	2.0	1.5	508.5	25.2
Ad-LV (1955) (Mass.) (4,000)							1,786	52.6	44.7	40	2.6	1.0	1,826	45.6
Ad (1956) (New Jersey) (540)										271.5	17.6	50.3	271.5	50.3
Wild brown	697	39.4		1,730	41.1		915	27.0		1,160.5	75.3		4,502.5	
Rainbow	119	6.7		40	1.0		3	0.1		0			162	
Totals	1,771			4,208			3,393			1,541			10,913	

Of the 10,913 fish caught in four years, 4,502.5 or 41.3 percent were wild brown trout, 162 or 1.5 percent were rainbows, and the remaining 6,248.5 or 57.2 percent were planted browns.

Of the 16,808 catchable brown trout planted during the four years, 37.2 percent were caught by anglers.

TABLE 6

The Percentage Distribution of Catch and Fishing Effort by Type of Lure

		Bait	Fly	Artificial lure	Combination
1953	Catch	85.2	6.3	8.6	-
	Effort	87.0	7.6	5.4	-
1954	Catch	86.2	8.3	2.0	3.4
	Effort	87.9	5.6	2.0	4.6
1955	Catch	90.2	7.9	1.9	-
	Effort	90.2	7.5	2.3	-
1956	Catch	87.0	4.1	5.8	3.1
	Effort	83.7	3.7	5.2	7.4

TABLE 7

Method of Angling and Fishing Success, Rush Creek - 1956

Angling method	Catch /day	Catch /hour	Hours /day	Percentage Unsuccessful	Percentage of total fishermen
Bait	1.1	0.51	2.2	64.8	83.7
Fly	1.2	0.58	2.0	52.5	3.7
Artificial lure	1.2	0.57	2.1	57.1	5.2
Combination	0.5	0.25	1.9	88.6	7.4
Seasonal totals (all methods)	1.1	0.50	2.2	65.7	100.0

TABLE 8

Home Counties of Anglers, 1953 - 1956

County	1956 number	1956 percentage	1955 percentage	1954 percentage	1953 percentage
Los Angeles	672	62.7	67.1	62.8	66.0
Mono	75	7.0	4.6	6.7	6.2
Kern	47	4.4	6.3	5.4	4.9
San Diego	38	3.6	4.8	4.6	4.1
Orange	64	6.0	4.8	4.2	3.5
Riverside	29	2.7	2.4	3.3	3.4
San Bernardino	27	2.5	1.9	2.6	1.8
Ventura	12	1.1	2.4	1.3	2.0
Inyo	7	0.6	1.0	0.9	0.9
San Francisco	10	0.9	0.4	0.9	0.1
San Luis Obispo	0		0.4	0.9	0.3
Alameda	6	0.6	0.2	0.8	0.5
Santa Barbara	11	1.0	0.7	0.7	1.2
Sacramento	6	0.6	0.3	0.6	0.9
San Mateo	9	0.8		0.4	
Fresno	7	0.6		0.3	
Imperial	0		0.2	0.3	0.5
Contra Costa	5	0.5	0.4	0.2	0.4
Santa Clara	1	0.1	0.5	0.2	0.8
Marin	6	0.6		0.2	0.1
Monterey	0		0.5	0.2	0.05
Solano	0			0.2	0.05
Tulare	1	0.1		0.2	0.05
Humboldt	1	0.1		0.1	
Merced	0			0.1	0.2
San Joaquin	2	0.2	0.3	0.1	0.1
Sonoma	1	0.1	0.2	0.1	0.05
Santa Cruz	1	0.1		0.1	
Mariposa	0			0.1	
Placer	0		0.1	0.1	0.1
Sierra	0			0.1	
Stanislaus	1	0.1	0.1	0.1	0.2
Amador	1	0.1		0.03	
Napa	1	0.1		0.03	0.1
San Benito	0		0.1	0.03	
Sutter	0			0.03	
Yolo	0			0.03	
Butte	0		0.4		
Kings	0		0.2		
Alpine	1	0.1	0.2		
Madera	0		0.1		0.05
Mendocino	0		0.1		
Modoc	1	0.1	0.1		
Calaveras	1	0.1			
Nevada	0				0.4
Lassen	0				0.1
Out-of-State	27	2.5	0.2	1.0	0.8

TABLE 9

Residence of Fishermen Taking 50 Percent of Total Catch at Rush Creek - 1956

County	No. of anglers	No. of angler days	Total hours	Total catch	Average catch per angler	Average catch per angler day	Catch per hour
Los Angeles	23	59	195.25	286	12.4	4.9	1.5
Kern	5	12	61.5	68	13.6	5.7	1.1
Mono	5	33	63.25	120	24.0	3.6	1.9
San Diego	3	4	24.25	21	7.0	5.3	0.9
N.R. Nevada (State)	3	6	27.0	32	10.7	5.0	1.9
Orange	1	1	3	7	7.0	7.0	2.3
Fresno	1	2	5.75	11	11.0	5.5	1.9
Marin	1	3	7.5	7	7.0	2.3	0.9
Inyo	1	1	3.5	14	14.0	14.0	4.0
Riverside	1	3	220	12	12.0	4.0	0.6
Totals	44	124	413.00	578	13.1	4.7	1.4

SUMMARY

A total of 1,423 angler days spent by 1,221 individuals resulted in a catch of 1,541 brown trout during 2,071 hours.

The 1956 season had the heaviest water flow and the highest turbidity noted during the several years of study. These were accompanied by the lowest angler effort since the inception of the rainbow and brown trout studies.

Month-to-month catch per hour values varied from 0.68 in May to a low of 0.23 in July.

The majority of angler efforts (66 percent) resulted in zero catches, and 50 percent of the catch was taken by 7.4 percent of the efforts.

Wild brown trout predominated in the catch (75.3 percent).

The greatest percentage return to the angler of any planted brown trout resulted from the plant of the Massachusetts strain. Both eastern strains, Massachusetts and New Jersey, produced returns superior to those obtained with the California strain brown trout.

Although the largest brown trout taken during the study was a wild fish, the average size of wild brown trout remained below that of the planted groups.

The majority of the brown trout anglers (83.7 percent) used bait to account for 87 percent of the catch. The most successful in terms of catch per hour but least numerous (3.7 percent) in type of anglers were fly fishermen.

Local county residents were not predominantly represented among those anglers taking 50 percent of the brown trout. The greatest number of anglers, angler efforts, total hours, and total catch in the 50 percent catch group came from Los Angeles County.

Catchable rainbow trout fishermen obtained a higher return on the planting investment as expressed in the catch per angler made from the plant per angler at Rush Creek.

Rainbow trout did not maintain a population during the brown trout management studies. Brown trout, however, maintained a population throughout the rainbow trout studies and continued as wild fish to make the largest contribution in numbers to the catch in 1956.

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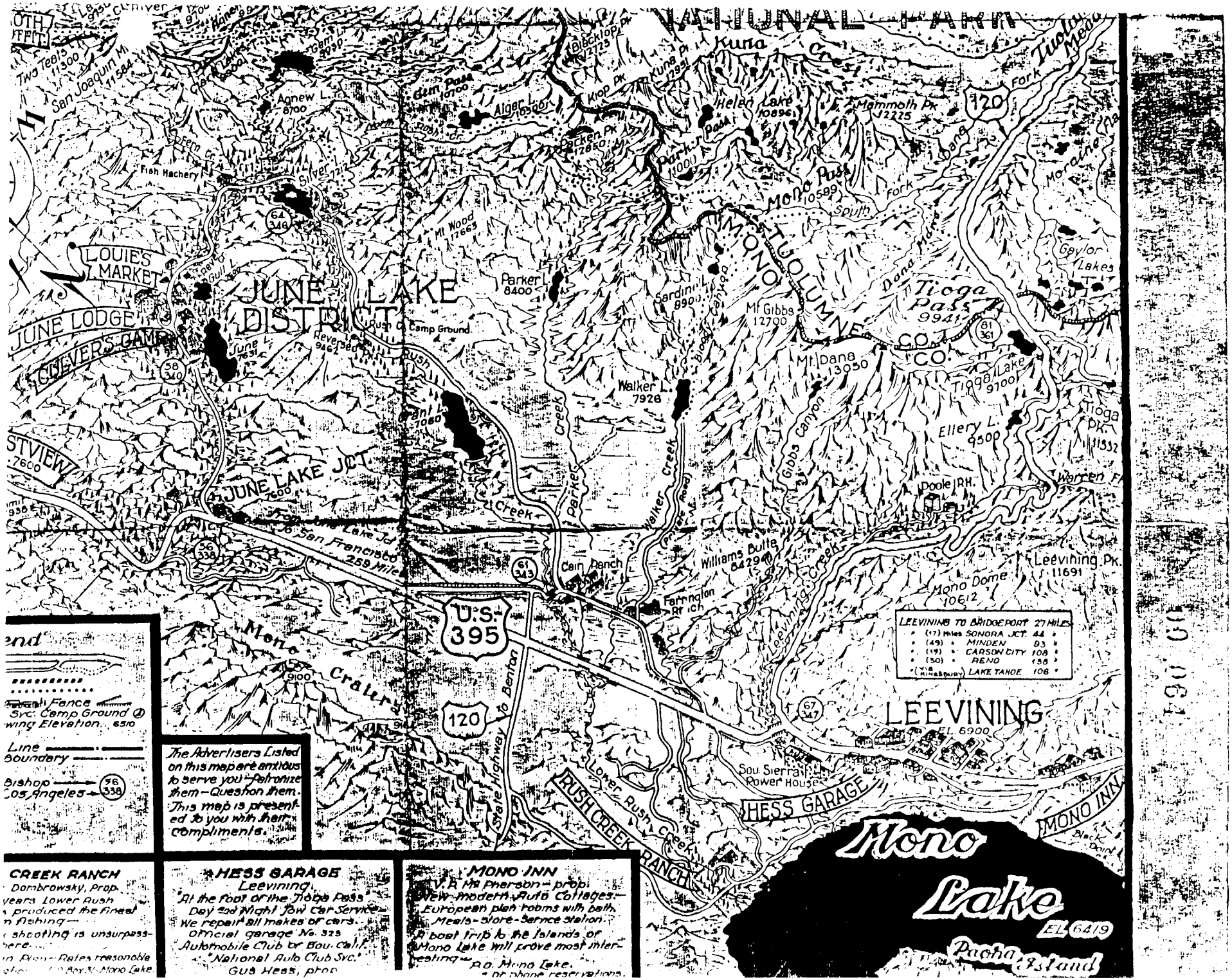
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Mammoth Pk. 12225
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Fork
Packer Pk. 12850
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Mono Pass 10599
Dana
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CO.
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Rush Creek
Parker Creek
Walker Creek
Poole P.H.
June Lake Jct.
To San Francisco 259 Miles
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Leevining Pk. 11691
Cain Ranch
Farrington Ranch
Mono Dome 10612
Leevining Creek
U.S. 395
Mono Craters
To Benton
State Highway
LEEVINING TO BRIDGEPORT 27 MILES
(17) Miles SONORA JCT. 44
(49) MINDEN 93
(19) CARSON CITY 108
(50) RENO 158
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EL. 6900
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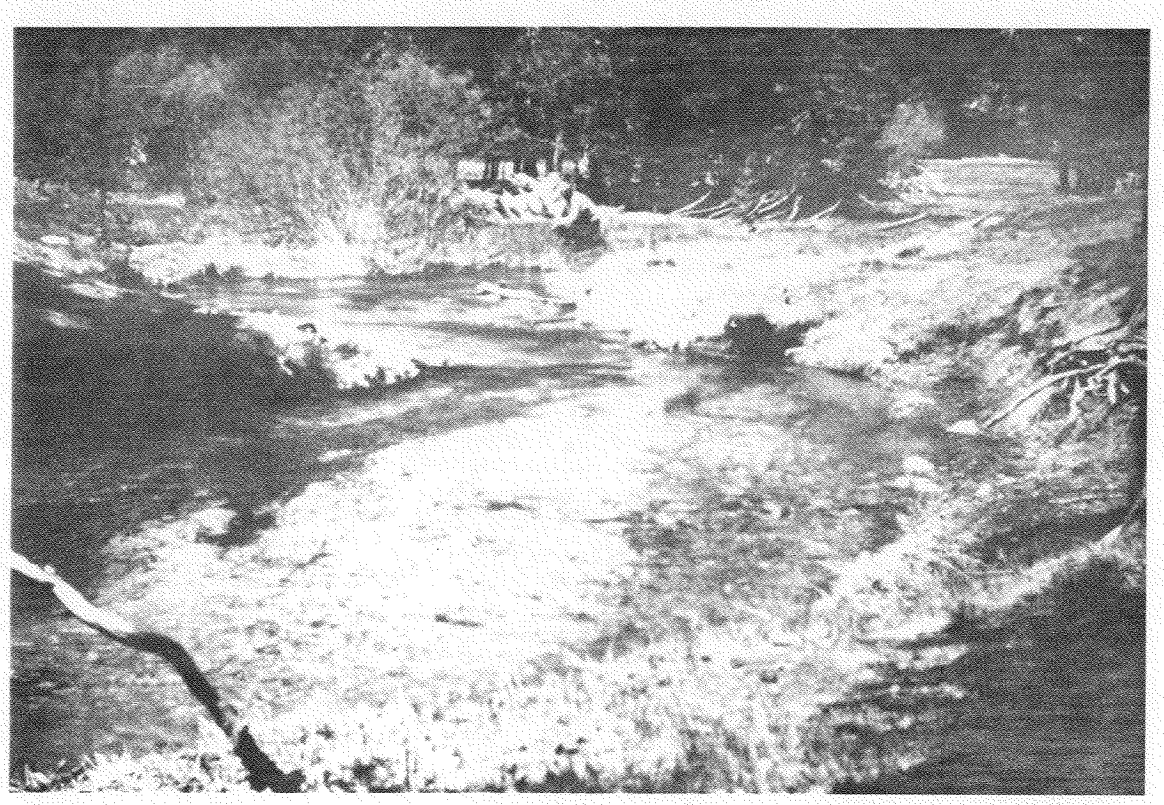

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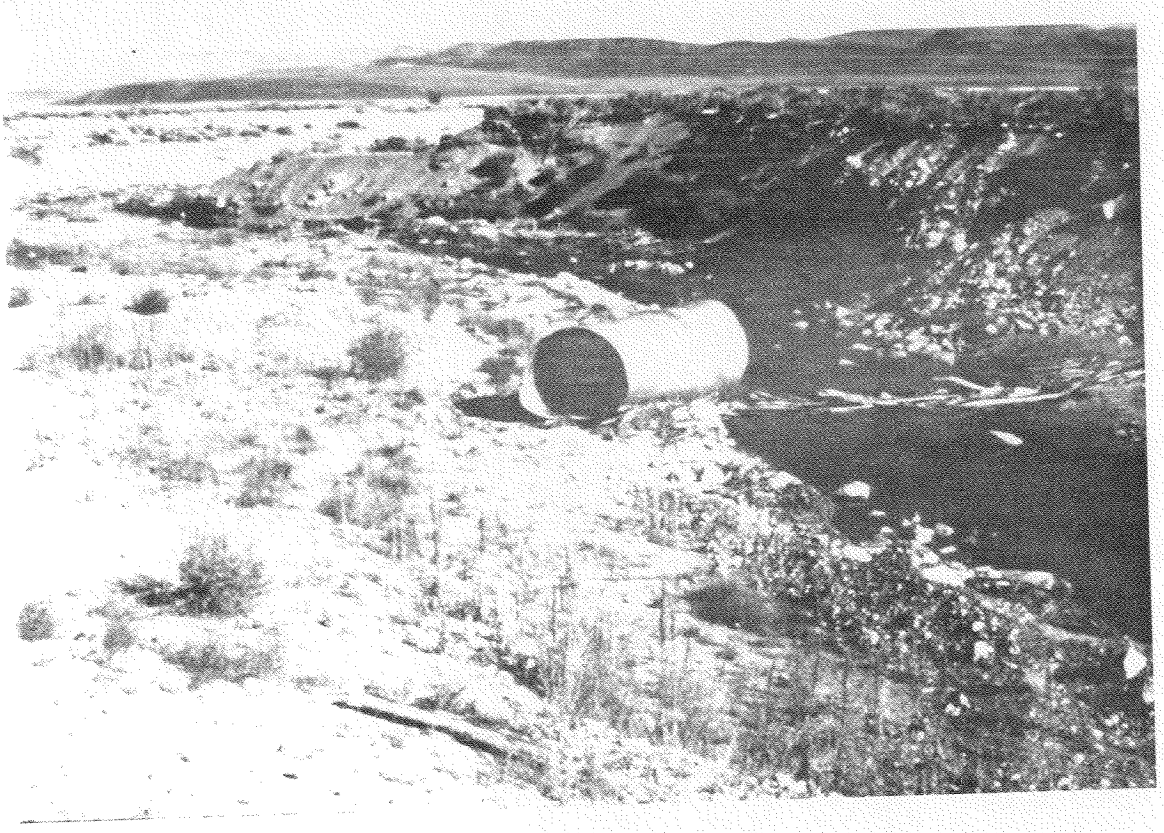

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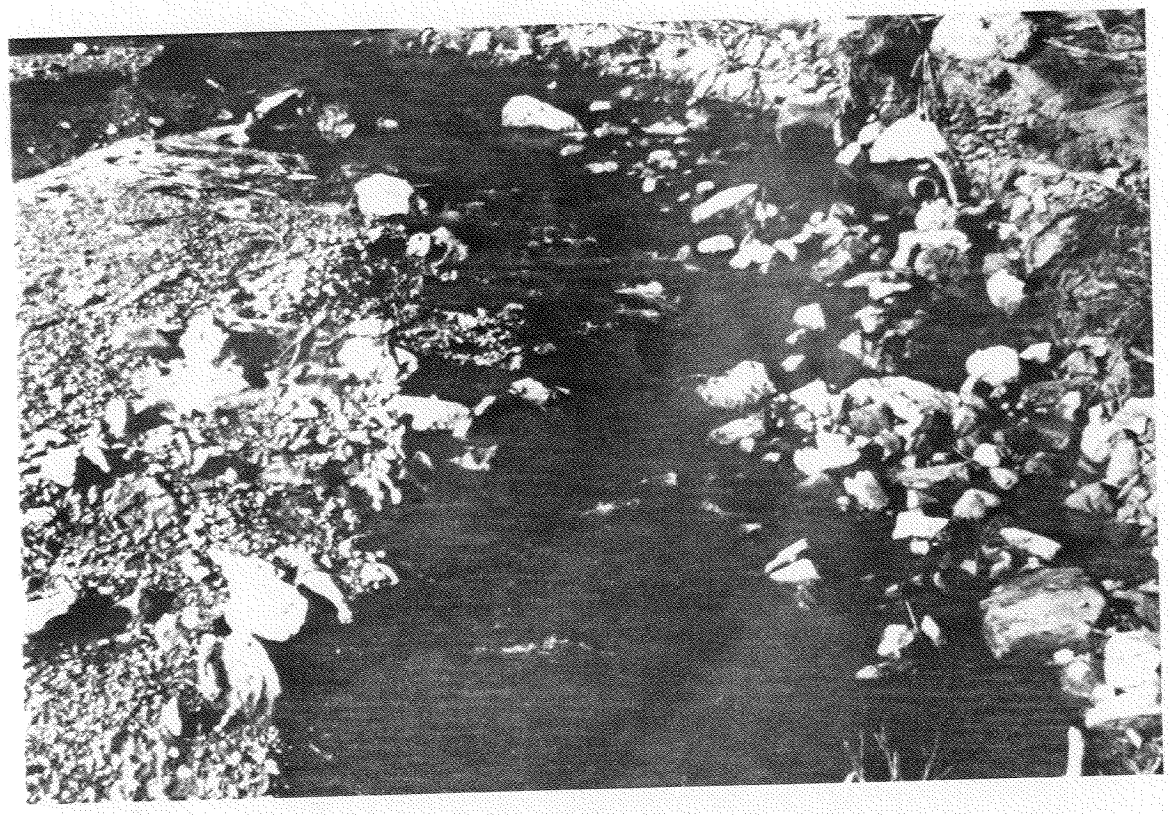

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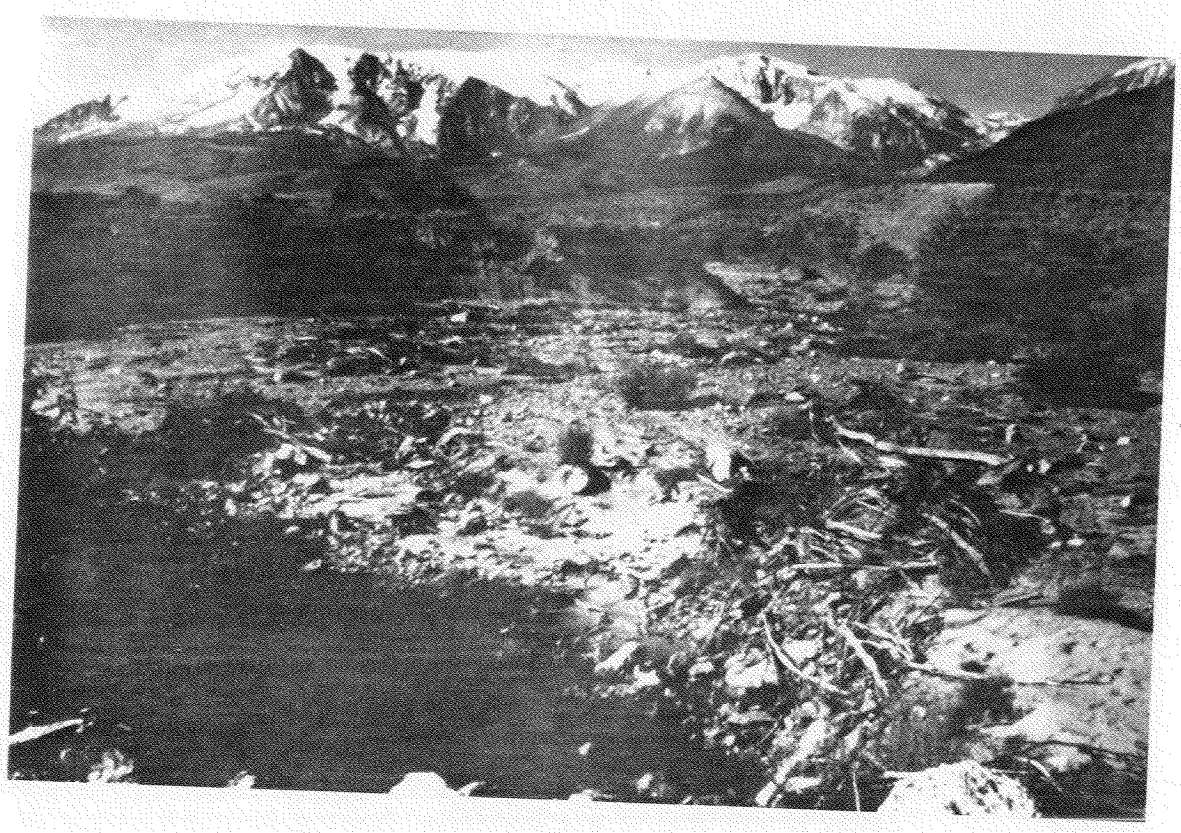

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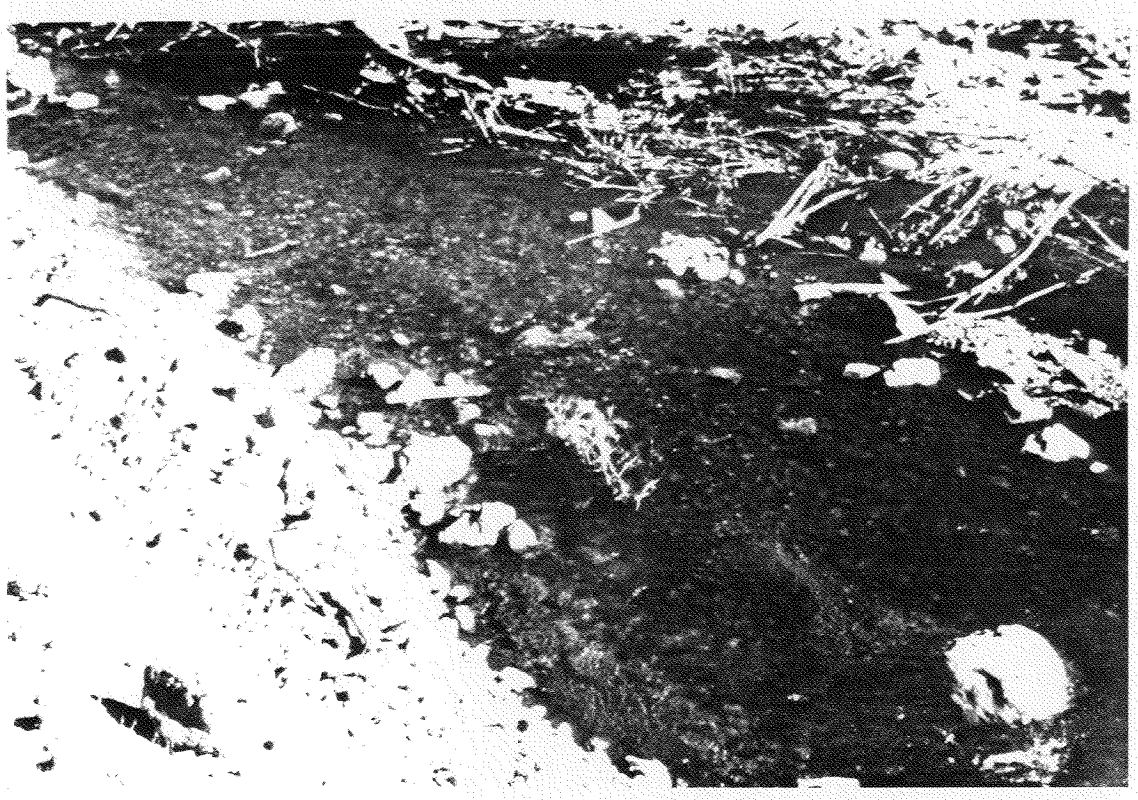

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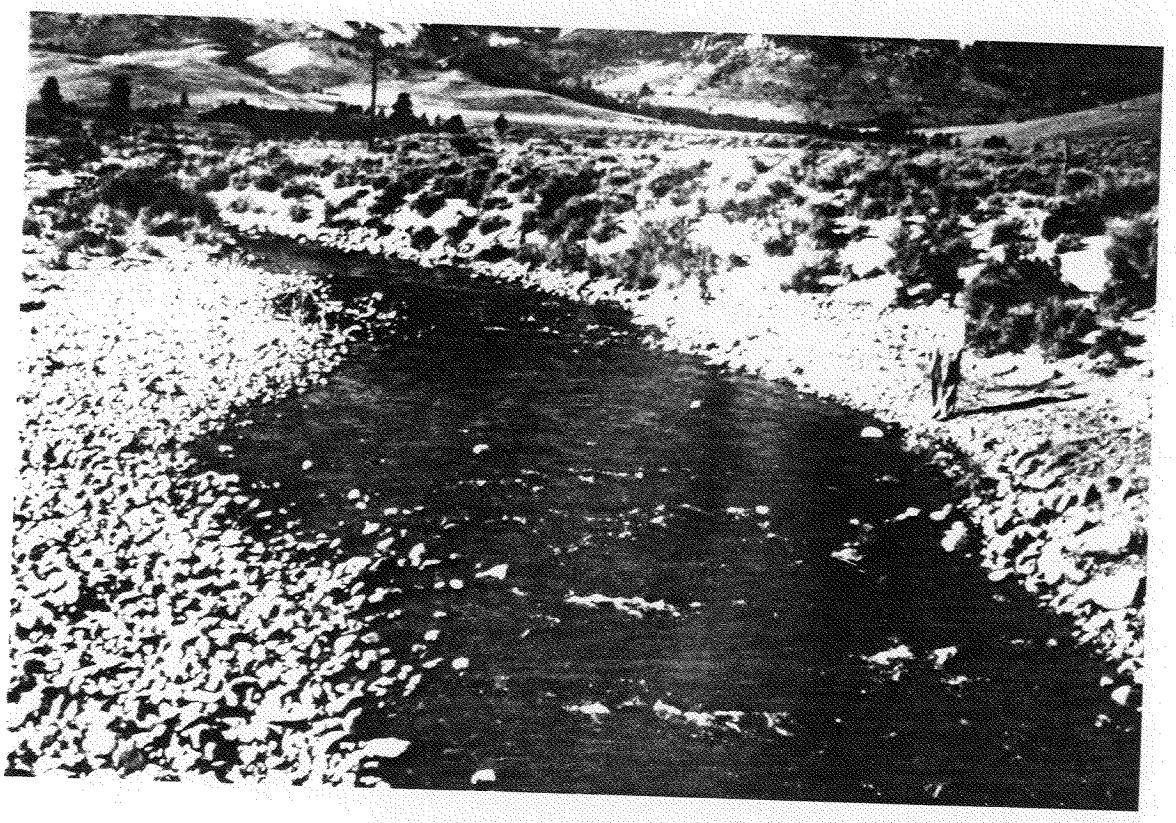

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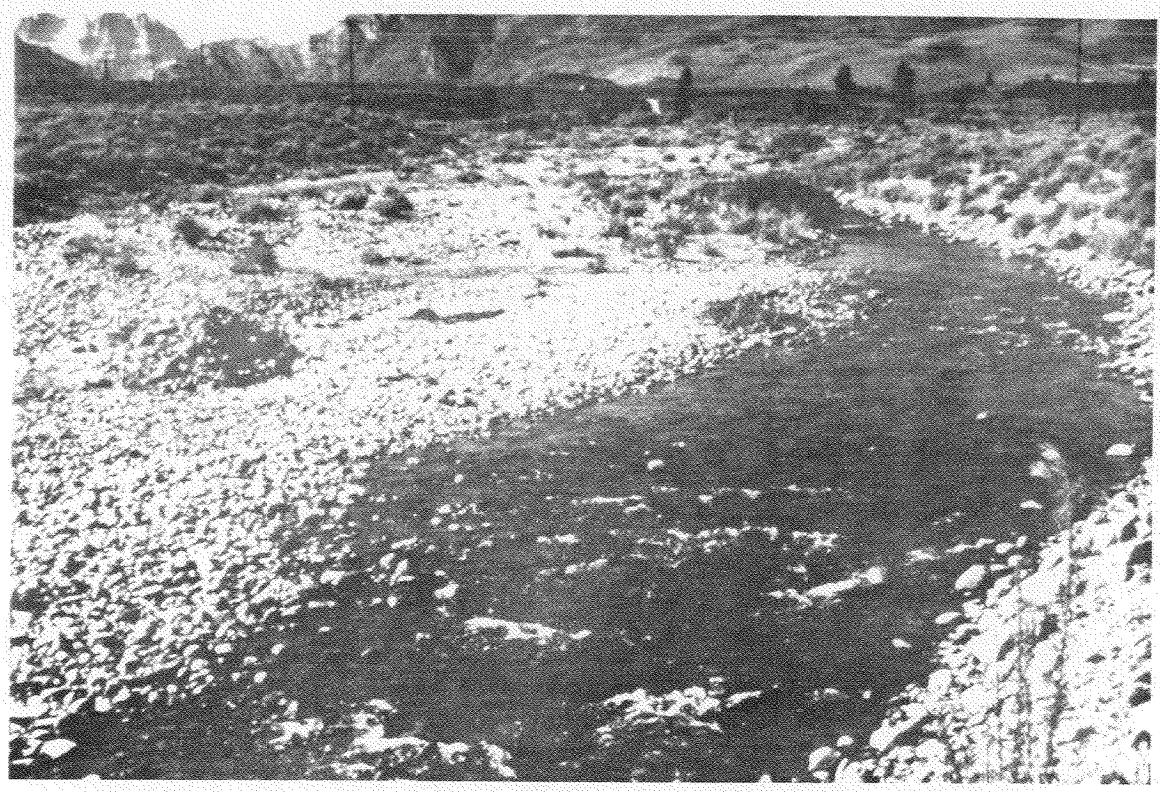

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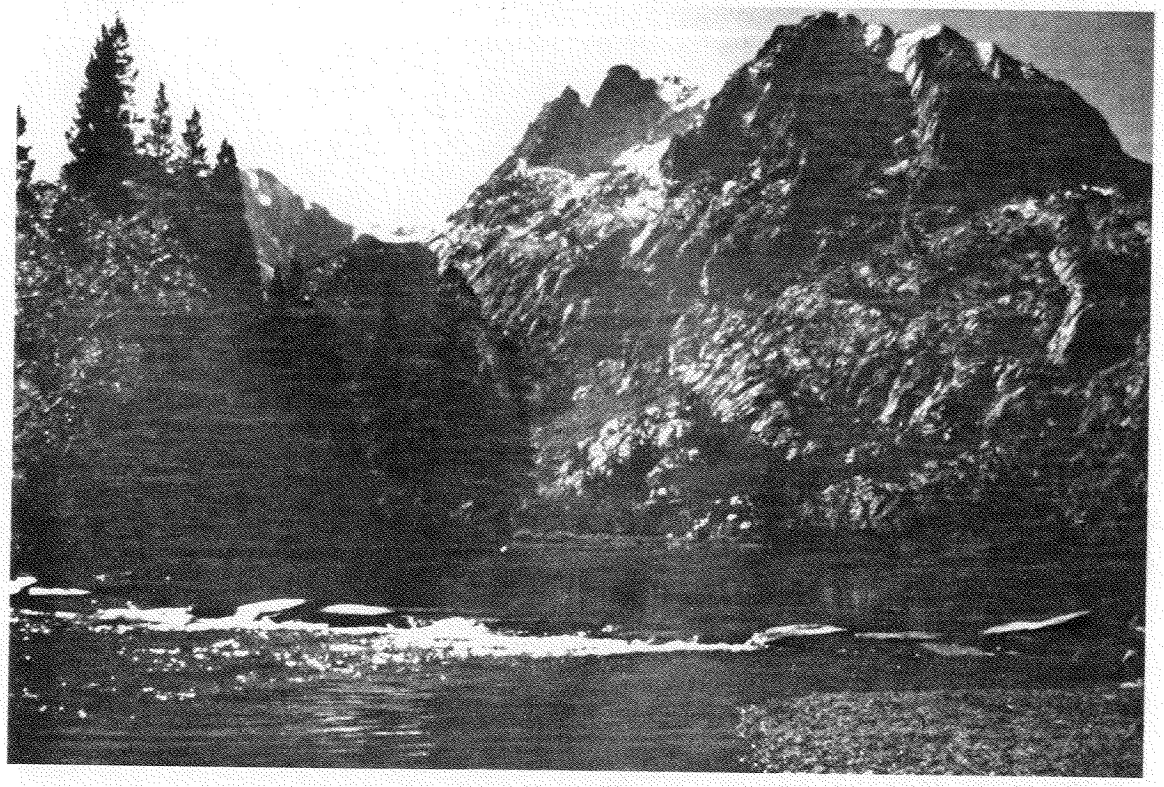

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

00 090

FROM: Alden H. Postal

PLACE Garberville, California

TO: Bureau of Fish Conservation

DATE February 15, 1939

SUBJECT: Monthly report for January 1939

The month of January was marked by changes and redirection in management of the fishways at Benbow Dam. The north ladder was operated as much as possible and under different conditions with the intention of determining its advantages and disadvantages as a "fixed" way in contrast to the more adjustable structure at the south end of the dam. Over 140 hours, largely continuous observation, were devoted to this fishway. Coupled with observations made earlier in the migration season, work at this ladder during the month led to the preparation of a short report, in letter form, including specific recommendations for structural changes designed to improve and extend the present restricted function of the fishway. The letter, however, was not submitted until Feb 4.

The south ladder, though attended mainly in daylight hours, has been maintained almost continuously, night and day, since Dec. 29, 193 , with a regular migration flow--from 6 to 15 inches of water over ports depending on the turbidity of the water. Counting device, gates, and illumination and housing facilities were moved farther up the ladder. Such changes in management of the fishway were designed to provide more constant attraction and a check on statements that fish move nocturnally. Had fish ascended the ladder during the night numbers of them would have backed up behind the weir in the deep tanks immediately below. So far, this has not been the case. However, beginning Jan 31, a schedule of night attendance was begun to provide a direct check on this controversial point. Full operation of the schedule was pending a better knowledge of the species and sexes of migrant fish by Assistant Warden, Carl C. Fagen, who arrived to assist in the work at the station Jan. 25.

Census work during the month encompassed one large migration wave and the start of a second. The first wave proper began (following a rain) Jan 2, with 615 fish over the ladders. Apparently a peak was reached on Jan 7, when 1042 fish were recorded over. Decline then followed more or less steadily, such that on Jan 16 only 1 fish was recorded through. A general lull continued until Jan 27, when, following another moderate rain, the "run" increased from 26 to 71 next day; thereafter it continued with an average of approximately 200 per day into the first week of February (to weekly report ending Feb 4). During this period 10596 fish were recorded over the ways and, of these, 5,7[illegible] were steelhead. Thus, considering the seasonal migration up to and including Feb 4, 53% of the migration occurred since Jan. 1, 1939.

Work was continued on the study of food habits of the American Merganser during the lull in the census work at the ladder later in the month. An appeal was made to wardens for help in obtaining

57076 4-38 19M S.P.O.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: PLACE

TO: DATE

SUBJECT: onthly report for January 1939 from Benbow Dam xper. Stat.

information on numbers and distribution of birds over the el system at the time of populational ebb in winter.

arious supplies were received from the main office at an rancisco and the same acknowledged.

eetings were held with Leo hapovalov, enior Inland ater isheries Researcher, Jan. 8 and 9, and again Jan 31 and Feb 2, at hich times problems of the el River survey work were discussed d plans made for continuation of the census phase of the work.

Jr. Inland Water Fisheries Researcher
Benbow Dam Experimental Station

57076 4-38 15M S.P.O.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal

PLACE Garberville, California

TO: Bureau of Fish Conservation

DATE February 28, 1939

SUBJECT: Monthly report for February

During the month of February the plan of conducting census at night was continued more intensively; this work has been done entirely at the south ladder since this fishway is more regulative and nearest to the source of electric power. During periods of about 22½ hours continuous observation, carried on since Feb 8, the north ladder has been closed, as well as on days when a man was off duty.

Migration of fish through the ways has been irregular, with a peak day occurring Feb 7, when 626 fish ascended the south ladder following an intermittent, heavy rain the previous day. Of this number 600 were steelhead, 25 were Silver salmon, and one a King salmon. With the onset of a period of clear weather, particularly since Feb 12, there has been an irregular decline. Thus, on Feb 28, by midnight, only 5 fish, all steelhead, had passed over the south ladder. During the month 3132 fish were recorded over the fishways; of this number 2784 were steelhead. With the nights clear, attention has been given to a possible effect on migration of the lunar cycle. The last migration wave has probably marked the end of the seasonal migrations of King and Silver salmon. The last King salmon was recorded over shortly before midnight Feb 12 and the last Silver salmon was recorded next day. On Feb 22, a King salmon in good condition was seen in the pool below the dam.

Two trips were made to Eureka during the month (Feb 14 and Feb 21), at which times repairs were made on the Chevrolet pick-up 5986 in use at Benbow Dam. On the second trip some reference material on mergansers was obtained at the city and county libraries.

The study on food habits of mergansers was continued as time permitted during the month.

On Feb 10 tentative plans were drawn up for a trap to be used in the south ladder for the downstream migration studies. Wire cloth for the trap was received Feb 18.

On Feb 19 a survey trip was made on horseback into the East Branch of the South Fork Eel drainage. The attempt to reach the falls on the main stream was unsuccessful and a later trip was planned for this purpose.

Two and a half days emergency leave(Feb 18 through Feb 22) was granted by the S.F. office to Ira J. Taylor during serious family illness

Additional supplies were received during the month and the same acknowledged.

Jr. Inland Water Fisheries Researcher
Benbow Dam Experimental Station

57076 4-38 15M S.P.O.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal PLACE Garberville, California

TO: Bureau of Fish Conservation DATE March 31, 1939

SUBJECT: Monthly report for March 1939

The slump in migration, concomitant with the period of good weather and declining flow in the South Fork of the Eel River, which extended into the first few days of March, took an upward trend on Mar 6 when another rain began. From a record of 1 fish over Mar 1, on Mar 6, 695 (all steelhead) were recorded. Another slump from Mar 7-9, despite continued rain, was followed by comparatively good migrations on Mar 10 and 11, during which time 630 fish were recorded. Since the end of the rainy period on Mar 12, the migration wave, except for a brief flare again Mar 14-16, has gradually and irregularly declined; this appearance in the wave has been accompanied again by good weather and a declining river for the rest of the month. On Mar 10, the last Silver salmon (4 in number) were recorded over; these fish apparently were stragglers, as no others were seen anywhere below the dam. It is thought that February, normally, is the end-month for seasonal migrations of both King salmon and Silver salmon in the South Fork of the Eel River. During the month 3142 fish were recorded over the fishways; of this number 3137 were steelhead.

Operation at night of particularly the south ladder was continued during most of the month, exceptional periods being largely due to absence of a man on day off, need for extra help on days when construction of a trap for downstream migrants was in progress, my absence on days of special survey work, and atrip to Palo Alto by me early in the month. On Mar 22 and 23 a period of 48 hours continuous observation was set aside at the south ladder in order to cast some light on the character of the migration wave within the hour. Close records were kept every five minutes, night and day, for the total 48 hours, together with periodic notes on weather and condition of the river. The data obtained seemed to indicate little regularity in migration waves within the 48 hours of Mar 22 and 23.

From Mar 6 to 10 work was begun and completed on a trap in the south ladder with which to study the migration of young fish downstream. The run of steelhead upstream ebbed sufficiently by Mar 25 that on this date activities with the trap were begun. It was planned to maintain the north fishway daily for late migrant steelhead upstream.

Mar 3-5 were taken by a trip to the S.F. office, including a brief conference with Mr. James H. Vogt, and to Palo Alto; at the latter place some reference material was obtained at the Natural History Museum and Ford Sedan 5952 was transferred to me by Leo Shapovalov. Mar 5 was occupied in return to Garberville following the one interim day at my home in Richmond.

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: PLACE

TO: DATE

SUBJECT: Monthly report for March continued

On February 24, and again March 5 and 8, question arose in regard to a policy on allowing Indians and certain white people to take lampreys from the precincts at Benbow Dam. A return wire Mar 8 from Mr. Alan C. Taft granted permission to take lampreys at the dam under supervision. At present lampreys may be taken only at the north fishway, as directed by signs, and in such manner as to not interfere with any existing upstream migration of steelhead. Taking of lampreys for sport alone at Benbow Dam is not allowed.

Studies on food habits and ecology of mergansers were continued during March to a greater extent and somewhat as follows: Mar 15, preliminary census survey from Benbow Dam to Lane's Flat; Mar 16, 17, 18, 21, and 24, notes taken on a "roost" census and on observation of active birds and stomach analyses on specimens collected. On Sunday, Mar 26, the entire main South Fork drainage was the focus of a rapid census survey of the remaining merganser population along the South Fork of the Eel River. Such survey, gratifyingly successful, was designed to indicate the approximate # of birds immediately before the breeding season. It will be highly desirable to make a careful re-check at sometime in the period July 1 to 5.

One hour was taken Saturday, Mar 25, to participate in a meeting of the Garberville Chamber of Commerce on the problem of stream pollution and sewage disposal for the town. The able counsel of Mr. J.W. Porter, of the State Department of Public Works, was obtained by the local Chamber and Mr. Porter outlined and discussed a new system of sewage disposal for the community. Action was taken at once, on the following Monday (Mar 27), by the Chamber of Commerce to reorganize its Committee on Sanitation; following this (accomplished in Eureka at the office of the District Attorney), it is evident that Garberville will have a new system of sewage disposal wholly satisfactory to all concerned.

Under the supervision of M.O. Talbott, a Ford Pick-up 5939 and equipment for fish rescue was transferred to the Benbow Dam Station. Chevrolet Pick-up 5986 was transferred to Talbott and planting crew at Elk Grove. This business was transacted Mar 23.

During the month additional supplies were received from the S.F. office and the same acknowledged.

00 094

Jr. Inland Water Fisheries Researcher
Benbow Dam Experimental Station

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

INSTRUCTIONS FOR MAKING THIS REPORT

At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY Benbow Dam Exper. Station DATE April 2, 1939

SUNDAY March 26 *(Give date)*

Intermittent light rain. River clearing;continuing gradual decline. Tegen and Taylor dividing attendance at N. ladder and downstream trap at S. ladder (including checking of migrants, periodic temperature readings, periodic inspection and cleaning of screens, and regulation of flow) 8 a.m. to 5p.m. Vestal on census survey of mergansers over upper South Fork drainage (other half from Benbow Dam to Dyerville checked by a reliable and carefully selected observer). Steelhead 5.

MONDAY March 27

Clear and warm. River clear;declining. Tegen and Taylor attending N. and S. ladders 7:30 a.m. to 4:30 p.m. Following correspondence and review of incoming literature in morning, Vestal at S. ladder trap to add fine mesh window screen over check screen of quarter inch mesh;designed an added trough device for collection of downstream fish and a check barrier for lampreys entering in ladder. Steelhead 16.

TUESDAY March 28

Clear and warm. River clear;declining now about ½ inch per day. Tegen off duty. Taylor attending N. ladder and intermittently downstream trap at S. ladder 7:30a.m. to 4:30 p.m. Following correspondence and preparation of specimens to assist attendants in identification at downstream trap. Vestal at S. ladder and again at N. ladder to assist in seining of upstream steelhead. Steelhead ~~15~~ 16

WEDNESDAY March 29

Cloudy and cool. River clear;in gradual decline. Taylor in attendance at downstream trap in S. ladder 7:30a.m. to 4:30p.m.; Tegen attending N. ladder similar hours. Following correspondence, Vestal at S. ladder trap in morning and through noon; from 1 to 8p.m. on survey hike of about 16 miles into area of Reed Mt.(East Branch of South Fork drainage) to survey a secluded mountain lake. Steelhead recorded, 7.

(OVER)

THURSDAY March 30

Clear and warm. River clear;in gradual decline. Taylor attending S. ladder trap 7:30 a.m. to 4:30 p.m.;N. ladder attended by Tegen at inter in morning when not assisting Taylor,then regularly in afternoon(total period 7:30a.m. to 4:30p.m.). Following review of incoming literature in morning, Vestal in afternoon continued observations on mergansers and took survey data on Sawmill Cr. Steelhead 11.

FRIDAY March 31

Clear and warm. River clear;declining. Taylor attending S. ladder trap 7:30a.m. to 4:30p.m.;Tegen attending N. ladder 7:30 to 12 noon at intervals (briefly assisting Taylor);regularly 1 to 5p.m. Vestal tending to correspondence and preparation of monthly report in morning;assisting both Taylor and Tegen at respective ladders in afternoon.
Steelhead 68.

SATURDAY April 1

Cloudy and sultry. River clear;continuing decline. Taylor off duty. Vestal and Tegen at S. ladder 8 to 12 noon (seined over upstream large steelhead and checked young fish downstream in otherwise attending trap), Tegen at N. ladder 1 to 4:30p.m. and again at S. ladder 4:30 to 5p.m. assisting in final check of young fish downstream at end of day.
Steelhead 28.

RECAPITULATION MIGRANTS OVER BENBOW FISHWAYS

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand
		Weekly total:	150		Seasonal total:	26,207
Steelhead	over: 150 lost: 5				12,784 5 12,789	

--Young Fish Downstream--

	King salmon over	King salmon lost	Silver salmon over	Silver salmon lost	Steelhead over	Steelhead lost
Weekly total:	5	14	0	0	195	3

Remarks: Late in the afternoon of March 30 at least two suckers about 12 inches long were seen among steelhead gathered on the apron of the dam nearest the power house.

Within the past week the lamprey migration has increased markedly, with great numbers completely hiding sections of the Benbow Dam from view.

Signed

8393 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY ~~Benbow Dam Exper. Station~~ DATE ~~April 9, 1939~~

SUNDAY April 2 *(Give date)*

Clear and warm in a.m.;but overcast and sultry in afternoon. River continuing clear and gradually declining. Both ladders attended by Taylor and Tegen 7:30a.m. to 12 noon; 1p.m. to 4:30p.m. Brief talk given before Southern Humboldt Fish & Game Club following correspondence and conference with Taylor and Tegen at S. ladder.

Fish downstream: St 175; Ks 6. Fish upstream: St 27.

Include fish lost

MONDAY April 3

Foggy and cold in a.m.;clear and warm in afternoon. River continuing clear and declining. First part of morning, Taylor and Tegen checking young fish downstream, assisted on determinations by Vestal; Tegen on attendance at N. ladder rest of day. Balance of morning Taylor and Vestal on survey of Lake Benbow in attempt to estimate number of young fish present on that day. Taylor at S. ladder in afternoon until 4:30p.m. Vestal at N. ladder until 6p.m. continuing observation period of Tegen.

Fish downstream: St 216; Ks 4; Ss 7. Fish upstream: St 19.

TUESDAY April 4

Clear and warm. River clear and continuing slow decline. Tegen off duty. Taylor attending S. ladder 7:30 a.m. to 4:30p.m.; assisted by Vestal in morning in netting upstream steelhead and checking young fish downstream. Vestal at N. ladder through noon and afternoon until 5:30p.m.

Fish downstream: St 55; Ks 3; Ss 79. Fish upstream: St 7.

WEDNESDAY April 5

Clear and warm. River clear and declining. Both ladders attended by Vestal and Tegen 8a.m. to 12 noon;1 to 5p.m. Assistance on checking and determinations of young fish downstream given Tegen by Vestal in forenoon. Taylor off duty.

Fish downstream: St 94; Ks 3; Ss 57. Fish upstream: St 15.

(OVER)

THURSDAY April 6

Cloudless and warm. River continuing gradual decline; clear. Both ladders attended by Taylor and Tegen 8a.m. to 12 noon; 1 to 5p.m. Following further work on mergansers in morning until 11a.m., Vestal assisted Taylor on checking and determinations of young fish downstream; studies on mergansers continued in afternoon by Vestal.

Fish downstream: St 62; Ks 2; Ss 78. Fish upstream: st 7.

FRIDAY April 7

Clear and warm. River clear, gradually dropping. Both ladders attended by Taylor and Tegen 8a.m. to 12 noon; 1 to 5p.m. Following further observations on mergansers in morning, before noon Vestal assisted in checking and determination of young fish downstream.

Fish downstream: St 184; Ks 20; Ss 120. Fish upstream: St 20

SATURDAY April 8

Overcast and sultry; cloudy and cool in afternoon. River clear and declining. Both ladders attended by Taylor and Tegen 8a.m. to 12 noon; 1 to 5p.m. Vestal assisting on checking and determination of young fish downstream until 9a.m., thereafter continuing work on mergansers until noon; Vestal intermittently at both ladders in afternoon until 5:15p.m.

Fish downstream: St 80; Ks 16; Ss 111. Fish upstream: St 23.

RECAPITULATION MIGRANTS OVER BENBOW FISHWAYS

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand
		Weekly total: 110			Seasonal total: 26,~~316~~ 25	
Steelhead	over: 118 lost: 0				12,~~[illegible]~~ 902 9 12,909	

******* Young Fish Downstream ******

	King salmon over	King salmon lost	Silver salmon over	Silver salmon lost	Steelhead over	Steelhead lost
Weekly total:	3	53	446	4	853	13
Seasonal tot:	8	67	446	4	1048	16

Remarks: Apparently the optimum flow throughthe ladder to the downstream trap has been much too strong for the more delicate young King salmon, as most of the fish lost have been found pinned to the check screen. losses are being reduced by cutting down the flow at night.

Signed

8393 11-33 5M
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HATCHERY Benbow Dam Exper. Station DATE April 16, 1939

SUNDAY April 9 (Give date)

Clear and warm. River clear and slowly declining (fractional amount each day). Tegen attending N. ladder 9:30a.m. to 5p.m.; assisting at S. ladder 8 to 9:30a.m. Taylor attending S. ladder 8a.m. to 5p.m. Vestal up East Branch of South Fork Eel in morning to observe spawning lampreys, returning to assist checking of downstream migrants; afternoon devoted to further observations on mergansers from Benbow Dam to Mouth of Sawmill Cr.
Fish downstream: Ks 61; Ss 75; St 72. Fish upstream: St 10

MONDAY April 10

Overcast and warm. River clear and continuing gradual decline. Taylor and Tegen attending both ladders 8:20a.m. to 5:20 p.m. Following correspondence, Vestal assisting checking of downstream migrants; assisted by Taylor, collected specimens of young King salmon for L.R. Donaldson of Univ. Wash. In afternoon, set additional screens before check screen in ladder to avoid further losses of young Ks.
Fish downstream: Ks 16; Ss 137; St 92. Fish upstream: St 6

TUESDAY April 11

Clear and warm. Comparatively slight change in river. Both ladders attended by Taylor and Tegen 8a.m. to 5p.m. (N. ladder attended from time to time until afternoon when St begin to appear). Following correspondence and review of new literature, Vestal assisting checking of downstream fish and continued observations on mergansers for rest of day downstream from Benbow dam. New water diversion flume built in S. ladder by Taylor & Tegen.
Fish downstream: Ks 70; Ss 122; St 160. Fish upstream: St 10.

WEDNESDAY April 12

Cloudy and cool. River clear and slowly declining. Taylor attending S. ladder 8a.m. to 5p.m. 12noon and N. ladder 1 to 5p.m. From 8 to 9:15a.m. assisted in checking of downstream migrants by Tegen, Chapovalov, and Vestal. Latter three to Alderpoint in late forenoon and beginning marking of young Ks at Fort Seward hatchery in afternoon.
Fish downstream: Ks 50; Ss 102; St 73. Fish upstream: St 4

(OVER)

THURSDAY April 13

Clear and warm. River clear and declining gradually. Taylor attending downstream trap in S. Ladder 8a.m. to 12noon;attending N. ladder 1 to 5 Vestal and Tegen at Fort Seward hatchery assisting Shapovalov in marking of Young Ks.

Fish downstream:Ks 2;Ss 80;St 34. Fish upstream:St 8.

FRIDAY April 14

Clear and warm. River clear and gradually declining. Taylor attending downstream trap in S. ladder 8a.m. to 12 noon;attending N. ladder 1 to 5p. Vestal assisting Shapovalov in marking of young King salmon at Fort Seward hatchery.

Fish downstream:Ks 15;Ss 46;St 19. Fish upstream:St 4

SATURDAY April 15

Clear and warm. Condition of river actually and relatively little changed. Taylor attending downstream in S. ladder 8a.m. to 12 noon; attending N. ladder 1 to 5p.m. Tegen and Vestal assisting Shapovalov at Fort Seward hatchery in marking of young King salmon. Vestal to Garbervill 5:30 to 6:30 p.m.

Fish downstream:Ks 28;Ss 136;St 34. Fish upstream:St 6.

RECAPITULATION MIGRANTS OVER BIN OW FISHWAYS

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand
		Weekly total: 48			Seasonal total: 26,3~~00~~ 73	
Steelhead	over: lost:	48 0			12,~~941~~ 50 ~~97~~	
					12,~~843~~ 57	
		YOUNG FISH DOWNSTREAM				
	over	King salmon lost	over	Silver salmon lost	over	Steelhead lost
Weekly total:	48	~~21~~ 169	~~[illegible]~~ 726	~~2~~ 6	~~476~~	~~3~~ 3
Seasonal tot:	~~54~~	~~[illegible]~~	~~1006~~	~~0~~	~~1001~~	~~10~~
Grand:	106	~~217~~ 231	1172	70	~~1329~~ 1524	16

Signed

8393 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

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HATCHERY Benbow Dam Exper. Station DATE April 24, 1939

SUNDAY April 16 *(Give date)*

Clear and warm. River clear;gradually declining. Taylor attending trap in S. ladder 8a.m. to 12 noon; attending N. ladder 1 to 5p.m. First part of morning assisted by Vestal in checking and identification of downstream migrants; Vestal rest of forenoon continued observations on mergansers. In afternoon, went to Mattole River and examined stream in three places above falls near Thorn; King salmon of the year were present, but were not abundant. Carl Tegen assisted Shapovalov mark young Ks at Fort Seward hatchery.

Young fish downstream: Ks 20;Ss 63;St 35. Ads. upstream: St 15.

MONDAY April 17

Overcast and sultry. River clear;declining (abnormally low for this time of year). S. ladder and downstream trap attended by Taylor 8a.m. to 12 noon;attended N. ladder 1to 5p.m. Vestal to Fort Seward hatchery where, with Tegen, assisted Shapovalov continue marking of young Ks.

Young fish downstream: Ks 22;Ss 133;St 43. Ads. upstream: St 5.

TUESDAY April 18

Clear and warm. River clear;declining. Taylor attending downstream trap in S. ladder 8a.m. to 12 noon;attended (intermittently) N. ladder for adults upstream 1 to 5p.m. Vestal and Tegen assisting Shapovalov mark young Ks at Fort Seward hatchery.

Young fish downstream: Ks 37;Ss 112;St 80. Ads. upstream: St 2.

WEDNESDAY April 19

Clear and warm. River clear;declining. Taylor attending downstream trap in S. ladder 8a.m. to 12 noon; attending N. ladder 1 to 5p.m. Vestal and Tegen at Fort Seward hatchery assisting Shapovalov mark young Ks.

Young fish downstream: Ks 30;Ss 100;St 50. Ads. upstream: St 0.

(OVER)

THURSDAY April 20

Clear and warm. River clear; continuing gradual decling. Taylor attendi

downstream trap in S. ladder 8a.m. to 12 noon; attending N. ladder f

Ad. steelhead upstream 1 to 5p.m. Vestal and Tegen assisting Shapovalov

conclude marking of young Ks at Fort Seward hatchery; for final record see report by Shapovalov for week ending April 22.

Young fish downstream: Ks 55; Ss 53; St 32. Ads. upstream: St 3

FRIDAY April 21

Clear and warm. River clear; slowly declining. Taylor attending trap in S. ladder throughout morning; in afternoon opened N. ladder to Ad. St. upstream. Vestal and Tegen in forenoon assisting Shapovalov et al from Fort Seward hatchery plant part of marked Ks in S. Fork of Eel River at Richardson's Grove and Piercy. Vestal continued work on mergansers in afternoon.

Young fish downstream: Ks 70; Ss 205; St 156. Ads. upstream: St 7.

SATURDAY April 22

Cloudy and cool; threatening rain. River clear; declining. Vestal and Taylor attending downstream trap in S. ladder in forenoon and checking downstream migrants; Tegen helping Shapovalov complete plant of mar fish. In afternoon Tegen and Taylor attending respective ladders at Benbow Dam until 5p.m. Vestal and Shapovalov continuing observations on mergansers and a general survey of river below Benbow dam 1 mile.

Young fish downstream: Ks 67; Ss 338; St 206. Ads upstream: St 1.

RECAPITULATION

MIGRANTS OVER BENBOW FISHWAYS

Fish and Eggs (Variety)	Hatch.	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand
		Weekly total: 33			Seasonal total: 26, ~~300~~ 406	
	over:	33			12,9~~[illegible]~~ 83	
Steelhead lost:		0			3	
					12,9~~[illegible]~~ 90	

******Young Fish Downstream******

	King salmon over	King salmon lost	Silver salmon over	Silver salmon lost	Steelhead over	Steelhead lost
Weekly total:	301	69	1002	4	601	5
Seasonal tot:	862	~~207~~	~~2298~~	~~0~~	~~2127~~	~~10~~
Grand:	~~5008~~ 409	~~2100~~ 300	2174	14	~~1420~~ 2125	24
	~~4827~~ 5444					

10 112

Signed

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY Fortuna University DATE April 23, 1939

SUNDAY April 16 (Give date)

Continued marking King Salmon at H. Seward Hatchery. 2211 marked by Shapovalov and Tegen all day and Fraser in P.M. Last of ~~unmarked~~ King Salmon not held for marking planted in Steelhead Creek on April 14; most of these fish migrate downstream following night. Loss in marked fish -2 Weather ~~[illegible]~~ mild. Water ~~[illegible]~~ made out.

MONDAY Apr. 17

Continued marking King Salmon at H. Seward Hatchery. 6081 marked by Shapovalov, Vestal, Tegen and Fraser all day. Loss in marked fish -8. Unmarked ~~[illegible]~~ fish. Steelhead in trough ~~[illegible]~~ still common; ~~[illegible]~~ mostly in pools.

TUESDAY Apr. 18

Continued marking King Salmon at H. Seward Hatchery. 6781 marked by Shapovalov, Vestal, Tegen, and Fraser all day and Sockheim ½ hr. Loss in marked fish -4. Unmarked Salmon planted in Steelhead Cr. previous week still fairly common in pools; apparently fewer each day.

WEDNESDAY Apr. 19

Continued marking King Salmon at H. Seward Hatchery. 6543 marked by Shapovalov, Vestal, ~~Tegen~~, and Fraser all day. Loss in marked fish -6. Unmarked King Salmon planted in Steelhead Cr. still present but fewer; King Salmon fish ladder just completed ~~[illegible]~~ Cr. above ~~[illegible]~~ Dow mouth of Steelhead Cr. Weather ~~[illegible]~~ mild. Water ~~[illegible]~~ Received and examined by ~~[illegible]~~

(OVER)

THURSDAY Apr. 20

Completed marking King Salmon at H. Seward Hatchery. 5395 marked by Shapovalov, Vestal, and Tegen all day and Fraser part of morning. Loss in marked fish – 11. Total marked: 41,240. Total loss to date – 37. Unmarked King Salmon planted in Steelhead C. previous week still present but fewer.

FRIDAY Apr. 21

With Vestal, Dockham, Fraser, and Tegen planted 27,971 of marked King Salmon @ 23.14 per oz. in S. Fk. Eel R. at Richardson Grove and Piercy. Transportation and planting loss: 18. Examined Dwerlig and Dean creeks; made stream improvement at mouth of Dean Cr., where many fish were being lost. To Alderpoint. Liberated 100 steelhead part of year stopped in pool of S. Fk. at Piercy.

SATURDAY Apr. 22

With Dockham, Fraser, and Tegen, planted 13,199 of marked King Salmon @ 23.14 per oz. + 800 oz. of unmarked King Salmon in S. Fk. at Richardson Grove. Transportation and planting loss in marked fish: 40. With Vestal, made bird and fish survey of S. Fk. from Benbow Dam to Sawmill Cr. Thousands of small salmon and steelhead being lost all along South Fk.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
Date	Vestal	Shapovalov	Tegen	Fraser	Dockham		Loss	Fraser
Previously	5436	4043	2970	1083		500	6	14,032
Apr. 16	—	1125	850	236		—	2	2211
" 17	1765	1757	1339	1220		—	8	6081
" 18	2325	1800	1430	1376		50	4	6981
" 19	2005	1805	1450	1280		—	6	6540
" 20	2205	1450	1300	440		—	11	5395
Total	13,736	11,980	9,339	5635		550	37	41,24
	Apr. 21 loss: 28; Apr. 22 loss: 5						104	

Total transportation and planting loss: 58

Note this word!

Actually planted: 41,112 marked Ad

[SIGNED]

51936 12-57 5M

DIVISION OF FISH AND GAME

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HATCHERY June Lake, Mono County DATE May 7, 1939

SUNDAY April 30 *(Give date)*

Richmond to Bakersfield via Walker Pass to Lone Pine. Stopped for brief parley with William A. Dill in Fresno. Stopped at a number of places along the Kern River to examine that stream and items of geological and biological interest in the drainage.

MONDAY May 1

Lone Pine to Independence to Bishop to Hot Cr. to June Lake. Stopped at Mt. Whitney to confer with Mr. George McCloud. Stopped at U.S.Forest Service office in Bishop for maps of Mono-Inyo area. Stopped at Hot Cr. to confer with Bob Lewis. Looked over upper June Lake-Rush Cr. drainage and checked special points with maps on hand.

TUESDAY May 2

Using contour maps, made detailed circuit of June Lake, Gull Lake, Fern and lower Rush Crs., Silver Lake, examined and photographed L.A.-Venturi weir, inlet and Grant Lake, dam at lower end of Grant Lake. Made general check of available catches for species, number, and size of fish taken from open waters in the area.

WEDNESDAY May 3

At north end of June Lake observed Mr. Ivo Hussey of Fern Cr. hatchery and assistants locate, seine, and take eggs from gravid female rainbows attempting to spawn in sparsely gravelled areas. In the afternoon conferred with C.J. Walters, warden from Independence; also again conferred with Mr. George McCloud who brought eggs(KT) from Mt. Whitney for culture at Fern Cr.

(OVER)

THURSDAY May 4

In the morning went to Gerth's pier and observed large seine and motor used to attract fish for eggtaking. Using U.S.G.S. maps checked Mammoth Cr. and Mammoth Lakes area insofar as penetrable to snow banks. On Deadman Cr. took data and photographed a fishwheel and dam placed at the mouth of the canyon by a local resort owner; this barrier has cut off some choice trout stream for 3/3 mile below the popular Big Springs Public Camp.

Thompson Ranch

FRIDAY May 5

In the morning checked creels in Leverett Cr. and Rush Cr. area until 10 a.m. Rest of day, through noon, utilized in work on manuscript for publication and in correspondence largely pertaining thereto.

SATURDAY May 6

From 5a.m. to 9a.m. checked available catches at Gerth's pier on June Lake for species, size range, and numbers of fish caught; total approximate 900 fish of which at least half were over 10" long. Rest of day utilized in added work on manuscript, correspondence, stomach analyses on trout from Benbow Dam, rearrangement of specimens collected at Benbow, and cleaning up Ford 5952.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received			Balance on Hand

Signed

8303 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

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HATCHERY June Lake, Mono County, Calif. DATE May 14, 1939

SUNDAY May 7, 1939 *(Give date)*

From 6:30 a.m. to 7:30 a.m. checked available catches for size species, and number of fish taken from June Lake. Tended to correspondence and continued work on manuscripts for publication rest of day.

MONDAY May 8

On way to Long Valley project, stopped at experimental stream for copy of 1934 survey of Mono-Inyo area from Frank Sumner. Went to site of proposed L.A. dam on Owens River near head of Horse. Examined steel screens over intakes of pump which will be used to pump dry lake 60' deep backed up behind present coffer dam. Met Supt. G.F. Rennebohm and Asst. H. Ewert of City of L.A. Dept. and obtained from them schedule of pumping operations in order to plan for rescue of fish (Lake Owen) concentrated in the lake.

TUESDAY May 9

Map study & orientation — E. Walker & W. Walker R. drainages.

Forenoon correspondence first part of morning, accompanied Lee Talbot with consignment of fish from Hot Creek ponds to Walker River drainage. Aside from taking temperatures and assisting in planting the fish, used contour maps to study tributaries and locate landmarks in the West Walker drainage about Bridgeport and in the West Walker drainage north and west of Bridgeport.

WEDNESDAY May 10

Rain [illegible] light snow; cloudy intermittently. Tended to correspondence first half of morning. Rest of day occupied in continuing work on manuscript: short paper on control barriers to the migration of lampreys at Benbow Dam. (?) where is copy on this? was this submitted as report to BFC?

UO 107

(OVER)

THURSDAY May 11

Intermittent rain squalls through the day. Continued writing and editing papers on control barriers to migration of lampreys at Benbow Dam.

FRIDAY May 12

Went to Long Valley project in morning; found that level of lake had been lowered 3 ft. and stranded not more than 150 Loch Leven trout in stream bed above. Riggers were re-setting centrifugal pumps to pump rest of lake dry beginning Saturday. Returned to Fern Creek hatchery and continued work on manuscript on lamprey. Tended to correspondence last part of day.

SATURDAY May 13

From 6:30 a.m. to 7:30 a.m. checked available catches from June Lake and took measurements and scales from Eel River stock and Hot Cr. stock showing up in the catches. Rest of day worked on lamprey paper and began work on paper reporting studies on mergansers while at Benbow Dam.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

Signed

8303 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

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HATCHERY June Lake, Mono Co., Calif. DATE May 21, 1939

SUNDAY May 14, 1939 (Give date)

In the morning went to Berth Pier in order to check catches; as day generally was inclement and variable fishing was generally not good. In the afternoon prepared correspondence and continued work on paper on Merganser study at Benbow.

MONDAY May 15

Went Long Valley project and found crew pumping lake in excavation for bedrock at rate of about 9 Cfs; water comparatively oily and yet impossible to estimate with accuracy number of fish present. Returned borrowed copy of Mono-Inyo Survey to Sumner at Experimental Stream; gave Bob Lewis copy of excellent 1939 Inyo-Sierra outing map of S. Calif. Auto Club. Returned to June Lake and worked on manuscripts rest of day.

TUESDAY May 16

First part of morning began preparation of performance ratings for Taylor and Teger at Benbow. With Alan C. Taft, following preliminary conference, made circuit of Reversed Creek Recreation Area in outlining survey and special work to be done in the area. In late afternoon helped Mr. Hussey unload from Fern Creek crew; dine out together with Mr. Taft, took measurements and scales of spawning rainbow trout; in evening with Mr. Taft examined scales of different age groups sampled this day. (Steelhead stock from Gumch.); we were looking for spawning checks in these fish.

WEDNESDAY May 17

Accompanied Mr. Taft to Hot Cr. rearing ponds and observed men measure and weigh consignment of fit at [illegible] per oz. for Twin Lakes near Bridgeport. At 9:30 A.M. [illegible] Mr. Taft looked over Long Valley excavation and pumping operations. Asst. Supt. Ewart declared lake would be down at 6 ft. level by Sat. morning. Returned to June Lake and after completing personnel rati[illegible] mer; esser paper last hour of day.

(OVER)

THURSDAY May 18

Tended to correspondence. Practically entire day devoted to continuing work on manuscripts; re-typed and edited paper on surveys on Sonora Dam and completed draft on topical outline for paper on fish mergansers. In evening reviewed current literature on fish and game management received.

FRIDAY May 19

First part of morning worked on paper on food habits of mergansers in South Fork of Kern River. Accompanied Mr. Tart, following conference, and met District Ranger Fisher from Leevining, who agreed on tri-C help with June Lake creel census work. Following discussion with Mr. McCloud in afternoon, assisted Mr. Hussey and Mr. Gilman draw seine at June Lake; they, in turn, helped take measurements and scales from spawners.

Joe Hussey Harold Gilman

Delivered at June Lake by Joe Hussey & Harold Gilman

SATURDAY May 20

Took measurements and scales from trout from June Lake. First part of morning, went to Bishop for supplies for housing at Fern Cr. hatchery. Met Asst. Supervisor Simpson of Inyo Nat'l Forest and arranged for tri-C boys to assist in marking of rainbow from hot Cr. on Mono Co. On return, stopped at Long Valley project and found level of lake to be ft. more; although number of fish seen working in pool, doubtful whether seines can be drawn in very mucky bottom of pond remaining. Returned to June Lake and took more samples of scales and necs. from catches.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

110

Signed

8393 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

INSTRUCTIONS FOR MAKING THIS REPORT

At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY June Lake, California DATE May 20, 1950

SUNDAY May 21 *(Give date)*

Day stormy and generally inclement. Practically entire day occupied in preparing correspondence, weekly report, and review of recent conservation literature received.

MONDAY May 22

June Lake to Mammoth to Hot Cr. hatchery and return. After establishing set-up at Hot Cr. rearing ponds began marking Rt of 50,000 held back for experimental plant in June Lake. Marking Ad and Lv. Assisted by tri-C boys Pierce Smith, Bill Milliard, and Melvin Brewer; total for day: 2220. Fish planted by Johnson and Gilman in N end of lake. Accompanied by Bob Lewis went to Long Valley project and found pond level far down with est. 400 young fish dead in muck on bottom; because of such bottom and poor condition of water useless to attempt seining of few live fish left.

TUESDAY May 23

June Lake to Mammoth to Hot Cr. hatchery to Deevining and return to June Lake. Continued marking Rt with tri-C boys Smith, Milliard, and Brewer. Boys are cooperating very well and doing fine job of marking. Total for day 4775. At Deevining Ranger Stat. interviewed Dist. Ranger Bill Fisher and arranged for tri-C boys to help in creel census at June Lake.

WEDNESDAY May 24

June Lake to Mammoth to Hot Cr. hatchery to West Portal and return. Continued marking Rt assisted by tri-C boys Smith, Milliard, and Brewer. Total for day 5177; together with those from yesterday, making total of 10,952, fish planted with tank truck by Talbott, Gilman, and Gray. Went to West Portal for detailed contour sheets of June-Grant Lake area.

(OVER)

THURSDAY May 25

June Lake to Mammoth tri-C camp to Hot Cr. hatchery and return. Continued marking of Rt with assistance of tri-C boys Smith, Hilliard, and Brewer. Total for day: 7200.

FRIDAY May 26

June Lake to Mammoth to Hot Cr. hatchery to Leevining and return. Cont'd marking Rt with assistance of tri-C boys Hilliard, Brewer, and subst. for Smith, Andy Anderson. Total for day: 5165. Yesterday's and today's marked fish (marking total of 12,265) planted in N. end of Lake by Talbott, Gray, and Gilman. Saw Dist. Ranger Fisher and made final plans for tri-C boys boys from Gull Lake spike camp to assist creel census at June Lake.

SATURDAY May 27

June Lake to Mammoth to Hot Cr. hatchery and return. Completed marking of Rt for experimental plant in June Lake, assisted by Hilliard, Brewer, and two subts. also from Mammoth camp. Total for day (finished 8p.m.): 4[illegible]. Fish planted in N end of lake by Talbott and Gray. In the evening assisted boatman at Leevining on June Lake in taking census of creels.

RECAPITULATION MARKING OF HOT CR. RT, AD & LV, FOR JUNE LAKE EXPERIMENT

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand
DATE	VANTAL	HILLIARD	SMITH & substs.	BREWER	LOST	MARKED
May 22	600	550	535	535	0	2220
" 23	1325	1200	1150	1100	1	4775
" 24	1602	1600	1575	1400	4	6177
" 25	1721	2000 ~~1919~~	1919	1550	-	7200
" 26	1325	1715	500	1425	3	5165
" 27	1615	1300	500	1050	3	4463
	3296	8365	6179	7060	15	30000

note these figures

00 112

Signed

8393 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

June 1931

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE June 4, 1939

SUNDAY May [illegible] *(Give date)*

Tended to correspondence and preparation of report. Assisted by Leon Talbott, took creel census data for most of day. 1 day

MONDAY May [illegible] ½ day

In the morning went to Hot Cr. hatchery and took random sample of [illegible]50 trout of size marked; assisted by tri-C Bill Hilliard, took basic data for condition factors. Returned to Fern Cr. hatchery and set Bill Hilliard and Melvin Brewer to making signs for catch record work at June June Lake. Went to Silver and Grant Lakes and arranged for taking of creel census data; Carsons quite willing to assist in manner desired.

TUESDAY May [illegible] ½ day

Situated tri-C boys Hilliard and Brewer at Gerth pier and Brindly pier on June Lake and directed the taking of creel census data, using the marine catch record booklets. With this under way returned to Fern Cr. and worked on papers for publications. Returned to June Lake and extended taking of creel data after closing hours for tri-C boys.

WEDNESDAY May 31

Took tri-C boys to Gerth and Brinkley piers on June Lake to keep catch record data. Returned to Fern Cr. hatchery and after tending to correspondence resumed work on papers for publication and American Fisheries meetings. Together with actual creel records, number of trout taken from June Lake alone over weekend estimated conservatively at near 2,000.

(OVER)

00 : 00 113

THURSDAY June 1

Took tri-C boys Brewer and a new one (substitute for Billiard) Maurice Nelson to June Lake to keep creel cen[illegible] information. Returned to Fern Cr. hatchery and until 4p.m. worked on papers for publication and for American Fisheries meeting. Went to Lee Vining for supplies.

FRIDAY June 2

Took tri-C boys to [illegible]iers on June Lake to keep creel data. Returned to Fern Cr. hatchery and for remainder of day continued preparation of papers for American Fisheries meeting.

SATURDAY June 3

Took tri-C boys Brewer and Nelson to June Lake to keep creel data. Returned to Fern Cr. hatchery and following correspondence continued preparation of papers for American Fisheries meeting rest of day.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

00 114

Signed

8303 11-39 5M
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DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE June 10, 1939

SUNDAY June 4 *(Give date)*

Took tri-C boys Brewer and Nelson to piers on June Lake to continue creel census. Returned to Fern Cr. hatchery and after tending to correspondence continued writing on manuscript for Fisheries Meetings. Returned tri-C boys to spike camp below Gull Lake.

MONDAY June 5

Took tri-C boys Brewer and Nelson to June Lake to continue creel census work. Returned to Fern Cr. hatchery and resumed work on paper for Fisheries meetings rest of day. Returned tri-C boys to spike camp below Gull Lake.

TUESDAY June 6

Went to Bishop to have VB 5952 gone over and serviced; several much needed repairs made. While car in shop worked on Fisheries manuscript in Inyo County branch library. Returned to June Lake and checked creels for rest of day. Tri-C boy Maurice Nelson assisted in creel census work while Brewer off duty.

WEDNESDAY June 7

Both tri-C boys off duty. At Fern Cr. hatchery resumed work on Fisheries manuscript until afternoon, then checked creels at June Lake for remainder of day.

UA 00[redacted]15

(OVER)

THURSDAY June 8

Took tri-C boy Melvin Brewer to Gerth pier on June Lake. Day off for Maurice Nelson. At Fern Cr. hatchery worked on manuscript for Fisheries meeting rest of day. Returned Brewer to spike camp at Gull Lake.

FRIDAY June 9

Took tri-C boys to Gerth and Brindley piers on June Lake to continue creel census. Returned to Fern Cr. hatchery and worked on Fisheries manuscript for remainder of day and evening.

SATURDAY June 10

Took tri-C boys Brewer and Nelson to piers on June Lake. Continued work on manuscript for Fisheries meetings until 4:30 p.m. Returned boys to spike camp below Gull Lake and checked catches, on returning to June L. for rest of day until evening. In evening continued work on manuscript.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

00 116

Signed

8393 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE June 18, 1939

SUNDAY June 11 *(Give date)*

Took tri-C boys Melvin Brewer and Maurice Nelson to [illegible]ters on June Lake to continue creel census. Returned to Fern Cr. hatchery and after tending to correspondence and preparation of report, resumed work on manuscript for Fisheries meetings. Through late afternoon until evening; checked catches at June Lake piers.

MONDAY June 12

Took tri-C boys Brewer and Nelson to Gerth and Bradley piers on June Lake to continue creel census work. Returned to Fern Cr. hatchery and continued work on manuscript for Fisheries meetings. Near close of day returned tri-C boys to Gull Lake spike camp and continued checking until evening.

TUESDAY June 13, 1939

photos above below weir

Took tri-C boys Maurice Nelson to Jewel Co to continue creel census. Accompanied Slim Tatum, Leon Talbott and pack train to higher lakes in Rush Cr. drainage and assisted in planting of Eastern Brook trout. Examined and photographed Rush Cr. above and below Mauth Lake; found Power Company accepting about 200 CFS at Rush Cr. meadows (Temp. 53.0 F) but allowing only about ½ CFS (Temp. 54.0 F) to flow in Rush Cr. below Mauth Lake for [illegible] miles of excellent stream. Arranged later with Mr. Killian, superintendent of Power House, for at least 5 CFS to flow at all times.

WEDNESDAY June 14

Tri-C boys off duty. High wind of almost gale proportions kept anglers off lake practically all day. Went to Bishop for ream of white manuscript paper and additional supplies; arranged with Mr. Bradley at Hazard Service Station to exchange spark plugs with those of Division. Returned to June Lake and checked catches until evening.

(OVER)

THURSDAY June 1

Took tri-C boys Melvin Brewer to Mono on June Lake to continue creel census. High and cold wind throughout day generally spoiled angl. on lake and many fish. Returned to Fern Cr. hatchery resumed Fisheries manuscript. Returned Brewer to Gull Lake at end of day. New C boy Robert Higar off duty.

FRIDAY June 16

Took tri-C boys Brewer and Higar to June Lake to continue creel census. Returned to Fern Cr. hatchery and continued work on manuscript for Fisheries meetings. Swept and straightened up VW 3952; checked distributo points and oiled fan bearing.

SATURDAY June 17

In the morning, took tri-C boys Melvin Brewer and Robert Higar to June Lake to continue creel census. Went to Leevining to arrange with District Ranger Fisher for C-Boys to live at guard station at Gull Lake in my absence until June 29. Examined mouths of small streams enetering Mono Lake to point East of Mono Craters. Returned to June Lake and completed and read to copy paper for fisheries meetings; checked catches until evening at north pier and measured and took scales from Red Rts returned from the lake.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 118

[SIGNED]

65575 12-38 5M.
STATE PRINTING OFFICE

STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE June 26, 1939

SUNDAY June 18 *(Give date)*

Took tri-C boys Higar and Brower to June Lake and began checking catches withthem. With Miss Hazel Ryder, stenographer at June Lake, read to copy manuscript typed by her. Returned to Fern Cr. hatchery and prepared weekly report. Later in the afternoon returned tri-Cs to Gull Lake camp then returned to June Lake and checked catches until evening. Tri-C boys given final instuctions on continuance of creel census work.

MONDAY June 19

Fern Cr. hatchery to Minden to Woodfords to Luther Pass to Sacramento, Williams, Calpella and Garberville. Stopped at West Walker river and two small creeks over Luther Summit for stream examinations. Stopped at Underwood Elliott Fisher Co. in Sacramento to have typewriter adjusted. Stopped at old Cold Cr. hatchery site, Cedar and Red Mt. Creeks, and Benbow Dam.

TUESDAY June 20

From 7.3 a.m. to 8.45 p.m. made observations on merganser in Lake Benbow and helped Carl Tegen check downstream migrant king salmon. Continued observations on mergansers in census check of birds below the Benbow Dam to the mouth of Sprouse Creek. Took stand at roost bar in afternoon and remained there until dusk to check incoming ducks from feeding grounds.

WEDNESDAY June 21

Garberville to Laytonville to Branscomb to Wilderness lodge and return. Continued census check of mergansers in upper half of South Fork of Eel River. Rough road from Branscomb to Wilderness lodge contributed to damaged generator, cutting short census work of the day near Underwood Park on return.

(OVER)

THURSDAY June 22

~~In morning went to upper Lake Benbow for notes on female merganser and her brood and went to roost bar on Ferriann place, making observations in interim section of River. Shot at, but missed 4 ducks sunning on roost bar. In afternoon went to Eureka and interviewed Capt. Dondero on his recent tri. to upper Sweeney Dam; Capt. Dondero contributed notes on mergansers there for comparison. Returned to Dyerville and made census along S. Fork to Garberville.~~

FRIDAY June 23

~~Spent time in morning changing tire and having renewed generator installed in 5952. Went to Benbow Dam and took pictures for illustration of lamprey paper being prepared. On Lake Benbow shot and killed 6 ducks~~ for stomach analyses. In afternoon, retraced upper S. Fork to and shortly ~~above Underwood Park for occurrence of mergansers along this section of~~ river; returned to Garberville.

SATURDAY June 24

~~In morning re-examined section of S. Fork Eel from two miles below Redway to the mouth of Sprul Cr. and Camp Kimtu for occurence of merganser. Made observationson mergansers also in Lake Benbow above site of Hotel.~~

In afternoon wrote up notes, prepared correspondence, and weekly report. Did preliminary packing of equipment for trip Sunday to Richmond.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
			00 120					

[SIGNED]

65575 12-38 5M.
STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE July 1, 1939

SUNDAY June 25 (Give date)

Garberville to Richmond. Stops were made at two points on upper South Fork of Eel River for topographic and habitat pictures in connection with the merganser survey.

MONDAY June 26

Attended sessions of the American Fisheries Society at the Sir Francis Drake hotel in San Francisco.

AFS mtg S.F.

TUESDAY June 27

Attended sessions of the American Fisheries Society at the Sir Francis Drake hotel in San Francisco. Presented title and synopsis and invited discussion on paper on the feeding habits of the American merganser. — in S. Fk.

X

WEDNESDAY June 28

In Richmond, tended to correspondence and straightened up 5952 in morning. Sent to pamphlet file of the University of California in Berkeley for reference material on mergansers and predatory activities of kingfishers.

Fred Sedan

00 122

00 121

(OVER)

THURSDAY June 9

Attended symposium on Dams and the Problem of Migratory Fishes at Stanford University. Removed and packed books and papers of mine in the laboratory at the Natural History Museum. Returned to Richmond and repacked equipment for trip to June Lake.

FRIDAY June 10, 1939

Richmond to Tracy to Big Oak Flat to Yosemite to Tuolumne Meadows to Leevining to June Lake via Tioga Pass. Spent 3 hours in afternoon from 2 to 4 p.m. visiting Yosemite Valley and the hatchery there. Stops were made en route to Tioga Pass at upper Tuolumne River, Lake Tenaya, Snow Flat, Tuolumne Meadows, and upper Leevining Canyon.

SATURDAY July 1

Checked catches with tri-C boys assisting at June Lake for most of day until evening. In midday, when angling on lake came hot at a lull, tended to accumulated correspondence.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Lost	Shipped	Balance on Hand

00 122

Signed

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CALIFORNIA STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE July 9, 1939

SUNDAY July 2 (Give date)

In the morning took tri-C boys to Gerth and ~~Brinkley~~ Brinley piers on June Lake to continue creel census. Returned to Fern Cr. hatchery and tended to correspondence and completion of weekly report; following this returned to June Lake and checked catches for remainder of day with tri-C boys.

MONDAY July 3

Took tri-C boys to June Lake to assist in creel census work. Remained on hand throughout day to record catches. Some creels show as many as nine of the recent plant of marked trout. Returned tri-C boys to Gull Lake spike camp, then continued creel checking on June Lake.

TUESDAY July 4

Together with tri-C boys, checked catches throughout day until evening. Since the weather conditions seemed to upset angling during the day and comparatively few returns were made.

WEDNESDAY July 5

Tri-C boys off duty. Remained on hand throughout the day until evening at June Lake to record catches. In periods of lull, read over recent literature on fish and game management. Generally speaking, more and better catches were returned today than for the previous three days.

00 123

(OVER)

THURSDAY ~~July 6~~

~~Tri-C boys off duty. Remained at June Lake and checked creels throughout day. Hereof marked trout are showing up in catches almost daily; scales and measurements are taken of these trout as they appear.~~

FRIDAY July 7, 1939

In the morning took the remaining tri-C boy to June Lake to assist in creel census work (Melvin Brewer having left to take over a job in S. Calif.). Went to Bishop for supplies. Reported that Grant Lake was at very low level and investigated this; stockmen are drawing out about 6 CFS and there is none being released from upper Rush Cr. by Power Co.

month of very low level -6 cfs release for stock (check)

SATURDAY July 8 Took tri-C boy to June Lake and checked creels through most of day until evening. For a time in the afternoon, took CF&G boat on the lake and mapped certain of plant beds, gravel and sandy areas and locations of springs supplying the lake. In the evening went to Lee Vining to see Mr. Ralph Goodman, City of L.A., in charge of water release in Grant Lake on possibility of cutting down a portion of the outflow.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand
		00 124				

Signed

DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE July 16, 1939

SUNDAY July 9 *(Give date)*

At June Lake, checked creels in morning until 10 a.m.; returned to Fern Creek hatchery and tended to correspondence and weekly report. Returned to June Lake and checked creels until evening.

MONDAY July 10

Took tri-C boy to June Lake to assist in creel census, and with him checked creels until 11 a.m. Interviewed Supt. Killian, S.S. Power Co., with purpose of releasing more water into Grant Lake. Tended to Correspondence. Then drove to Saddlebag Lake and hiked into upper chain of lakes including Steelhead lake at head of Lundy Canyon. Returned to Fern Cr. hatchery.

TUESDAY July 11, 1939

Arrived at Forest Service Ranger Station camp for change of tri-C help; boys [illegible] for remainder of week. Then opened [illegible] drain with plant of Rt. Trans. Co. hatchery to Thousand Island lake; trout arrived in really fine condition after 5 hr. trip; lost - 23 fish out of 20,000. Returned to June Lake and checked creels until 9 p.m. Before night went to L.A.-Venturi weir and outlet of Grant lake to check on prevailing flows in and out of lake; no change in general level of lake noted.

WEDNESDAY July 12

Took tri-C boys to June Lake to assist in creel census and with them checked creels until 10:30 a.m. Returned to Fern Cr. hatchery and tended to correspondence. Returned to June Lake and checked creels until evening. Noticeably since before the July 4 holiday fishing on the lake has declined [illegible] but the [illegible] general effort (at times more) in angling; this can [illegible] in [illegible] lake.

(OVER)

80 125

THURSDAY July 13, 1939

Took tri-C boys to June Lake to assist in creel census. Accompanied pack train with allotment of fish for Garnet Lake and Badger Lake; stopped to examine Clark Lakes & 1-3 en route. Trout handled in excellent condition to both Garnet and Badger Lakes, leaving hatchery at 55.0F and arriving at 61.0 F; loss in this case was - 4 out of 20,000. Temp. of Garnet Lake at 12:20p.m. was 63.0 F. Returned to June Lake and checked catches until evening.

Garnet & Badger in Sierra Nev.

FRIDAY July 14

Melvin Brewer (tri-C) off duty. Took second C boy to June Lake and with him checked catches until noon. Returned to Fern Cr. hatchery and reviewed recent literature in fish and game management received. Returned to June Lake and checked catches until evening, before departure to L.A. Venturi air was to outlet at Grant Lake to gain cross on prevailing flow and level of lake; no change noted.

Equipment flown at Grant L.

SATURDAY July 15

Took tri-Cs to June Lake to assist in creel census work. Returned to Fern Cr. hatchery and looked over 1939 planting records sent or with maps and past survey information available. Returned to June Lake and checked creels until evening.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

00 126

Signed

8993 11-39 5M
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DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE July 23, 1939

SUNDAY July 16 *(Give date)*

Took tri-C boys to June Lake to assist in creel census work. Returned to Fern Cr. hatchery and tended to correspondence and weekly report. Stri[illegible] 23 5952, then returned to June Lake and checked creels until eve[illegible]. Noticeably fewer of the 1 and two year old rainbow trout are being c[illegible] by anglers; more of this year's [illegible] in catches.

MONDAY July 17, 1939

Barney Lake and Summary

In company with tri-C boys to June Lake to assist in creel census there. Went to Twin Lakes near Bridgeport and hiked in to Barney L. on upper Robinson Cr.; took notes and photographs on lake and Robinson Cr. (an excellent [illegible], especially between Barney L. and Twin Lakes); returned to Bridgeport. [illegible] brief visit to Lundy L. and examined creek above and below lake; took [illegible] exposures. Returned to Fern Cr. hatchery.

TUESDAY July 18

One of tri-C boys off duty. Took other to June Lake to assist in creel census. Went to Convict Cr. hatch. Stream and hatch. Took balance with which to [illegible] re-check on condition of eggs of marked trout now above [illegible]. June L. Returned to June L. and after setting up balance, checked creels and took measurements and scales on marked trout available until evening.

WEDNESDAY July 19, 1939

Both tri-C boys off duty. Went to Grant L. and took temperatures and est. of flows in Rock Cr. above and below reservoir; took photographs of lake and [illegible] Cr. at old highway bridge. Returned to June L. at 10 a.m. and until evening checked creels and took measurements, weights and scales on marked trout appearing in catches. Any trout of near any being caught.

(OVER)

00 127

THURSDAY July 20

Took tri-C boys to June L. to assist in creel census, set up torsion balance and continued taking measurements for check on condition factor and appearance on marked trout now appearing in catches. For 1 hr. in afternoon went to Grant L. to check on flows in and out of reservoir; flows now satisfactory toward raising level of lake. Returned to June L. and continued creel census and taking of measurements.

FRIDAY July 21

Took tri-C boys to June L. to assist in creel census. Packed and returned torsion balance to Convict Cr. Str.; then went to Bishop for checkover and servicing of V-8088 and for supplies, including poster printing outfit. Returned to Mern Cr. and completed printing on poster calling attention of anglers to marked trout in June L.; at lake set up poster and checked catches for remainder of day.

SATURDAY July 22

Took tri-C boys to June L. to assist in creel census. Went to Grant L. to check on flows in and out of lake; level of lake raising--up about 5" over level t/noon on July 20. At Lee Vining Ranger station, interviewed Mr. Fi.ner and obtained information on size and range of flocks of sheep in Mono Basin. Prepared another copy of poster on marked trout and checked catches for afternoon until evening.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

90 128

Signed

6393 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE July 30, 1939

SUNDAY July 23 (Give date)

Tri-C boys assigned to Gert. and Brindley piers on June Lake to continue creel census. Accompanied pack train to Upper Rogers L. and assisted in planting Rt; loss of 1 fish out of 11,000 allotment. Took notes on and photographed lake. On returns stopped for notes and photographs of flow on upper Rush Cr.; est ± 30 CFS, with Mono L. overflowing. Returned to June Lake and checked creels for rest of day until evening.

MONDAY July 24

Took tri-C boys to piers on June L. to continue creel census work. Tended to correspondence and remained on hand to check creels throughout day. Likely return in catches now an admixture of varied sizes, apparently better than half of returns consists of this year's plant.

TUESDAY July 25, 1939

Took tri-C boys to June L. to continue creel census. Went to Pine Cr. pack station and thence to upper Pine Cr. basin and lakes; thence to upper French Canyon and Moon Lake. According to packer, Mr. Bro n, Moon L. had been dynamited. This was found to be true, since dead Golden Trout found in Walker L. in the outlet stream showed ruptured air bladders and badly hemorrhaged blood vessel networks in the brain. Notes and sketch plans from examination of lakes in Pine Cr. basin seen. Returned to Fern Cr.

WEDNESDAY July 26

Took tri-C boy to June L. to assist in continuing creel census; other boy off duty. Went to Virginia Lakes basin and hiked into upper section and to cross overlooking upper Green Lakes basin. Made notes, photographs and sketches of upper Virginia Lakes area and preliminary sketch-plan of upper Green Lakes area. Returned to Fern Cr. hatchery in evening.

(OVER)

00 120

THURSDAY July 27

Both tri-C boys off duty. At June Lake continued check [illegible] of catches throughout the day. On one catch cont[illegible] 9 [illegible] trout, took scales and measurements of the full sample. Since Monday afternoon there has been a thunder storm arise in the afternoon which tends to drive most of the anglers off the lake.

FRIDAY July 28

In the morning took tri-C boy to June L. to continue creel census; other boy off duty. Returned to Fern Cr. hatchery and made plankton net; took same to June L. at noon and made haul near surface on S. end of Lake; took sample to hatchery and examined it under microscope. Although wide variety of organisms identified, most of sample consisted of Phytomonad protozoans (chiefly Volvox aureus). Returned to June L. and checked catches for rest of day until evening.

SATURDAY July 29

Took tri-C boys to June L. to continue creel census. Returned to Fern Cr. hatchery and continued work on plankton sample [illegible]. Net haul made immediately after (mid-afternoon) in another section of the lake shows an abundance of entrapped and coloured crustaceans and [illegible] of the Phytomonad protozoans; here again haul was made only [illegible] surface. About a third of my time [illegible] assistance of one of the tri-C boys.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

00 130

Signed

8393 11-33 5M
CALIFORNIA STATE PRINTING OFFICE

August 1939

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY June Lake, California DATE August 5, 1939

SUNDAY July 30 *(Give date)*

Took tri-C boys to June Lake to assist in creel census; boys instructed to collect an additional series of stomachs from catches. Throughout the morning until early afternoon worked on summary of catch record data from June Lake in the period May 27-July 30. Held brief conference with Mr. Taft during a visit to June Lake at noon. At June Lake piers checked catches for a time then returned tri-C boys to Gull lake spike camp.

MONDAY July 31

Took tri-C boys to piers on June Lake to continue creel census. At Fern Cr. hatchery and for most of day continued mid-season summary of catch record data taken on June Lake and began preparation of monthly report. Tended to correspondence and review of recent fish & Game literature Returned tri-C boys to spike camp below Gull lake.

TUESDAY Aug 1

One of the tri-C boys offduty; took other to June Lake to continue creel census. At fish hatchery completed monthly report. Remainder of day spent at June Lake checked creels. Thunder storm in afternoon for a time drove some of the anglersv from the lake.

WEDNESDAY Aug 2

Both tri-C boys off duty. At June Lake checked catches throughout day at both piers. Again today thunderstorms off lake when boats and lines became unmanageable from rough water.

00 131

(OVER)

THURSDAY Aug 3 1939

Too one of tri-C boys to June Lake to assist in creel census; other off duty. Remained on hand at June Lake and checked catches at one of

At 4 p.m. went to Grant Lake to check on flows; with recent rains Grant L. has risen about 20" and the inlet st ream has incr-ased markedley. More (over 26 CFS) is being released at out let instead of conserving the water now while it is available.

FRIDAY Aug 4

In the morning took tri-C boys to June Lake to assist in creel census. Returned to Fe.n Cr. hatchery and tended to correspondence. Went to West Portal to borrow polar planimeter for surface area on Gull Lake. Returned to June Lake nd checked catches for remainder of day; from one catch took scales and measurements from marked trout returned.

SATURDAY Aug 5

In the morning took tri-C boys to June Lake toe assist in creel census. Anglers were twice driven from lake by heavy downpour from thunderstorm. Made plankton haul at 9 a.m. from Gerth pier to center of lake and retu ; using diver put net down to about 30'. Haul rich in Volvox perglobator and ostracod crustaceans. Another haul along the surface in afternoon rich in ostracod crustaceans, Volvox, and copepods. At end of day returned tri-C boys to Gull Lake camp.

RECAPITULATION

Fish and Eggs (Variety)	From	Previously Reported	Taken or Received	Loss	Shipped	Balance on Hand

00 132

Signed

8293 11-33 5M
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STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE August 13, 1939

SUNDAY Aug 6 *(Give date)*

In the morning took tri-C assts. to June Lake to continue creel census work. Returned to Fern Cr. hatchery and tended to correspondence and the preparation of a tracing of Gull L. Checked catches at June L. until 2p.m. then took rest of afternoon off.

MONDAY Aug 7

Took tri-C boys to June L. to continue creel census. Went to Gull L. and throughout morning took soundings of lake in two directions. Max. depth found at 63'-8"; av. depth, 43'-6". Returned borrowed polar planimeter to West Portal (Engineer Herb Chapton). Returned to June L. and checked creels for rest of day.

TUESDAY Aug 8, 1939

After taking tri-C (one boy off duty) to June L. with instructions to take an additional series of stomachs, drove to Virginia Lakes basin, hiked into Summit, Upper and lower Hoover Lakes, and Gilman Lake and took notes and photographs on them and Green Cr. from outlet at Summit Lake to inlet of Gilman L. Returned to Fern Cr. hatchery.

WEDNESDAY Aug 9

Tri-Cs off duty. Checked catches at June L. until 11a.m. then interviewed residents on Gull L., outlining briefly plan for removal of chub minnows from lake; all persons very much in favor of this and offered help. In Lee Vining spoke to Dist. Ranger Fisher and arranged for additional tri-C help and equipment with which to treat the lake and handle the fish. Returned to June L. and checked creels through rest of afternoon and evening.

(OVER)

00133

THURSDAY Aug 10

Took tri-C boy to Jubel. to continue creel census (other boy off duty). Arrangements and instructions given for boys on station at piers bear down on creel census. Returned to S.F. June L. to Truckee and via train to Richmond.

FRIDAY Aug 11

Went to S.F. office for conference with Mr. Alan C. Taft. Following this, from 10:00 a.m. until about 4p.m., calculated condition factors on experimental plant of marked trout from Hot Cr. from data accumulated thus far. We can summarize these as follows: May 29-39, 1.873(.146-3.136); July 13-20,-39, 1.726(1.009-2.308). 41 specimens in latter sample.

SATURDAY Aug 12

Went eto Oakland for photographic supplies and to Berkeley for work on plankton and information on rotenone, derivative of Derris elliptica. Returned to Richmond and after tending to correspondence took remainder of afternoon off.

5/12/39 Lecture 33 Feedback with W.W. Cobb

W.W. Cobb Reviewed 39 Comment Practice

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
When did Mr. Cross die?								

[SIGNED]

65575 12-38 STATE PRINTING OFFICE

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE August 19, 1939

SUNDAY Aug 13 *(Give date)*

Richmond via train to Truckee (Lv. 9:32 a.m., Av. 4:30 p.m.), Truckee to Minden-Gardnerville to June Lake.

MONDAY Aug 14

Took tri-C boy Eddie Brunson (Hardy on re-enrollment leave) to June Lake to continue creel census. Catch over week end was rather light although effort was heavy. Remained on hand to check catches at Gerth pier through day.

TUESDAY Aug 15

Took tri-C boy Brunson to June Lake to assist in creel census. After tending to correspondence went to Bishop for service and checkover of V8-3952. Stopped at Hot Cr. hatchery; returned to June Lake and checked catches for remainder of day.

WEDNESDAY Aug 16

Took tri-C Hardy to June Lake to continue creel census. Brunson off duty. Tended to correspondence first part of morning, then made plankton haul (horizontal at about 70 ft. depth); proportion of cladoceran and copepod crustaceans still large. Smaller return of phytoplankton but large quantity of Volvox still present. Checked catches for remainder of day at Gerth pier.

Plankton haul June 1

(OVER)

00 135

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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FISH AND GAME
Fish Culturist's Weekly Report

THURSDAY Aug 17

Took tri-C boys to June Lake to continue creel census. Brunson on duty. Went to current meter on Rush Cr. and to outlet below Grant Lake; flows in both places about the same. Returned to June L. and checked catchery until 4 p.m., then went to Convict Cr. to run torsion balance from P.N. Needham for recheck data on condition factors of marked trout.

FRIDAY Aug 18, 1939 (Ethel accompanied on this trip)

Took tri-C boys Brunson and Hardy to June L. to continue creel census. Day hot and sultry and fishing on the lake generally slow. Went to Saddlebag Lake and hiked into upper Leevining and Lundy basins. Examined Lower Conness glacier Lake; water from glacier milky, causing Conness L. and Greenstone L. to be pale greenish milky in color. Took notes and photos also of Alpine and Cascade Lakes in upper Lundy basin. Returned to Fern Cr.

SATURDAY Aug 19

Together with tri-C boys Hardy and Brunson set up torsion balance and throughout the day took data for recheck on condition factors of marked Rt from Hot Cr. Despite sudden change in barometer during night, fishing during the day was good, some very nice catches returned. One catch revealed 18 of the marked series.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

[SIGNED]

65575 12-39 5M.
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Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE August 26, 1939

SUNDAY Aug 20 *(Give date)*

Took tri-Cs Hardy and Brunson to June Lake to continue creel census. Tended to correspondence and returned to June Lake where monthly sampling of plant of marked trout was completed (taking of scales and weights and total and standard lengths for calculation of condition factors). Of all marked trout returned, none have represented the small proportion of defectives marked at random from the Hot Cr. series.

MONDAY Aug 21

Took tri-C boys Hardy and Brunson to June Lake to continue creel census. With Mr. Slim Tatum, rode to George Joos Lake 2 mi. from Fern Cr. hatchery, and examined it. Although the lake has been stocked at least three times previously with RT no fish now remain. An abundance of food, adequate inlet (1 1/3 CFS), adequate depth (20 ft.) are among findings favoring a replant with EB. Return to June Lake in the late afternoon.

TUESDAY Aug 22

Together with tri-C Hardy, checked catches at June Lake until early afternoon. Reexamined shallows and marginal benches in Gull Lake; about one-third of the shoreline is complicated by reed beds, about one third is rocky, with some overhanging bank, and the remaining third is sandy beach. Returned torsion balance to Dr. Needham at Convict Cr. Experimental Str.

WEDNESDAY Aug 23

Both tri-C boys off duty. After tending to correspondence, checked catches through noon and remainder of day at June Lake. Fishing has picked up decidedly since Monday, more fish (percentage of small trout still high) being returned.

(OVER)

Grant Lake inflow + outflow + 18 cfs

THURSDAY Aug 24, 1959

Took tri-C boy to June Lake to assist in creel census. After checking catches at Gerth pier until noon, drove to Grant Lake and examined flows both in and out of lake; the flows are still about even, being between 15 and 18 CFS. Hiked into Parker Lake both and examined both stream and lake (8,350'). This is one of the most picturesque of the typical glacial basins seen so far; trout checked in catches were small and in poor condition.

Parker Brook

BB small for

FRIDAY Aug 25

Took tri-C boys to June Lake to continue creel census. Returned to Fern Cr. hatchery and tended to correspondence an. checked over some weekly reports sent by Leo Shagoveloy. Returned to June Lake and checked catches until 6p.m. Drove to upper Deadman Cr. near Crestview and examined stre in two places. Deadman Cr. goes dry on the pumice flats 3 mi. West of Crestview but is an excellent stream above for about 2½ miles.

SATURDAY Aug 26

Took tri-C boys Hardy and Brunson to June Lake to continue creel census. High wind throughout day has kept many anglers off the lake; those staying out half to fish at greater depth. Rescued fifty EB and five LL 3 to 7" from isolated shunt of Reversed Cr. near Tatum property; fish planted in Reversed Cr. opposite Fern Cr. Lodge. Returned to June Lake and checked catches for rest of day.

Photo use of LL (for BB second lake)

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 188

[SIGNED]

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STATE OF CALIFORNIA
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DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE September 3, 1939

SUNDAY Aug 27 *(Give date)*

Took tri-C boys Hardy and Brunson to June L. to continue creel census. Tended to correspondence. Until 1:30 p.m., accompanied Mr. Wallace Garth to Adobe Meadows-Indiana summit area to see this vast section and timber range. Returned to June L. and checked creels for rest of day.

MONDAY Aug 28, 1939

Took tri-C boys Hardy and Brunson to June L. to continue creel census. Returned to Fern Cr. hatchery and rode to lakes on Reversel Peak and planted 2500 RT in the two largest. After returning back stock, tended to correspondence. Returned to June L. and checked catches for rest of day.

TUESDAY Aug 29

Took tri-C Harry to June L. to assist in creel census. Returned to Fern Cr. hatchery and analyzed contents of 30 RT stomachs taken in May from June L. Two stomachs contained entirely Cladocera aggregating about 5000 animals; another contained 3 sticklebacks 2½ inches long.

WEDNESDAY Aug 30

Checked catches at June L. until early afternoon (both Cs off duty). Went to Grant L. and checked flows at inlet (L.A.-Venturi weir) and outlet. At time visited, inlet flow est. 20 CFS while outlet about 18 CFS. Returned to June L. and checked catches until evening.

(OVER)

THURSDAY ~~Aug 31~~

~~With Mr. Slim Tatum took 3000 fn to Joes Lake and planted them. At Fern Cr. hatchery, on return, prepared a daily report until mid-afternoon.~~ Went to June L. and conducted creel census until evening. ~~High wind over lakes basin here throughout day kept many anglers inshore.~~

FRIDAY Sept 1

Checked catches at June L. in morning until 11 a.m. Went to Exper. Stream and borrowed torsion balance; returned to Fern Cr and weighed up experimental samples of Derris Root. Preliminary experiments on chubs from Gull L. satisfactory. Returned scales to Exper. Str., then, on returning to June L., checked catches until evening.

SATURDAY Sept 2

Checked catches (tri-C boys called on fire duty Thurs.) at June L. through morning until 1:55p.m. At Fern Cr. hatchery experimented with Derris Root on chubs from Gull L. until 3:15p.m.; a solution of Derris 1:65,000 killed 14 chubs in 50 minutes (cessation of all movement); chubs began to lose balance in 10 minutes and none ever regained it in normal fashion. Went toLeevining for supplies. Returned to June L. and checked catches until evening.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOST	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 140

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STATE OF CALIFORNIA
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DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY June Lake, California DATE September 17, 1949

SUNDAY Sept 10 *(Give date)*

Prepared weekly report and reviewed some recent literature in fish and game management. On sick leave in Richmond, California.

MONDAY Sept 11

On sick leave.

TUESDAY Sept 12

On sick leave.

WEDNESDAY Sept 13

On sick leave. In evening returned to Reno via train from Berkeley.

(OVER)

THURSDAY Sept 14

Drove [illegible] to June Lake. Tended to correspondence [illegible] completed some notes on an experiment with Derris on chub minnows or trout. Of 10 chubs rescued to fresh water after complete loss of equilibrium, [illegible] recovered fully. Of 5 trout fry similarly rescued to fresh water all survived and fully recovered. Part of day occupied in checking creels at June Lake.

FRIDAY Sept 15

Took tri-C boys Hardy and Brunson to June Lake to continue creel census. Returned to Fern Cr. hatchery and conducted experiment, using Derris 1:2 million on water plants, sticklebacks and fresh chubs. Started exper. on chubs (8) using Derris 1:2million 9-days old. A solution 1:500,000 killed sticklebacks in two hours starting with Fern Cr. water at 43.0 F.

SATURDAY Sept 16

Took tri-C boys Hardy and Brunson to June Lake to continue creel census. Tended to correspondence and recorded notes on Derris experiments in progress using water plants and sticklebacks. By mid-afternoon the 9-day old Derris 1:2 million had killed 3 of 5 chubs, and 2 others were still in good condition. Checked creels at June L. for part of afternoon.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

[SIGNED]

65676 12-2[illegible]
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HATCHERY June Lake, California DATE September 23, 1939

SUNDAY Sept 17, 1939 *(Give date)*

Took tri-C Hardy to June L. to assist in creel census. Returned to Fern Cr. hatchery and tended to correspondence, then tried Derris solution 1:2 million on sticklebacks from June L.; the solution failed to kill the sticklebacks in a period of 12 hours. During afternoon checked catches at Gerth Pier on June L.

MONDAY Sept 18

Took tri-C Hardy to June L. to continue creel census. Drove to Bishop for supplies and cheanged crankcase oil in VS 5952. Returned via route to Benton, Black L. basin, and Mono Craters Range. Practically all streams on Northwest slope of White Mts. are too steep and drainages too arid to support much fish life. Mathew Cr. near Benton is apparently the most suitable stream in the section.

TUESDAY Sept 19

Took tri-C Richard Hardy to June L. to continue creel census. Returned to Fern Cr. hatchery and after cleaning experimental troughs tended to correspondence. Derris 1:2million apparently does not harm such water plants as Nitella, Potamogeton, and Spirogyra and other green algae. At June L. checked catches for remainder of day. In evening drove to Exper. Str. ~~and weighed experimental samples of Derris meal.~~

WEDNESDAY Sept 20

Cleaned troughs reserved for ~~Derris~~ Derris experiments at Fern Cr. hatchery. Discovered break in left cylinder head of VS 5952 and drove to Bishop to have it repaired. Returned to June L. and checked catches for remainder of day.

(OVER)

THURSDAY Sept 21

Cleaned troughs reserved for Derris experiments at Fern Cr. hatchery. Drove to June L. and checked catches throughout day; took measurements, scales and weights for third series of re-check data on condition factors of marked trout from Hot Cr. At noon heavy rain and thunderstorm drove anglers off the lake.

FRIDAY Sept 22

Cleaned troughs reserved for experiments with Derris and noted condition of water plants in Derris 1:2 million. With both C-boys on duty (Brunson having returned Evenings-geney leave to L.A.) drove to Parker L. and returned; since the recent thunderstorms the flow through the weir at the end of the road has increased by approx. ½. Set up scales and remained on hand to check catches and to additional CF data from June L. marked RT.

SATURDAY Sept 23

Took tri-C boys Hardy and Brunson to June L. to continue creel census. Returned to Fern Cr. hatchery and cleaned experimental troughs and straightened up VS 5952. Returned to June L. and for remainder of day took scales, weights and measurements on marked trout from catches. Angling for past 3 days has decidedly improved and catches up to 10 fish per angler have been more common.

RECAPITULATION

FISH AND ROCK (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN ON RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

[SIGNED]

STATE OF CALIFORNIA
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HATCHERY ~~June Lake, California~~ DATE ~~September 30, 1939~~

SUNDAY ~~Sept 24~~ *(Give date)*

~~Cleaned troughs reserved for Derris experiments in Fern Cr. hatchery. Took tri-C boys Hardy and Brunson to June L. and with them checked creels for part of day. Returned to Fern Cr. and prepared weekly report Following observation of Derris solutions 1:2 million in which water plants were introduced plants used continue to resist the poisone water. Returned~~ C-boys to Gull L. spike camp.

MONDAY ~~Sept 25~~

~~Cleaned troughs reserved for Derris experiments at Fern Cr. hatchery. Took half of day off.~~

~~At Fern Cr. tended to correspondence and cleaned out VB 5952. Packed pamphlets, books and some of equipment accumulated, into carton boxes. Returned tri-C boys to Gull L. spike camp. Recleaned exper. troughs at~~ Fern Cr. hatchery.

TUESDAY ~~Sept 26~~

~~Cleaned exper. troughs at Fern Cr. hatchery. Took tri-C boys to June L. to continue creel census; recorded on tabulation sheets and checked Creel data obtained for period July 31 to Sept 26. Returned to Fern Cr. hatchery and tended to correspondence; returned to June L. and checked creels for remainder of day. On returning to Fern Cr. recleaned exper. troughs.~~

WEDNESDAY ~~Sept 27~~

~~Both tri-C boys off duty. Went to Lee Vining Ranger Stat. and arranged for additional C-boys to assist in packing of fish to upper Saddlebag Basin. Returned to June L. and checked creels for remainder of day. For past 3 days angling has been on the improve; good catches of fish of the year (fish planted earlier this season from Hot Cr.) are being returned especially by trolling.~~

(OVER)

80-145

THURSDAY Sept 28, 1939

Took tri-Cs loaned by Forest Service to Saddlebag L. in assisting Mr. Hussey clean Fern Cr. hatchery of remaining Black-spotted and Rainbow Tr. Fish packed in shoulder cans to Cascade, Steelhead, and Hummingbird Lakes. Returned boys to Gull L. spike camp at end of day.

FRIDAY Sept 29

Tri-C boys off duty. Cleaned exper. troughs at Fern Cr. hatchery and took additional notes on Derris experiments in progress. Went to Leevining for supplies. On returning, checked catches at June L. for remainder of day. At Fern Cr. cleaned trough holding fresh chubs for Derris experiment and introduced at 5:20 p.m. another series of fresh chubs into trough containing water plants and Derris 1:100,000.

SATURDAY Sept 30

Took tri-C boys Hardy and Brunson to June L. to continue creel census. Find water plants still resisting Derris bath 1:100,000, but all chubs dead at 7 a.m. Emptied and cleaned both experimental troughs, that hatchery may be closed for season. Tended to correspondence and preparation of weekly and monthly reports. Returned tri-Cs to Gull L. spike camp at end of day.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

[SIGNED]

October 1939

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

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Fishculturist's Weekly Report

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HATCHERY ~~June Lake, California~~ DATE ~~October 9, 1939~~

SUNDAY Oct 1 *(Give date)*

~~Took tri-C boys Hardy and Brunson to June L. to continue creel census. At Fern Cr. hatchery tended to correspondence. Drove to Hot Cr. and returned via Mammoth area. Checked creels until 5p.m. with tri-C boys, following which returned boys to Bull L. spike camp. From the route followed, it was the general impression that the weekend was given over~~ mostly to hunters with comparatively little angling going on.

MONDAY Oct 2

~~Took tri-C boys to June L. to continue creel census. Drove to Owens R. at Thompson and Aroulerius ranches and followed area honeycombed with roads by City of L.A. from short #2 to Indiana Summit; returned to June L. Some of the most fishable sections of the Owens have been corraled by the above-named ranches.~~

TUESDAY Oct 3

~~Took tri-C boy Hardy to June L. to continue creel census (Brunson off duty). Throughout the day summarized catch records obtained for the period July 31 to Sept 26 inclusive.~~

WEDNESDAY Oct 4

With boat on obtaining what few catches available on the lake, cont'd summarization of catch records for the period July to Sept. Reviewed recent literature in fish and game management.

(OVER)

THURSDAY Oct 5, 1939

Took tri-C Brunson to June L. to continue creel census. Following receipt of glass sheeting for aquarium for photographing fish, painted backdrop in oils. Drove to Grant L. and examined lower Rush Cr. for Loch Leven preparing to move upstream to spawn; atleast 150 of the fish were seen in the stream ½ mi. from upper Grant L.

Sp. BN in inlet stream to Grant L.

FRIDAY Oct 6, 1939

Day cold and inclement with sleet squalls and snow. Drove to Bishop to obtain cooler frame for photo aquarium; had VS 5952 lubricated and generally serviced. On returning to June L., arranged with boatmen to obtain full season's records of boats on the lake.

SATURDAY Oct 7, 1939

Snowy weather continuing with more wind and sleet.

Half day taken off. Sorted photographs taken of lakes and streams in Mono-Inyo Area this year, preparatory to filing them. Through the day fishing on the lake was practically nil due to the poor weather conditions

Sorted photos taken 1939, for

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

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STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

INSTRUCTIONS FOR MAKING THIS REPORT

At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY ~~June Lake, California~~ DATE ~~October 15, 1939~~

SUNDAY October (Give date)

~~Closure of the Gull Lake tri-C site camp from this day on will obviate further assistance of C-boys in the June Lake creel census for the season. Since fishing has declined generally (number of anglers) boatmen at June Lake are able to give more assistance in recording catches.~~ At Fern Cr. hatchery tended to correspondence and preparation of weekly report. ~~In afternoon, checked available catches at June Lake store.~~

MONDAY Oct 9

(work on state aquarium) photo

~~In Leevining obtained white lead, green paint, and turpentine for aquarium for photographing fishes. Returned to June Lake and checked available catches for remainder of day. Since May 27, the lake level has declined 14 inches, but seems now to be holding since the onset of colder weather.~~

TUESDAY Oct 10

Tended to correspondence and cleaned out room at Fern Cr. hatchery preparing to move into cabin for remainder of October. At June L., checked available catches for remainder of day. Anglers seem to be more successful now trolling with lures well down in water.

WEDNESDAY Oct 11

Day taken off duty.

(OVER)

00 149

THURSDAY Oct 12

Torn Cr. to Hot Cr. hatchery no return. [illegible]

and put LV 2000 Eastern Brook trout assigned to Little Hot Lake.

FRIDAY Oct 13, 1939

Thru out day, built a painted aquarium to be used in color-photographing, inland lake fish at Chippewa; re-[illegible] for [illegible] subjects near viewing table. [illegible] Cr. cig-[illegible] section to examine [illegible] of [illegible] Loven.

SATURDAY Oct 14

Drove to Minoa to photographic and other duties. Drove out into Minoa Cr. basin as far as power [illegible] and [illegible]; while sections of [illegible] at intervals [illegible] over [illegible] operated. [illegible] cat[illegible] [illegible] [illegible]

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 150

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HATCHERY June Lake, California DATE October 22, 1939

SUNDAY Oct 15 (Give date)

Drove to shaft #1 and returned via "the lake" and Devil's Punch Bowl. Pumping from the tunnel has again created a small lake in the basin NE of the shaft. Returning to June Lake, checked catches until evening, when resident of the town asked Div. of Fish & Game to claim newly killed spike buck deer near June L. junction; on investigation (shortly after dark) found deer taken by someone.

MONDAY Oct 16, 1939

Fern Cr. to Hot Cr. hatchery to Rush Cr. egg station and return. At Hot Cr. hatchery set up photographic aquarium for test shots of male and female BT in breeding colors. Although reflections from 10:30 a.m. until noon, severe, they seemed not to cast disturbing elements into ground glass image; therefore, it may be fully possible to photographic very well the inland water fish forms without light polarization. Returned to Rush CR. where test shot was made of LL.

test shot of LL

TUESDAY Oct 17, 1939

Fern Cr. to Carmen L. (Kirman lake) and return. At Carmen L., with Lenn Talbott, hauled seine on Eastern Brook trout close inshore in spawning activity. Helped Talbott sort males and females. Made photographic set-up and took two test shots of EB in brilliant and beautiful breeding colors. Returned to hatchery at Fern Cr. "This was fine brook stock of well-colored Ad EB (& no angling pressure —

WEDNESDAY Oct 18

At June L., following correspondence, checked catches throughout the day. Fishing has picked up considerable the past several days and trollers are still leading in catch returns. Checked catches on Reverse Cr. where city employees from shaft #1 are every day "pounding" the little stream just planted, taking out the small hatchery fish. Most of these caught are 3 to 4 inches long.

(OVER)

THURSDAY Oct 19

Throughout day, after setting up torsion balance at Gerth Pier, took scales, measurements and weights as re-check data on condition factors of marked RT from Hot Cr. A gill net, set on Gull L. in the early a.m., was hauled late in the day and 11 EB preparing to spawn were removed, and scales, measurements and stomachs were obtained from them.

FRIDAY Oct 20

In morning drove to Leevining for supplies. Returning to June L., continued and completed Oct. sampling of marked for condition factor data. Fishing generally was good with several exceptional catches being returned; one catch with 30 fish of the year contained 13 marked trout.

SATURDAY Oct 21

Throughout day checked catches at Gerth and Brinley piers on June L. To a general slump in fishing during the day was recorded an exceptional catch of 15 trout, including 13 RT of the years plant, 1 a 5½ lb. male (59 cm.), and 1 EB. Burton Frasher (Frasher's Fotos, Inc., Pomona) was interviewed on technical aspects of color photography.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
cm								
2.54" = 1								
59								
23 / 8.6								
10 / 7.8								
12 / 9.6								

00 152

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HATCHERY June Lake, California DATE October 28, 1939

SUNDAY Oct 22, 1939 (Give date) Oct 22, 1939 Brown Trout plant

At Rush Cr. Egg Coll. Stat. re-photographed male and female Loch Leven taken from traps; returning to June L. met Burton Fresher (Fresher's Fotos Inc.,) to review some Kodachrome transparencies with varied exposure formulae. Checked catches at Garth and Brinley piers until evening.

MONDAY Oct 23

During forenoon, tabulated data from catch records booklets at piers on June L. Remained at June Lake in afternoon but checked assorted creels. A high and cold wind forced most anglers off the lake in the late afternoon. Gill net, set on Gull L. shortly after sunrise, was hauled at sunset, and scales measurements and stomachs saved from 88 caught.

TUESDAY Oct 24

Cold, high wind barred angling on June L. today; a snowstorm beginning at noon by evening had coated the ground to a depth of 4 inches. During the day the Fern Cr. cabin was cleaned and firewood, to supplement that used by me, slabbed off and split up. Additional equipment to be taken to Mt. Whitney on Monday was segregated and packed.

WEDNESDAY Oct 25

Throughout day continued and completed series of stomach analyses and recorded stomach data from June L. rainbow material taken in July.

(OVER)

THURSDAY Oct 26

During forenoon and early afternoon completed resummarized and correcte weekly reports from Benbow Dam Exper. Station, Mar 26 to May 13 incl; tended to correspondence. At Gerth pier on June L. checked catches for rest of day. Following severe cold wave after storm Mon. and Tues., fishing was generally good, day being sunny but quite cold.

FRIDAY Oct 27

Throughout day, checked catches at Gerth pier on June L. Brinley pier closed for remainder of season. In afternoon took stomach samples from catches returned; catche returns slacked off considerable during day, as compared with Thursday.

SATURDAY Oct 28

During the day, in addition to checking available creels at Gerth pier on June L., took a series of stomache samples in concluding this work for October. In the evening examined a series of five scale samples taken from spawning EB at Carmen Lake ~~for~~ by Leon Talbott: 4 of the 5 fish taken were 2 year-olds and the fifth was ample with a good start of third year growth rings.

RECAPITULATION

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HATCHERY June Lake, California DATE November 4, 1939

SUNDAY Oct 29 *(Give date)*

For most of day continued checking of creels at June Lake. Until about 3p.m., anglers maintained a final effort with several good returns, mostly trolling. Packed car V8 5952 for trip to Mt. Whitney.

MONDAY Oct 30

Fern Cr. hatchery to Mt. Whitney hatchery and return. En route, stopped at Long Valley dam project and took progress photos of dam, which is about half completed. Continued to Mt. Whitney and stored equipment and materials to be used at the winter headquarters. Returning to Bishop, had V8 5952 serviced and lubricated before continuing on to June Lake.

Long Valley Dam Contr

TUESDAY Oct 31

In the forenoon and until early afternoon checked creels from all available catches at June Lake. During afternoon and early evening made some final summaries of catch record data for monthly report. Began preparation of monthly report.

WEDNESDAY Nov 1

In forenoon, continued and completed monthly report. Packed personal and State equipment to be taken to Bay Region and projects at Benbow Dam and South Fork of Eel River.

(OVER)

00 162

THURSDAY Nov 2

June Lake, Mono County to Richmond, Contra Costa County. En route, stopped along Tuolumne River, 4 miles below Moccasin, and photographed small scale dredging operations creating very muddy water in the river below for miles. Mine slag also was marking the water in Wood's Cr. nearly 5 miles away toward Chinese Camp.

FRIDAY Nov 3

Richmond to San Francisco office and return. In the morning for about an hour had conference with Mr. Alan C. Taft on some results of June Lake creel census and on other work in the Mono-Inyo Area this year. For remainder of forenoon and part of afternoon worked on calculation of condition factors of marked rainbow trout returned from June Lake.

SATURDAY Nov 4

In the morning, continued the calculation of condition factors from monthly data taken on marked rainbow trout from June Lake. Tended to correspondence and prepar of weekly report.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 156

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THURSDAY Nov 9, 1939

Richmond to Garberville, Humboldt Co., via San Rafael, Santa Rosa, Ukiah, et al.

FRIDAY Nov 10, 1939

In the morning, at Benbow Dam Experimental Station, checked over equipment for migration census and assisted C.A. Woodhull and C.C. Tegen in planning for forthcoming migration season. Made preliminary plan and sketches for weir to be built into N. ladder. In afternoon, accompanied by C.A. Woodhull, examined principal tributary streams and condition of South Fork of Eel River from Indian Cr. down to Salmon Cr. The river is generall very low and most riffles above Redway are extremely shallow. A small numbe of King salmon are scattered along the river particularly from near the mouth of Bear Cr. on down. The fish are mostly in very active spawning attitude. Few dead salmon are yet to be seen in this stretch of the river.

SATURDAY Nov 11, 1939

In the morning, at Benbow Dam Exper. Station, with C.A. Woodhull and C.C. Tegen took measurements and prepared numerical estimate of materials needed for weir in N. ladder. Outlined an hourly schedule form on which men may record numbers of different migrants over fishways. In forenoon, afternoon, tended to correspondence and preparation of weekly report; later at Garberville Lumber Co., obtained estimate of cost of materials for weir in N. ladder, and looked to lumber on hand at firm in Garberville.

RECAPITULATION

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HATCHERY Biological Survey, Gerberville DATE November 11, 1939

SUNDAY Nov 5 *(Give date)*

Day off.

MONDAY Nov 6

In Richmond, continued calculation ofcondition factors on marked trout returned from June Lake. Tended to correspondence.

TUESDAY Nov 7

Richmond to S.F. office and return. At San Francisco office, continued and completed calculation and summary of condition factors on marked trout from June Lake.

WEDNESDAY Nov 8

Richmond to S.F. office and return. At San Francisco office summarized by months catch record data for Gerth pier from June Lake season 1939. For remainder of morning through noon until early afternoon, obtained bids on Ford V8 5962 preparatory to trading the automobile in. Following conference with Mr. A.C. Taft and Mr. A.E. Burghduff, returned to Richmond. In evening discussed program for seeding at Benbow Dam with Leo Shapovalov.

(OVER)

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HATCHERY Biological Survey DATE November 18, 1939

SUNDAY Nov 12 (Give date)

Garberville to Fortuna to Fulmor Pool and return to Garberville. With Fred Krieg of Fortuna, examined lower Eel River for Palmer Cr. to Fulmor bridge for signs of both upstream migrant salmonids and fish-eating birds. Ks in abundance were seen crowed in Fernbridge Pool. Ad steelhead and half-pounders were seen frequently leaping from the water in Fulmor and Dungans Pools. 83 boats were counted from one place at Fulmor Pool. 3 mergansers were seen, together with a large flock of both Glaucous-winged and Western Gulls, at Snag Pool. River generally low for migrating fish in very poor condition. Return to Garberville, examined river at Weymouth and Dyerville. Took census of mergansers along South Fork to accompany same by Carl Tegen ~~in uppr. South Fork to Rattlesnake Cr; 156 ducks were seen.~~

MONDAY Nov 13 156

In morning at Benbow Dam Exper. Stat. completed estimate of lumber and materials needed for weir in North ladder. Ordered lumber from Garberville Lumber Co. Tended to correspondence.

TUESDAY Nov 14, 1939

Throughout day attempted to collect mergansers for stomach examinations. Although several flocks seen, amounting to over a dozen birds in each, it was found at night the birds congregated in two flocks on two separate roosts about one mile below Benbow Dam.

WEDNESDAY Nov 15

In morning through noon until 1:30 p.m., assisted C.A. Woodhull in check-migrant Ks over South ladder at Benbow Dam. In afternoon went to falls on Mattole River near Thorne and again examined this barrier at about the lowest water here of the year; this was done at the request of Fred Vincent and sportsmen from Garberville. It would be possible right now before the rains to improve the barrier quite easily with very little powder and some hand drills; probably three days would be needed for the work, but the very low water would much simplify the needed work there now. Residents nea Thorne and Briceland have offered to do the work themselves.

(OVER)

00 159

THURSDAY Nov 16

At 5 a.m., opened South ladder in an attempt some salmon below Benbc Dam upstream; rest of day continued search for mergansers, from Bricelan bridge to Richardson's grove. In the evening, an attempt to kill numbers of the birds at their roost was unsuccessful.

FRIDAY Nov 17

First part of morning occupied in correspondence. Until mid-afternoon, continued search for mergansers for stomach examinations, from Benbow Dam to Twin-trees and to the mouth of Dean Cr. In late afternoon, packed some of equipment in 73 5958, and serviced car.

SATURDAY Nov 18

Completed packing of equipment and materials and returned to Richmond, Contra Costa Co.

RECAPITULATION

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Fishculturist's Weekly Report

Feb 7 - return to Janet.

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HATCHERY Mt. Whitney DATE February 11, 1940

SUNDAY Feb. 4, 1940 *(Give date)*

June Lake to Independence to Mt. Whitney Hatchery.

MONDAY Feb. 5

Prepared weekly report and tended to correspondence. Remainder of day was taken to clean and otherwise straighten up room at Hatchery.

TUESDAY Feb. 6

Following correspondence in morning, at request of Mr. McCloud went to Bishop, accompanied by warden Carl Walters, to investigate report of bass stranded by operations of City of L.A. on West Line Street. In Bishop we met Jay McMurry, who gave the report, was picked up and helped to locate the place where a slough of the Owens River had been temporarily diverted. The diversion had stranded numerous carp and a few suckers, but although McMurry reported the presence of bass the previous day I saw none after carefully inspecting all the isolated pools. It would have been difficult to rescue any game fish had they been present, especially as the water was 32.0 F.

WEDNESDAY Feb. 7

In the morning sorted out "dead" carbons from correspondence files. Prepared list of new weekly passenger auto reports to date. Tended to correspondence. Through the afternoon began complete check through catch record booklets and compared each raw record with each catch record

(OVER)

161

THURSDAY Feb. 3

Continued and completed check of 3131 catch records tabulated from original June Lake catch record booklets.

FRIDAY Feb. 9

In the morning, tended to correspondence and reviewed current literature received. Through the afternoon analyzed and recorded the contents of a part of a series of stomachs from June Lake RT taken on October 23, 1939.

In addition to varying proportions of corn and salmon eggs, every stomach examined had large numbers of the ostracod crustacean Daphnia sp., in them; one stomach contained an estimated 3000 of this plankton. Several stomachs contained a proportion of chopped liver,-used as chum probably.

SATURDAY Feb. 10

Throughout the morning calculated areas in number of acres of separate contours for both June and Gull Lakes from planimeter readings obtained for these contours for me by Mr. S. K. Bakov, of the Bureau of Hydraulics. Readings were taken from a blueprint of the lakes sent by the L.A. Dept. of Water & Power engineers.

RECAPITULATION

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00 162

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Fishculturist's Weekly Report

Fwd 5752
Fwd 5-5-13

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HATCHERY Mt. Whitney, Independence. DATE February 19, 1940

SUNDAY Feb 11 *(Give date)*

Day taken off.

MONDAY Feb 12

Completed analyses of stomach samples taken from June Lake Rainbow Trout October 23, 1939. Tended to correspondence and prepared weekly report.

TUESDAY Feb 13

Following correspondence, tabulated data from stomach analyses. Repaired electrical fixtures damaged by shorted connection. Began work of mounting scales from June Lake trout taken in trout season of 1939; instead of mounting entire groups of the samples, representative scales taken from the general samples and mounted for examination and study.

WEDNESDAY Feb 14

Continued scale-mounting until mid-afternoon. Tended to correspondence and installed license plates received for Ford 50543.

(OVER)

163

THURSDAY Feb. 15

Tended to correspondence. Continued mounting of scales taken from June Lake trout. Scales so far show a six-year [illegible] and one distinctly in its second year of life. No age group in between the two has yet been made out from the mountings.

FRIDAY Feb, 16

Tended to correspondence and corrected weekly auto reports returned from the S.F. office. Continued work of mounting scales from June L. trout and scales from group of marked trout from Hot Cr. State Hatchery at the time of planting. Examined previously series with compound 'scope.

SATURDAY Feb 17

Journeyed to Furnace Creek Ranch, Death Valley, to attend meetings of the Inyo-Mono Association concerning East Slope fisheries.

RECAPITULATION

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HATCHERY Mt. Whitney, Independence, Calif. DATE February 25, 1940

SUNDAY Feb. 18 *(Give date)*

Returned from Inyo-Mono Assocation meetings held at Furnace Creek Ranch, Death Valley.

MONDAY Feb. 19

Tended to correspondence and prepared weekly report. Studied over paper sent by S.F. office on the disease (or physiological malcondition) Hydrocoele embryonalis of salmonids by Elizabeth Dieterich. The remainder of the day was occupied in mounting additional scale samples from June Lake trout and examining them.

TUESDAY Feb. 20

Read paper by H. Prytherch on Ichthyophthiriasis received from the S.F. office library, and discussed same with Mr. McCloud in view of of Ichthyop' epidemic at Hot Cr. hatchery. Tended to correspondence and continued mounting of scales from June Lake trout taken the past season.

WEDNESDAY Feb. 21

Following correspondence in the morning occupied the remainder of the day mounting and examining scale samples from June Lake trout of the past season, particularly selected samples from the marked trout returned.

(OVER)

00 165

THURSDAY Feb. 22

Washington's Birthday Holiday.

FRIDAY Feb. 23

In the morning tended to correspondence and swept and cleaned out Ford 50545. For the remainder of the day resumed work on the report of the creel census at June Lake in 1939.

SATURDAY Feb. 24

Corrected auto vehicle reports returned from S.F. office and occupied th remainder of the morning and until early afternoon in work on the report of the June Lake creel census.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

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Fishculturist's Weekly Report

George "Condie" McCloud
Condie Douglas "Douglas"

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HATCHERY Mt. Whitney, Independence DATE March 3, 1940

SUNDAY Feb. 25 *(Give date)*

Day taken off.

MONDAY Feb. 26

Tended to correspondence in the morning; for the remainder of the day continued work on the report of the June Lake creel census during 1939.

TUESDAY Feb. 27

Reviewed fish and game literature received and occupied the remainder of the morning in preparing correspondence. In the afternoon continued work on the June Lake creel census report. In the evening, drove to Bishop, accompanied by Mr. Geo. McCloud, and attended the annual general and business meeting of the Rainbow Angling Club.

WEDNESDAY Feb. 28

Tended to correspondence and repaired valve in Coleman heater for Mt. Whitney room. The remainder of the day was occupied in continuing work on the report of the creel census in 1939; the work to date has consisted in redrafting tables and graphs, a re-outlining of the composition, and in writing up sections of the report.

00 167

(OVER)

THURSDAY Feb. 29

Tended to correspondence and occupied the rest of the day in preparing routine monthly reports. From late afternoon into evening continued work on the June Lake creel census report.

FRIDAY March 1

In the morning tended to correspondence and reviewed literature in fish and game management received. Remainder of day occupied in continuing preparation of report of June Lake creel census. In the evening, re-corrected auto vehicle reports returned from S.F. office.

SATURDAY March 2

From mid-afternoon until late evening continued preparation of report on June Lake creel work during season of 1939.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

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HATCHERY Mt. Whitney, Independence, Calif. DATE March 11, 1940

SUNDAY March 3, 1940 *(Give date)*

Day taken off.

MONDAY March 4

Tended to correspondence. Continued work on the report of the creel census at June Lake in 1939 and completed pencil draft of report.

TUESDAY March 5

Tended to correspondence. Typed draft of June Lake creel census report and corrected copy as typing proceeds.

WEDNESDAY March 6

In the morning re-wrote two sections of June Lake creel census report and typed them; re-typed all other previously corrected copy and edited the paper. Tended to correspondence.

00 169

(OVER)

THURSDAY March 7

In the morning reviewed publications received from the Division library at S.F., and prepared correspondence. Occupied the afternoon in editing and re-typing portions of the June Lake creel census report.

FRIDAY March 8

Prepared correspondence. Remainder of day taken to type and complete final copy of June Lake creel census paper.

SATURDAY March 9, 1940 (Note winter conditions outlet where at Grant L.)

Mt. Whitney Hatchery to Fern Cr. Hatchery to June Lake to Grant Lake Aqueduct and Grant Lake and return to June Lake. At Fern Cr. Hatchery still about 12 to 14 inches of snow on road and bridge. Examined part of Grant Lake-Mono Tunnel Aqueduct near where this structure crosses highway 395. Above Cain Ranch, diversions from Grant Lake outlet pouring water at this time out into Mono Basin; one diversion was flow 5 CFS. At Grant Lake all but 25 acres of ice gone and lake within 4 ft. of overflow; temperatures taken and outlet stream est. at 40 CFS. At June L. photographed lake in winter condition, took ten straws, examined gravel beds for early spawners and saw one. Ice on lake gone from large section at upper (North) end and in places around the shoreline; if mild weather continues for another week ice will be entirely gone from lake.

RECAPITULATION

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00 170

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HATCHERY ~~Mt. Whitney, Independence~~ DATE ~~March 19, 1940~~

SUNDAY ~~March 10~~ *(Give date)*

~~Day taken off.~~

MONDAY March 11

~~June L. to Hot Cr. Hatchery to Bishop to Independence to Mt. Whitney Hatchery. Again examined upper end of June L. for spawning trout, but saw none; lake is much more open at north end this morning; stopped at Hot Cr. hatchery and conferred with Mr. Lewis regarding nets and condit at the hatchery; stopped in Bishop for supplies; stopped in Independence for accumulated mail; returned to Mt. Whitney Hatchery.~~

TUESDAY March 12

~~Tended to correspondence during forenoon and returned publications received from Library at S.F. office. During afternoon worked on new form to be used during coming trout season and creel census at June L. Painted new galvanized buckets for photographic aquarium.~~

WEDNESDAY March 13

~~Re-painted galv. metal buckets for photographic aquarium and cleaned and soaked them with water. Prepared correspondence and reviewed literature in fish and game received.~~

~~Fil. Out 90 171~~

(OVER)

THURSDAY March 14, 1940

Prepared correspondence and an outline for a talk for Conservation Program on Friday at Independence High School. Loaded color and black and white cartridges and until early afternoon photographed Rainbow, Golden, and Loch Leven Trout from hatchery ponds. Wrote draft of talk for conservation program.

FRIDAY March 15

Tended to correspondence. Edited and typed two drafts of talk for conservation program at Independence High School. Analyzed contents of stomach samples from Gull L. Eastern Brook Trout taken Oct. 22, 23, 1939; principal contents were the larvae of dragon-flies and damsel-flies and scuds (Gammarus limnaeus).

SATURDAY March 16

Tended to correspondence and reviewed current issues of fish and game magazines received. Tabulated data from stomach analyses of Gull L. eastern Brooks.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

[SIGNED]

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DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

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HATCHERY Mt. Whitney Hatchery, Independence March 25, 1940

SUNDAY March 17 *(Give date)*

Day taken off.

3/18/40 - Lewis
Still mostly frozen over
Fry meas. June out of ice

MONDAY March 18. At June L. hiked around lake and examined all marginal open water for spawning trout; 15 Rt , 7-18" long were seen in spawniggg activity at the north curvature of the lake. Two Eb, 9 and 11 inches were seen at the south end. Although trout were moving near the sandy beach at the south end, no count was possible due to poor light and rippled water surface. The outlet screen was found to be damaged from ice and should be replaced. The connecting stream to Gull L. was flowi ng about 1½ CFS. In open water in Gull L., at the inlet and northeast end, several hundred young Eb. 7/8 to 1½ inches long were seen; Gull L. is still mostly frozen over, but large areas of June L. are out. During the afterno Reversed Cr. from Gull L. to Fern Cr. Lodge was examined for trout from last year's plant.

TUESDAY March 19
Tended to correspondence during forenoon, inpart; read paper by J.O. Snyder on the fishes of the Lahontan Basin received from the Division library at S.F. Went to Inyo County library for references on the past geologic history of the Inyo-Mono Area.

WEDNESDAY March 20

Tended to correspondence; conversed with visitors on fish cultural work of the Division of Fish & Game. Drove to Bishop, stopping for supplies, then conducted biologic reconnaissance of the middle Owens R. and diversions from Bishop to as far as Tinnemaha Dam, downstream. At the latter place the Owens River an estimated 113 CFS. Suckers (Catostomus arenarius) were watched spawning on the outlet apron. Two of these were caught and examined. According to the waterkeeper, the L.A. D W &P intended to close down the flow in order to gate the outlet wings. There will be considerable gathering of fish at that time below the dam.

Suckers spawning at Tinnemaha

(over)

THURSDAY March 21

Tended to correspondence in the morning and copied notes taken during field work at June L. on Monday. Interviewed C.A. Krater, Dist. Supt. of L. D. W. & P. at Independence, regarding the shutdown at Tinnemaha Dam at high time examination is proposed of fish congregated below the dam. Returned publications on geology of the Inyo-Sierra Range borrowed from Inyo County Library.

FRIDAY March 22

During the morning and early afternoon copied survey notes, made afield at various times during late summer and fall, from field notebook onto standard survey forms. Packed equipment for field trip to Reversed Cr. Recreational Area and left for June L. Stopped at Hot Cr. Hatchery and borrowed two seines from Mr. Lewis for use in the week.

SATURDAY March 23

Set gill net in June L. in open water near Gerth landing. Through rest of morning until early afternoon conducted visual census of trout in Reversed Cr. from Gull L. guard station to Fern Cr. Lodge. From counts obtained, estimated 3,288 trout in three miles of stream (planted Sept. 29, 1939 with 5,808 Eb at 2.2 per ounce from Hot Cr. Hatchery). Drew gill net and found a Lake Chub (Siphateles obesus) 5½ inches long enmeshed. This is the first to be recorded from the Lake. Re-set gill net.

Lake chub in June L.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 179

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note on Rush Cr. flow

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HATCHERY ~~June Lake, California~~ DATE ~~March 31, 1940~~

SUNDAY ~~March 24~~ *(Give date)*

Drew gill net and took measurements, scales, and stomachs of Eb and ~~Rt caught. Re-examined lower Rush Cr. and diversions. There is now about~~ 10 CFS flowing in lower Rush Cr., beyond the diversions and probably about ~~60 CFS distributed out over MONO basin. Apparently the D of W & P will~~ tr to reduce Grant Lake before the bids are opened April 5 for the construction ~~of the dam. Examined Grant L. (now entirely free of ice) and took temperatur~~ Examined Rush Cr. at egg collecting station and at L.A. Venturi Weir (est. ~~50 CFS flowing passed weir). Only a small part of Silver L. open at outlet a~~ at south-facing side of lake. In late afternoon again drew gill net on June ~~and took scales, measurements, and stomach samples from the trout caught.~~

MONDAY March 25

Cleaned gill net and spread same to dry. Rowed to spring near residence ~~area in east arc of lake to examine gravel beds for spawning fish, but~~ saw none. Until 11:30 a.m. made re-census of trout on Reversed Cr. to check area ~~covered on Saturday; count fell considerably short ofthat obtained on Sat.,~~ probably affected by scared condition of trout. Examined outlet stream into ~~Gull L. and again saw small Eb of year in marginal shallows. Replaced~~ screen over culvert at outlet of June Lake, torn loose by ice during winter. ~~Tended to correspondence and prepared weekly report. Bound and re-packed~~ gill net.

Long Valley Dam 2/3 complete

TUESDAY March 26

June L. to Hot Cr. Hatchery to Long Valley Dam to Bishop to Independence ~~to Mt. Whitney Hatchery. Stopped at Hot Cr. Hatchery and returned seine~~ borrowed from Mr. Lewis for trout census on Reversed Cr. Stopped at Long V Dam and noted progress(?)on structure, which is now about twothirds comple Workmen were scarifying the bluffs on either side in preparartion for the t part of the dam. In Bishop, conferred with Mr. L.L. Tatum on possibility of a high lake creel census the coming season. Interviewed Dr. C.W. Anderson (Rainbow Angling Club) on results of ballot enquiry on fish and game propositions among the Inyo-Mono Assoc. Stopped at Independence for mail and returned to Mt. Whitney Hatchery.

WEDNESDAY ~~March 27~~, 1940

Blackwelder's good paper from Stanford U.

~~Tended to correspondence in morning and conferred with visitors (student~~ of Dr. Eliot Blackwelder at Stanford University studying geological effects of L.A. Aqueduct on Inyo-Mono). Remainder of day occupied in study of papers on glaciation of the Mono and Walker basin areas sent by Dr. Blackwelder from Stanford University.

00 175

(OVER)

THURSDAY March 28

Tended to correspondence and copied stream and lake survey data, taken during 1939, on new forms. Made out lake survey form in duplicate for June L. In the afternoon, examined a series of a fish said to have been dumped into June L. by an angler during last season; the fish is a "bullhead" (Gobiidae) of a yet undetermined genus and species. Analyzed stomachs of thirteen trout taken in gill net March 24. Examined in detail specimen of Siphateles obesus taken in gill net in June L. March 24.

? Jenkins, used by angler

FRIDAY March 29

~~Tended to correspondence in the morning and returned publications borrowed from Division library at S.F. Cleaned out automobile 50543 and room at Hatchery in advance of changing headquarters for summer season. Set up photographic aquarium and took additional series of color pictures of Rainbow trout of three year age.~~

SATURDAY March 30

~~In the morning packed equipment to be tranferred to headquarters at June L.,; drove to Bishop for supplies and on to June Lake during afternoon.~~

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

OD 176

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HATCHERY Headquartered at June Lake, California DATE April 6, 1940

SUNDAY March 31 *(Give date)*

Day taken off.

MONDAY April 1

Tended to correspondence in the morning and early afternoon. Reviewed current literature in fish and game management received. In the evening went to Fern Cr. Hatchery and at the request of Mr. Mc Cloud directed Asst. Warden Attwood to Hot Cr. Hatchery to assist Mr. Clarence Elliger, Hydraulic Engineer of DF&G.

TUESDAY April 2 Silver L. free of ice by middle last week in March.

At the upper end of June Lake examined gravel for spawning RT. Over one area est. 150 ft. square, counted 19 trout 7 to 20 inches in spawning activity; at least 4 of the trout were 14 inches or over. (Air: 40.6; W. 45. Examined aqueduct and diversions from Rush Cr. below Grant L. dam; examined shoal and gravel areas in Grant L. for spawning RT and took temperatures. Silver L. now open (opened middle of last week). Stopped at Fern Cr. H. for gill net brought from Mt. Whitney Hatchery. Unloaded equipment at Gull L. residence.

WEDNESDAY April 3

June L. to Thompson and Arcularius Ranches on the upper Owens River, and return. Divided upper river area into sections and began visual census of trout in the river starting at dam on Thompson Ranch. By 3p.m. forced to quit because of poor visibility created by cloudiness and high wind along river. On returning to June L. tended to correspondence for remainder of day.

(OVER)

00 127

THURSDAY ~~April 4~~

~~June L. to Thompson and Arcularius Ranches on the upper Owens R.~~ and along sections of river lower down to Hot Cr., thence to Waterson place and ~~return to June L. Continued trout census along river to end of second~~ section and then forced to stop again due to poor visibility and very windy ~~condition along river. Made reconnaissance to Inaya Land Company boundary~~ and beyond to M. of Hot Cr.; returned to June Lake.

FRIDAY ~~April 5~~

~~June L. to Thompson and Arcularius Ranches on Upper Owens R. and~~ return

~~Following correspondence in the morning drove to upper Owens R. and continue~~

~~and completed census along first three sections of river through Thompson~~ and Arcularius Ranches. Total river distance 23,698.4 feet; total trout seen ~~(EB,BT,and LL) 8,403; total trout actually seen multiplied by 3 to a low~~ at least six factors disturbing the original counts; estimated total counts ~~of trout then divided by river footage to give number trout per lineal~~ foot of river. The general average for three sections covered so far is: 2.82

SATURDAY ~~April 6~~

~~Tended to correspondence and prepared weekly report following summary~~ trout ~~of/census figures obtained so far on upper Owens River.~~

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 178

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HATCHERY ~~June Lake, California~~ DATE ~~April, 14, 1940~~

SUNDAY ~~April 7~~ *(Give date)*

~~Most of day taken off. Went to Fern Cr. Hatchery for information on 1939 marked trout seined in June Lake. Tended to correspondence.~~

MONDAY ~~April 8~~

~~On Arcularius Ranch, below East Portal Camp bridge, continued visual census of trout along upper Owens River; during the day, covered approximately 13,800 lineal feet of river and actually counted 1263 trout. Returned to June Lake.~~

TUESDAY April 9 Mr. Whittles

~~June L. to Bridgeport and East Walker R. below Sweetwater Dam and return. Examined stream and riffles below dam for migrant rainbow and cut-throat trout said by Warden Al Croker to be congregating there. No trout were seen but the waterkeeper at the dam reported migration activity by "steelhead" in the early morning and evening after sundown; the fish ladder at the dam was not in operating condition when seen.~~

WEDNESDAY April 10

~~June L. to lower Arcularius Ranch and return. Continued visual census of trout along Owens R. and during the day covered approximately 20,844.28 lineal feet of stream; in spite of careful search, only 442 trout were seen in the 3.94 miles of river.~~

~~10 170~~ (OVER)

THURSDAY ~~April 11~~

~~June L. to Inaya Land Company on Owens River and return.~~

~~From 9:40 a.m. (about) until 4:07 p.m., worked continuously to release car from badly mired position.~~

FRIDAY ~~April 12~~

~~June L. to Leevining to Inaya Land Company and southmost Arcularius property on Owens R. and return. Went to Leevining for supplies.~~ On ~~Owens R. continued and completed visual census of trout in last two sections of stream arbitrarily set; during the day, 23,372.8 lineal~~ feet of stream was observed and only 876 trout were actually seen in ~~part of the river. To date, 164,250.5 lineal feet of river has been~~ seen and 5,382 trout therein actually observed.

SATURDAY ~~April 13~~

~~Tended to correspondence and reviewed current literature in fish and game management received. Outlined report to Bureau Office on visual census of trout in Owens River.~~

RECAPITULATION Summary of Visual Census, Little Lake Creek

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
	#	Sections Covered					7	
	#	trout seen					5,382	
		Lineal feet of stream seen					81,953.8	
	#	miles of stream					15.3	
	#	pounds fish					27,672	1 @ 3[illegible]

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HATCHERY June Lake, California DATE April 21, 1940

SUNDAY April 14, 1940 (Give date)

Day taken off.

MONDAY April 15

Left Lewining Ranger Station, interviewed District Ranger Yosemite National Forest regarding commercial permits on June Lake this year; found limit to be set at 60 commercial boats and 40 private boats on the lake. On return to June Lake tended to correspondence and wrote report on brown trout census made on Upper Owens River through Thompson and Crowley Ranches.

TUESDAY April 16

Tended to correspondence and reviewed current literature in fish and game management received. Checked through figures obtained in trout census on Owens River and corrected several errors in notes and weekly report for week ending April 13. Made corrections in draft of report re census to Bureau Office.

WEDNESDAY April 17, 1940

In forenoon, had car 50543 serviced and checked over, following trip to Owens R. [Until mid-afternoon examined Rush and Parker Creek diversions in Mono Basin, running above Highway 395, following reports of stranded trout in stream beds from diverted water recently diverted by stockmen. Returned to June Lake and typed final copy of trout census report to Bureau Office.

00 181

(OVER)

THURSDAY April 18

Tended to correspondence. For remainder of day examined Reversed Creek from Bull Lake Dam Station to culvert above Silver Lake for further presence of trout seen along the creek during the visual census there on March 23 and March 25. Although no census was made, the population appears to be about the same as when seen nearly a month ago.

FRIDAY April 19

Tended to correspondence. At the north end of Jim Lake examined gravel areas for spawning trout; for some reason (including, no doubt, anglers effort last season) the spawners are not at all "working" as they were last year. Returning to Jim Lake and out its outlet, checked condition of outlet screen and rehanded shovelled and caulking at points where water leaks occurred.

SATURDAY April 20

At culvert on outlet of Jim Lake dug out anchorage for new screen to be installed above culvert about 15 feet; repairs performed made on old out to screen removed useless as washouts occurred beneath and around screen. Present new screen built by Glenn Valhorn at request of Mono Co. Supervisor and myself. Unpacked equipment from trunk of my car at Gill's residence. For remainder of day devoted to correspondence and reviewed current literature in fish and game received.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 182

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HATCHERY June Lake, California DATE April 29, 1940

SUNDAY April 21 *(Give date)*

Day taken off duty.

MONDAY April 22

Tended to correspondence and reviewed current literature in fish and game received. For the remainder of the day, traced carbon copies of Rainbow trout used for posters at June L. and prepared posters for the coming season's catch record survey; began the printing of one by hand type.

TUESDAY April 23, 1940

Tended to correspondence. June L. to Leevining canyon and to canyon below Simpson mine and return. Investigated intense mining pollution in Leevining Cr. reported by interested persons in Leevining; the stream coming from the Simpson mine near Leevining Peak was found to be the main channel for the tailings from the mine. The detritus was so heavy in the water that a small bit of solution held in the hand completely obscured the palm. The stream was flowing about 300 GPS with a water temperature of 43.0 degrees. The unimpounded silt empties into lower Leevining Creek near the Leevining Ranger Stat.

WEDNESDAY April 24, 1940

On vacation leave.

Left my headq for Vegas + So. Calif

SR: NO 183

(OVER)

THURSDAY April 26

On vacation leave.

FRIDAY April 26

On vacation leave.

SATURDAY April 27

On vacation leave.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

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Began residence at Gull Lake w/ Ethel

HATCHERY ~~June Lake, California~~ DATE ~~May 5, 1940~~

SUNDAY ~~April 28~~ *(Give date)*

~~On vacation leave.~~

09 185

Returned to June L.

MONDAY ~~April 29~~

~~Turned to accumulated correspondence and prepared weekly report. Completed printing and labelling of posters to be used in creel census at June Lake. Reviewed literature in fish and game received.~~

1940

TUESDAY ~~April 30~~

~~Drove to Hot Cr. and examined sections of stream from Chance Place to road of gorge below Waterson's. For some unknown reason there are very few trout in the stream this year; counts at Waterson's over a section 400 feet long showed a ratio of one trout to 3.5 linear feet of stream. Visited Hot Cr. Hatchery and conferred with Messrs. McCloud and Lewis. Returned to Gull L. residence and turned to correspondence and monthly reports.~~

WEDNESDAY ~~May 1~~

Note catch information from lower Rush Cr.

~~Until early afternoon, checked available catches from Rush Cr.; and Grant L.; lower Rush Cr. below Grant L. did turned out some very good trout (LL and RT up to 8 inches long) and Grant L. was fair until strong winds appearing at 11:30 a.m. drove anglers from the lake. Returning to Gull L. anglers reported just fair. Monthly report of the lakes and streams open on May 1.~~

~~It was not entirely a surprise~~

(OVER)

* High winds on Lakes would drive anglers to fish the streams.

THURSDAY May 4

~~Again, for most of the day, checked available catches from Rush Cr., Grant L., and Gull L. Winds of high velocity (above 40 m.p.h.) very bad, drove most anglers from Grant and Silver Lakes, and boat operators would not allow their boats to go out. The closure of Reversed Creek is keenly~~ felt in the Area and the general opinion is that it should be re-opened as ~~soon as possible.~~

FRIDAY May 5

~~Except for correspondence and revel. of surrep. fish and game literature most of day taken off duty. Until and including today many anglers are discouraged over the first three days fishing.~~

SATURDAY May 6

~~From 9 a.m. until 7 p.m., checked creels at Lake Lake in starting the 1940 creel survey there. Despite high wind in the morning, anglers caught plenty of trout--numbers of large males and females ripe and in spawning color,~~ and numbers also of Eastern Brook in excellent condition. Independent counts by Warden Webb Talbott and myself showed a return of between 1156 and 1200 trout taken. At 3p.m., there were 77 boats out and 160 persons fishing, or 2.07 persons per boat; the figure does not include shore fishermen. Approximately 24.4% of the return were marked trout of the 1939 plant from Hot Cr. Hatchery.

Verified by Webb Talbott

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
	00	186						

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HATCHERY June Lake, California DATE May 13, 1940

SUNDAY May [illegible] *(Give date)*

From 8 a.m., until 6:30 p.m., checked catches at boat piers on June Lake. Although the day was mild and clear, fishing returns fell below those for yesterday. Unitseffort per hour varied from .66 to 3.33 with an average near [illegible]. Including all available catch records the estimated total catch for the two opening days was 2,388 trout. Took spawn obtained from these anglers catches to Fern Cr. Hatchery. In the evening, completed arrangements with Forest Service for ERA help in June Lake creel work.

MONDAY May 6

Tended to correspondence and prepared weekly report. Reviewed literature in fish and game management received. During the afternoon (12:15 to 4:30 p.m.) drove to Mammoth, Convict Cr., Convict L., to Hot Cr., and returned via Gull L. Catches checked and interviews with anglers and resort keepers bore out the widespread report that fishing was very poor on the opening day in the areas visited. Only two limits were taken from Hot Cr., a team below Peterson's.

TUESDAY May 7

Day taken off duty.

WEDNESDAY May 8

Half day taken off. In the afternoon tended to correspondence and got right together all catch records obtained over Saturday and Sunday at June Lake. On Saturday an estimated 1496 RT and 72 EB were caught; of the total of RT, 288 were marked. On Sunday an estimated 1302 RT and 54 EB were caught; 284 of the RT were marked trout of the 1939 plant from Hot Cr. Hatchery.

(OVER)

00 187

Workm[illegible] down & [illegible] on west side

THURSDAY May [illegible] 1949

~~Gull L. to June L., to Leevining Cr., to lower Rush Cr.,~~ to Grant L., to Silver L., to June L., and return to Gull L. Examined Leevining CR. from ~~Ranger Station to below power house in Leevining, and although stream still~~ very murky from mining debris it is by no means as heavily discolored as ~~when seen a week ago; local anglers have contended that lower Leevining~~ Cr. is one of the best trout sections in the canyon. Examined lower Rush Cr. ~~at Dombrowski's place and at intervals to Highway 395. At Grant L.,~~ work on new dam progressing rapidly and on on new highway on west side of future ~~reservoir. Because of wind, few anglers were seen on the lake and along~~ the shore. In return to Gull L., stopped at June L. postoffice.

FRIDAY May 10

~~Tended to correspondence and typed catch record forms for use in creel census at June Lake. Reviewed literature in fish and game received.~~

SATURDAY May 1[illegible]

~~Obtained EBA help at Gull L. Spike Camp for June L. creel census at~~ and at ~~June L. from 6:30 a.m. until 6 p.m., checked creels from the lake. Took a quantity of brown from an angler's catch to Fern Cr. Hatchery. Returned EBA men to Gull L. Spike Camp.~~

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
		00 188						

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HATCHERY June Lake, California DATE May 26, 1940

SUNDAY May 12 (Give date)

Drove to Bull Lake Spike Camp and other ERA men assisting Forest Service to assist in creel census at June Lake and with them checked creels from 9 a.m. to 7 p.m. (Returned to ERA camp) Fish taken totalled 60 trout for the weekend and found that less than half the estimated total catch for the opening weekend was returned. The total estimated catch was 1330 trout averaging 0.81 lb. Returned

MONDAY May 13

Day taken off.

TUESDAY May 14

Bull Lake to June Lake to Little Walker Lake to Lee Vining to Little Walker Lake. Drove to Little Walker Lake and following preparation of lake for hatching operations, set gill net at 12:45 on south side of lake. While examining lake inlet and marginal bottom, trolled completely around lake bringing considerable of dirty water to lake for food for fry and to supplies. Tended to correspondence and

WEDNESDAY May 15

At 6:30 a.m. drove gill net and found 13 Eastern Brook brook trout. Re-set net on opposite side of lake but with practically no operation. Trolled at June Lake made preliminary hauls on a surface course of one fourth mile; total approximately 3 hours; stomachs, scales and measurements and generally examined specimens taken. In the evening examined plankton sample under microscope.

(OVER)

Little Walker L. | 93.3 acres
36 ft deep
1945 AF

Little Walker L.

THURSDAY May 16

Drove gillnets and found 46 Eastern Brook suckers (net had set 14 hours). Took stomachs, sex, weights and measurements from the specimens obtained; the trout, apparently all in fair condition, varied from 6 to 12½ inches, with the average length at 8.1 inches. The average weight appeared to be 7½ pounds. Took soundings of Lake along length and width of lake and stepped full shore distance; Little Walker is evidently 93.3 acres in surface area and has a maximum depth of 36 ft. 6 inches. The volume was calculated at 1945 acre feet.

FRIDAY May 17

Again examined map in area and made a second fact-finding travel over a circuit half mile; passed some fair-weather Patmouth cleared cabin, washed car 50543 and left for Bull Lake. Tended to correspondence and took remainder of afternoon off duty.

SATURDAY May 18

Attended ERA hearing at Bull Lake Spur and checked cabins at Jim Lake from 8 a.m. until 6:15 p.m. A moderate wind from the north all day made the lake choppy and fishing uncertain; only the best anglers and those who from previous experience knew the spots" caught fish. Returned ERA men to camp at end of day.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

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HATCHERY June Lake, California DATE May 27, 1940

SUNDAY May 26, 1940 *(Give date)*

Obtained ERA men at Gull Lake Spike Camp and with these men checked boats from 8:30 a.m. until 7 p.m. Fishing was generally slow all day and comparatively few trout were returned. At 9:30 a.m. there were 20 boats and 113 persons on the lake. Returned ERA men to Gull L. Camp.

MONDAY [illegible]

Day off duty.

AV width x Av. Depth = 20' x 0.8
0.8
16.0
5
80.0 .9 = 72

TUESDAY May 28

Half day taken off duty. In the afternoon tended to correspondence and revised literature in fish and game received.

WEDNESDAY May 29

Drove to Mt. Whitney Hatchery and visited hatchery and obtained keg of formaldehyde and photographic aquarium for use at June Lake headquarters. In return, examined Division Creek above power house and obtained supplies and bad battery in our GOBS checked over in Bishop.

(OVER)

THURSDAY [illegible]

[illegible] to correspondence and took a quantity of formaldehyde to Deer Cr. [illegible] at the request of Mr. Hussey. Analyzed part of the stomach, crawler and a plankton sample taken from Little Walker L. Partly [illegible] catch returns for the past weekend. ([illegible])

FRIDAY [illegible]

[illegible] indexes of marginal literature in this endeavor [illegible]. The remainder of my analysis and recorded items and contents of [illegible] Lake Trout L., taken May 11. In the [illegible] [illegible] the catch records for the past weekend. 377 ([illegible]) were [illegible] in the two days; [illegible], or [illegible] were marked; [illegible] fishers fished [illegible] hours and indicated a unit effort of 0.31 fish per hour.

SATURDAY [illegible]

[illegible] Lake Trout S. Lake Camp [illegible] and obtained [illegible] net for the Creel Survey [illegible] L. [illegible] [illegible] from [illegible] until [illegible] [illegible] to the Trout L. Camp.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 192

[SIGNED] [illegible]

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HATCHERY June Lake, California DATE June, 1940

SUNDAY May 26 *(Give date)*

Obtained EBA men at Gull L. Spike Camp to assist in June L. creel inventory; with the men, recorded catches from 8:30 a.m., until 6 p.m. Returns seemed to fall off markedly during the day with a light N breeze on the lake; old timers here declare this condition poor for fishing and are reluctant to go out on the lake. Probably fishing is poor on those days because of the low effort.

MONDAY May 27

Day taken off duty.

TUESDAY May 28

Gull L. to Bishop to Horton Cr. Basin and return. Entire day taken to drive to and to hike into Horton Cr. Basin in which a fungus disease has invaded the trout population, particularly in the lakes. Condition reported to Webb Talcott by anglers (one and employee in Bishop postoffice) and in turn reported to writer. Dull grayish white patches of fungus were seen on only the Rainbow Trout and no fish in fast water showed the disease. The stream contained EB and RT in abundance and seemed with one or two exceptions all appeared in fine condition.

WEDNESDAY May 29

Half of day taken off duty. In the afternoon tended to correspondence and unpacked and examined survey equipment received. Reviewed literature in fish and game management received.

(OVER)

THURSDAY May 30

Obtained ERA men at Gull L. Spike Camp and with them checked creels from June L. throughout the day. A south wind of almost gale proportions greatly hindered fishing and kept anglers closely grouped on the outlet end of the lake. Those able to weather the wind and rough water in the boats usually good caught trout. Returned ERA men to camp.

FRIDAY May 31

Obtained ERA men at Gull L. Spike Camp in the morning and with them, from 8:30 a.m., to 6 p.m., recorded catches at June L. Again today the S. wind disturbed fishermen and caused them considerable difficulty in anchoring the boats. Thus far, about 70% of the trout returned appear to be from last year's plant and range in size from 8 " to 14½ inches. At the close of the day returned scales to Fern Cr. Hatchery and men to Gull L. Camp. Tended to correspondence and began monthly summaries.

SATURDAY June 1

At Gull L. Spike Camp obtained ERA men to assist in creel inventory at June L. and with them checked creels throughout the day. At 10 a.m., 74 boats on the lake contained 157 anglers, with at least 68 boats still fishing. Brisk S. wind and a more or less threatening sky continued to hinder anglers and force them to group rather closely in the south end of the lake. Returned ERA men to camp at end of day. Completed monthly summaries.

RECAPITULATION

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HATCHERY June Lake, Calif. DATE June 9, 1940

SUNDAY June 2, 1940 *(Give date)*

Obtained ERA (emergency relief administration, a sub- of WPA) help at Gull Lake spike camp and with them checked creels at June Lake ~~throughout~~ the day. Returned ERA men at close of day to camp. In the evening wrote up some notes taken at Little Walker Lake and tended to correspondence. [illegible] at L. A. Ventura Wire, at East [illegible] at [illegible] highway [illegible] and [illegible] highway 395; returned to June Lake

MONDAY June 3.

Obtained ERA help at Gull Lake spike camp and started them in checking of creels at June Lake. Most of the day taken off duty. At close of day returned ERA men to camp. Tended to correspondence. Part of afternoon required to examine and kill deer injured on highway into June Lake; Turned animal over to local wardens for distribution.

TUESDAY June 4

Obtained ERA help at Gull Lake spike camp and directed them to check creels at June Lake during the day. Drove to Bridgeport and thence down East Walker River as far as the State line. In return examined side streams and river itself at intervals to Sweet Water Reservoir. Drove to Green Creek and examined creek at Power house. Returned to June Lake and en route examined Dog Creek in three places. At close of day returned ERA men to camp.

WEDNESDAY June 5

Obtained ERA help at Gull Lake camp and directed them to check creels at June Lake during the day. Half of day taken off. Met Dist. Biologist Brian Curtis and conferred with him during early afternoon. Soaked plankton net and made sample haul in June Lake with Ekman dredge; examined bottom samples. At Close of day returned ERA men to camp.

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(OVER)

THURSDAY June 6

Returned to Bishop. Interviewed Mr. Bailey Johnson on condition of trout and fishing conditions at Fish Trap. At Fish & Game Office conferred with Mr. Fenin regarding fishing of streams for Long Lakes. On return to June Lake ~~Obtained ERA men at Gull Lake camp and with them for part of day~~ checked catches at June Lake. In the afternoon, made plankton haul with new net over course at the surface of the lake for a quarter mile. Examined plankton sample. Tended to correspondence and reviewed literature in Fish and Game received. At end of day returned ERA men to camp.

FRIDAY June 7

Obtained ERA help at Gull Lake camp and dispatched them to check catches at June Lake throughout day. Went to Convict Lake Fish Station. Attended meeting of the conference of Forest Service, U.S. Bureau of Fisheries and Calif. Div. of Fish & Game Officials. Dispatched to June Lake to get to some streams and checked with ERA men. At end of day returned men to Gull L. Fish Camp.

SATURDAY June 8.

Met ERA help at Gull Lake Fish Camp. Checked catch and seeing that trout brought in at June Lake. In early afternoon, visited part of Northern Mont streams -- Spending remainder of afternoon conferred with Mr. Taft at June & Gull Lake Resorts. ERA help to Gull L. Fish Camp. Again in evening conferred with Mr. Taft.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 196

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HATCHERY ~~June Lake, California~~ DATE June 16, 1940

SUNDAY ~~June 9~~ *(Give date)*

~~ERA men assisting on June L. creel inventory were obtained from their Gull L. Camp and checked catches throughout the day; at the close of the day the men were returned to the Gull L. camp. In the afternoon examined the east shores of Grant L. where literally thousands of chub minnows (Siphateles obesus) 1 to 2½ inches long were observed in the marginal water. In the evening drove to Hot Cr. Hatchery and borrowed a hand seine from Mr. Lewis and conferred with him further on the proposed marking of RT.~~

Check of Chub at Grant

MONDAY ~~June 10~~

~~Obtained ERA assisting in June L. creel census project and directed them to check catches throughout the day. Drove to Sonora Pass and in return examined a number of the upper tributaries of the West Walker R. down to Pickel Meadows, for stranded trout. At Pickel Meadows 17 young trout, 1 to 1 3/4 inches long, together with many pollywogs, were seen in side-water (70 degrees F.), but none observed stranded, nor did residents at Leavitt Meadows know of any occurrence of stranded fish. On return examined Green Cr. at two places below the Green Lakes Camp. Returned ERA men to camp. In the evening returned hand seine to Hot Cr. Hatchery.~~

TUESDAY ~~June 11~~

~~Obtained ERA men at Gull L. Spike Camp and directed them to check catches at June L. throughout the day. Tended to correspondence. Half of day taken off duty. Returned ERA men to camp.~~

WEDNESDAY ~~June 12~~

~~Obtained ERA men at Gull L. Spike Camp and directed them and assisted them in checking catches at June L. throughout the day. Drove to upper end of June L. and interviewed and checked creels of anglers on north shore. Returned ERA men to camp at end of day. In the evening conferred with Mr. Nate Milner at his residence on Silver Lake.~~

Nate Milner

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(OVER)

THURSDAY ~~June 13~~

~~Obtained ERA assistants in the June L. creel inventory at Gull L.~~ camp and directed them to check catches throughout the day. Drove to Robinson ~~and Twin Lakes above Bridgeport and examined flow and stream of Robinson~~ Cr. in two places. Observed and made sample counts of suckers and lake ~~chubs (Siphateles obesus) spawning in shallows in the lake.~~ Tens of these rough fish were seen and in situations where control seining could be ~~easily effected were men and equipment at hand. Returned to June L.~~ and returned ERA men to Gull L. camp.

FRIDAY ~~June 14~~

~~Obtained ERA assistants in the June L. project at Gull L. camp and~~ with them checked catches for most of day. Made and examined bottom samples ~~and a plankton sample; the latter haul, made over a course of a half mile~~ at the surface, revealed over a 147,000 Daphnia from Sedgwick-Rafter counts. ~~Bulk of sample placed on display for information of anglers. At end of~~ day returned ERA men to camp. Returned hatchery scales to Fern Cr. Hatchery.

SATURDAY ~~June 15~~

~~Obtained ERA men at Gull L. Spike Camp and with them checked catches~~ for most of day at June L. Tended to correspondence and reviewed ~~literature on fish and game management received. At end of day returned~~ ERA men to Gull L. camp. For the past several days increasing atmospheric ~~temperatures and sultry days have gradually increased the temperature of~~ June L. to a maximum of 67 degrees F. This condition has apparently ~~caused planktonic activity to increase and angler returns to decrease.~~ In the evening, drove to Leevining Ranger Station and conferred with Dist. ~~Ranger Mr. Tinner regarding barriers above and below Gull L.~~ and in regard to the prospects of continuing the Gull L. camp after July 1.

RECAPITULATION

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HATCHERY ~~June Lake, Calif.~~ DATE June 23,1940

SUNDAY June 16,1940 *(Give date)*

Obtained ERA help on June Lake creel inventory at the Gull Lake Spike camp and with them checked catches at June Lake for most of day. Tended to correspondence and reviewed literature in Fish and Game received. Returned ERA help at end of day

MONDAY June 17

Drove to Mammoth CCC camp and obtained five C-boys assigned to help in marking of rainbow trout at Hot Creek Hatchery by Roy Booth, Forest Supervisor of Inyo Nat. Forest. After getting set up and instructing boys in marking of the trout, began marking and prepared 7,575(VV) by end of day. Lost one trout in days marking. Returned CCC boys to camp. Returned to Gull Lake.

TUESDAY June 18

Drove to Mammoth try-C camp and obtained C-boys helping in marking of rainbow trout at Hot Creek hatchery. Marked trout throughout day and completed 14,011, or a grand total of 21,586. Days losses totalled 58. Returned C-boys to camp and returned to Gull Lake.

WEDNESDAY June 19

Drove to Mammoth C-camp and obtained try-C boys assigned to assist in marking of trout (removal of both ventral fins) at Hot Creek Hatchery. Marked 8,493 and completed marking a grand total of 30,079. Days losses total 7, bringing corrected total to 30,015. 13 selected for preservation and display at June Lake. Took measurements and scales from a random sample of 50 of the marked trout at the Hatchery. Returned C-boys to camp and returned to Gull Lake.

~~30 for~~ 00 199

(OVER)

THURSDAY June 20

Marked (VV) and preserved samples of rainbow trout for display at June Lake. Cleaned and repacked marking equipment. Tended to correspond enc. At June Lake checked catches until late afternoon; assisted in planting final allotment of trout to June Lake. Returned fish can and aerator to Hot Creek Hatcher and obtained summary of planting data from Mr. Lewis; experimental group of trout averaged 1.3 per ounce. At Mammoth camp completed report of work progress of try C boys in my charge. Returned to Gull Lake.

FRIDAY June 21, 1940

Gull Lake to Bishop to Sabrina and North Lakes to Bishop and returned to Gull Lake. Examined upper Bishop Creek below Lake Sabrina; Took temperatures and examined part of Lake Sabrina. Interviewed Mr. Hobsen of Lake Sabrina Camp, regarding higher lakes in North fork of Bishop Creek basin. Examined LaMarck Creek above Aspen base and North Lake. In Bishop, had car 3545 surfaced and checked over also obtained supplies. Returned to Gull Lake.

SATURDAY June 22

Tended to correspondence. Prepared portable tank for new Dennis root experiments. At June Lake checked and recorded catches and took scales and measurements from marked trout returned from the lake. During past several days of warm weather, fishing has been described as "slow"; anglers are attempting to fish deeper into the colder water levels. Near the close of day drove to Grant lake and examined progress in the construction of the Grant Lake dam; Returned to Gull Lake.

RECAPITULATION

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10-200

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HATCHERY Gull Lake "Experimental" Station DATE June 30, 1940

SUNDAY June 23 *(Give date)*

Tended to correspondence and checked creels at June Lake throughout day. Weighed, measured, and took scales from all available marked trout of the 1939 series from Hot Cr. Hatchery. Examined a so called "steelhead trout" at Boulder Camp in mid-afternoon.

MONDAY June 24, 1940

Gull Lake to Minden, Nevada, to Alpine Hatcher to Upper Blue Lake and return to Gull Lake. Drove to Alpine Hatchery and left there survey and fish-marking equipment for Brian Curtis.
At Upper Blue Lake, seined and photographed in black and white and Kodachrome film specimens of Black spotted trout. En route to Markleville, delayed for twenty minutes by an accident with the State car, resulting when loose gravel on a curve forced the car out of control and off the road into a ditch. Returned to Gull Lake.

Black-spotted trout

photo of Black-spotted trout at Upper Blue Lake

TUESDAY June 25

At June Lake, checked creels and took weights, scales, and measurements from available marked trout fromtthe 1939 series throughout the day. Reviewed literature in fish and game received.

WEDNESDAY June 26

At June Lake, checked anglers catches and took weights, scales and measurements from marked trout available from the 1939 experimental plant. In the mid-afternoon examined side pools from Reversed Creek near junction of highway and that Creek wherein trout were reported stranded; eastern brook trout were seen in the large pools but were in good condition and did not seem to require rescuing.

(OVER)

THURSDAY June 27

Gull Lake to Bishop to Gull Lake. Entire day spent in Bishop in order to obtain repairs on car 50543 damaged in an accident near Markleville on Monday, June 24. A bent front axle was replace and two new wheles(rim-type) obtained to replace those left front and right rear wheels bent.

FRIDAY June 28

Checked anglers catches at June Lake and took scales, weights and measurements from marked trout from the 1939 series available. During the afternoon, took temperatures from deep water samples obtained at various depths from June Lake; at 2:30 p.m., the surface temperature was 66.0 F. and at 19 meters the temperature was 48.3 F. With the apparatus in use, it was impossible to take samples much below 60 feet.

Check temps!

SATURDAY June 29

Throughout the day checked anglers catches at June Lake and from marked trout of the 1939 series available took scales and measurements. In the afternoon, a hard rain forced most of the fishermen off the lake

RECAPITULATION

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HATCHERY ~~June Lake, California~~ DATE ~~July 7, 1940~~

SUNDAY ~~June 30~~ *(Give date)*

~~Tended to correspondence and prepared routine monthly reports. At June Lake checked angler's catches and took scales and measurements of marked trout available throughout the day.~~

MONDAY ~~July 1~~

~~Day mostly taken off duty. Tended to correspondence and completed monthly field report.~~

TUESDAY July 2

Following correspondence and review of literature in fish and game received, drove to June Lake and there registered anglers's catches and took scales and measurements of marked trout available throughout the remainder of the day.

WEDNESDAY July 3

At June Lake, registered angler's catches at boat landings on the lake and took measurements and scales from marked trout available throughout the day. Fishing continues to be described by anglers as "poor". Many of the recent plant (1940) and some of the 1940 marked trout are appearing in catches of these smaller trout.

(OVER)

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THURSDAY July 4

Checked creel from anglers returning from June Lake at boat landings t t roughout the day and took scales and measurements from marked trout appearing in catches. In the mid-afternoon took three plankton samples at the surface zone of water at three stations in the lake. Divisions visitors at the lake during the da, included Theodore Cecil Mc[illegible] and James Loundagin.

FRIDAY July 5

Tended to correspondence. At June Lake continued checking of angler's catches at boat landings and measured and took scales from marked trout available. For a brief interval during the early afternoon visited Fern Cr. Hatchery; on return to June Lake examined upper section of Reversed Cr. from Gull L. Station to first meadow.

SATURDAY July 6

Throughout the day at June L. checked angler's creels at boat landings and took scales and measurements from marked trout available; angling returns tended to pick up today with several couples returning from the la with near limits including more larger trout from the 1939 plant. Began stud of I.C. Russell's "Quaternary History of the Mono Basin" in geological repor borrowed from Mr. Thomas McKee. Conferred in the early evening with Mr. McCloud regarding the proposed experiment on Gull Lake.

RECAPITULATION

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HATCHERY June Lake, California Date July 14, 1940

SUNDAY July 7 *(Give date)*

At June Lake continued creel census and took measurements, weights, and scales from all marked trout available. Continued study of I.C. Russell's "Quaternary History of the Mono Basin" and reviewed literature in fish and game received. In the evening drove to Hot Cr. Hatchery and borrowed 30 ft. seine for netting of chubs from Gull L.

MONDAY July 8

Most of day taken off duty. In the afternoon distributed jars of samples of 1940 marked trout to boat piers on June Lake.

TUESDAY July 9

This conference w/ Dr. H.S. Davis on treatment for the determination of Gill Lice

In the morning seined samples of chubs of two sizes from Gull L. and took them to Fern Cr. Hatchery for holding; returned 30 ft. seine to Hot Cr. Hatchery. At Convict Cr. Exper. Stream weighed up samples of derris root for experiments and conferred with Dr. H.S. Davis on action of derris and effect of certain other chemicals on Ichthyopthirius. It was the opinion of Dr. Davis that derris root would have little effect on this cili parasite; discussion was held regarding speed of action of derris at different temperatures. Returning to Hot Cr. Hatchery took water samples for parasite analysis and discussed eradication measures with Mr. Lewis.

WEDNESDAY July 10

Practically entire forenoon and part of afternoon required to filter and examine samples of water taken at Hot Cr. Hatchery for free-swimming and encysted stages of Ichthyopthirius. Continued creel census at June L. in the afternoon and reviewed biological literature received; tended to correspondence.

(OVER)

THURSDAY July 11

Measured traverse line for surv. of Gull L. During remainder of morning and early afternoon ran a traverse around the surface level of Gull L. and determined the lake circumference at 7,350 feet; dried line and tape. Continued creel census at June Lake until evening; in the early evening drove to Dr. H.D. Barnard camp below Fern Cr. Hatchery and completed plans for part-day pack trip to Fern Lake.

FRIDAY July 12

Away with Dr. Barnard

In the forenoon rode to Fern Lake and examined lake and outlet stream; lake is fed from melting snow and springs from San Joaquin Fork and is about 15 acres in surface area. Fairy Brook, 6 to 8½ inches were seen and caught on flies by Dr. Barnard. At intervals, whole of small midge flies would descend onto the quiet water in the lake. Returning to June Lake continued creeking of creels and measured and took scales from marked trout available in catches.

SATURDAY July 13

Throughout most of day checked catches and measured and took scales from marked trout available at June Lake. Continued study of I.C. Russell's "Quaternary History of Mono Basin"; experimented with semi samples of derris root as regards mixing with cold water. Powder at first mixes slowly, but soon forms a cocoa-like solution with persistent stirring. In the late afternoon drove to Grant L., stopping to examine flow at L.A.-Venturi weir and on lower Rush Cr. and to examine progress in construction

RECAPITULATION of Grant L. dam.

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HATCHERY June Lake, California DATE July 20, 1940

SUNDAY July 14, 1940 (Give date)

During most of day, agent at boat landings on June Lake, continued registration of angler's catches and took measurements and scales from marked trout available. For a brief interval in midafternoon, drove to Fern Cr. Hatchery and borrowed equipment for use on pack trip into Evolution Valley. In the evening drove to Lee Vining Ranger Stat. and conferred with District Ranger regarding equipment and help for continuatio of June Lake Creel Project and for completion of Gull L. rough fish control project.

MONDAY July 15, 1940

Entire forenoon taken to organize and pack equipment and supplies for pack trip into Evolution Valley and Sixty Lake Basin; during afternoon continued checking of angler's catches at June Lake and took scales and measurements from marked trout available. In the early evening drove to Bishop en route to Evolution Valley; obtained added supplies.

TUESDAY July 16, 1940

Bishop to Robinson Pack station below Kearsarge Pass and packed to Rae Lake Basin. Left Bishop in the early morning and drove to Robinson pack station; transferred and repacked supplies and left for Rae Lakes Basin adjoining Sixty Lake Basin. Trail rough and in places quite precipitous, but weather mild and clear. Arrived at 4:30 p.m. (distance about 15 miles) and set up camp under the advice of the packers that camping in Sixty Lake Basin would hazard torment from mosquitoes, which was found to be true.

WEDNESDAY July 17, 1940

Rode over ridge separating Rae Lakes from Sixty Lakes and at once began prospecting for the drainage in which only steelhead were said to have been planted in 1917. Golden trout were seen spawning in the largest and uppermost lake seen in the east branch of the 60-lake basin. Rode to the west branch and found branch included only rainbow trout in spawning activity; one trout est. 10 inches long seen in a lake near the head of the branch very closely resembled the coastal steelhead but was comparativ thin and poor looking. Rainbow were watched spawning in the stream and outlet of the lake at the head of the basin. Specimens of the trout were

(OVER)

[illegible] line. Returned to camp in Rae Lakes Basin.

00 207

THURSDAY July 18

Rode to west branch of Sixty Lake Basin and examined falls and cataracts where it seemed impossible for trout to migrate beyond upstream. At least no Eastern Brook or Golden trout have been able to migrate into the west branch of the 60 Lake basin. With hook and line collected specimens of the rainbow (or steelhead) trout; trout 9 to 15 inches were seen in the lakes and streams in the west branch. Two trout (one 7 inches and one 12 inches were seen dead in the uppermost lake. Took temperatures, examined flows, sketched and photographed plan of drainage, photographed, measured and took scales from trout caught, returned to Rae Lakes camp.

FRIDAY July 19 (ice on water bucket in morning)

Packed equipment and broke camp. Left Rae Lakes camp and returned to Robinson pack station, the trip requiring the full day with stops for tightening and repacking mules and back trail for one mule stray from the pack train. At pack station repacked supplies into car and drove to Independence to Bishop and return to Gull Lake. Specimens of trout, cross sectioning group caught, preserved in formaldehyde.

SATURDAY July 20

During forenoon unpacked equipment from car 50545. In the afternoon until evening tended to correspondence and reviewed biological literature received. Conferred with Mr. Geo. McCloud on Gull Lake rough fish control project, parasite control at Hot Cr. Hatchery, fish planting in the Inyo-Mono Area, and trip to Sixty Lake Basin.

RECAPITULATION

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HATCHERY June Lake, California DATE July 28, 1940

SUNDAY July 21 (Give date)

Tended to correspondence and at various times through the day reviewed biological literature recieved. During the remainder of the day checked and recorded catches fro anglers at boat landings on June Lake and took measurements and scale samples from marked trout returned. The number of fish of the year in catches has increased to where a typical catch averages about 90% 1940 trout.

MONDAY July 22

In the forenoon tended to correspondence and reviewed biological literature and that in fish and game received. During the remainder of the day checked and recorded catches at boat landings on June Lake.

TUESDAY July 23

Most of the day taken to rearrange and file correspondence and pamphlet literature received and to clean and dust out state car 50543. Tended to correspondence and took remainder of afte noon to check angler's catches at boat landings on June Lake. Winds of high velocity have kept many fisher men off the lake for the past three days and others have grouped in the south end of the lake. In the evening drove to Dombrowski place on Mono Lake for interview regarding Gull Lake rough fish control project and possible county assistance.

WEDNESDAY July 24, 1940 Photo of Gull L. + outlet end of June Lake from glacial moraine.

In the early forenoon climbed moraine above June Lake and photographed Gull Lake and the outlet end of June Lake. Tended to correspondance and took rest of day off duty.

00 209

(OVER)

THURSDAY July 25

Gull L. to Bishop to Mt. Whitney Hatchery to upper Big Pine Cr. to Gull L. In Bishop obtained accessory supplies for proposed rough fish control project in Gull L. At Mt. Whitney Hatchery located key to storeroom and took sample of timbo powder at random from cases stored of timbo stored there. On return made observational trip into Big Pine canyon and to upper Big Pine Cr. and examined stream and took temperatures; when seen the stream was flowing about 10 cfs and was white with turbulence; the lightly milky water was 53 degrees, above the junction of North and South Forks of the Cr.

FRIDAY July 26

Through the day experimented with timbo powder sample obtained at Mt. Whitney Hatchery on Thurs.; the fresh powder killed small chubs 1" long in less than an hour at concentration 1:1 million. A well mixed mud of water and timbo powder 1:1 was found to spread easily when trolled in water. In the late afternoon investigated report of illegal fishing in the restricted area in June Lake.

Timbo experiment for Whitney Hatchery

SATURDAY July 27

Throughout the forenoon continued experiment tests with timbo powder from sample obtained at Mt. Whitney Hatchery. Various concentrations of timbo from 1:1 million to 1:4 million killed all of each sample of small chubs ½ to 1" long. In the afternoon at boat landings on June Lake continued creel census and measured and took scale samples from marked trout and unmarked trout available in catches. In the evening returned fisheries literature borrowed from Mr. Lewis at Hot Cr. Hatchery.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

210

[SIGNED]

65575 12-38 5M.
STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

INSTRUCTIONS FOR MAKING THIS REPORT

At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY ~~June Lake, California~~ DATE ~~August 4, 1940~~

SUNDAY ~~July 28~~ *(Give date)*

Louis Prot fine! Tofpwo there.

~~Tended to correspondence and until mid-afternoon continued checking~~ of angler's catches and the measuring and taking of scales samples from ~~marked and unmarked trout returned from June Lake. From mid-afternoon~~ until evening, joined Forest Service men and residents in fighting severe ~~blaze just north of Gull Lake. Fire was controlled just before engulfing~~ residential district on west end of June Lake.

MONDAY ~~July 29~~

~~Continued registration of angler's catches and the taking of scales~~ and measurements from marked and unmarked trout from June Lake. In the ~~afternoon, during high winds from lake, drove to Gull Lake guard~~ station and examined outlet flow of Gull L.; the flow is now about 110 ~~g.p.m. and the lake appears to be dropping in surface level rather~~ steadily. Also examined map of Gull Lake at guard station drawn by ~~a Forest Service official.~~

TUESDAY ~~July 30~~, 1940

~~Obtained boat and oars from Cherokee Lodge and began detailed re-sounding~~ of Gull Lake in the morning; work carried for and until noon. When brisk ~~wind made maneuvering of the rowboat and the taking of soundings difficult.~~ In the afternoon, drove to Grant L. and lower Rush Cr., stopping to ~~examine flows in Reversed Cr., Rush Cr. at the L.A. Venturi Weir, examine~~ construction progress on Grant L. dam, and examine flows and condition ~~of lower Rush Cr. Much of the new diversion from Lee Vining Canyon to~~ the Mono Aqueduct is completed.

WEDNESDAY ~~July 31~~

Soundings at Gull L. – max 61 ft
Av 37½ ft

~~In the morning, during calm on the lake, completed soundings on Gull~~ L. and totalled and averaged figures; in the series the maximum was found ~~at 61 feet and the average depth at 37½ feet. Tended to correspondence and~~ part of monthly reports while continuing the June L. creel census for the ~~remainder of the day; most anglers reported that fishing was "better", or~~ said that it could still pick up plenty to be call a "good".

00 211

(OVER)

THURSDAY August 1

Completed and typed monthly field report and reviewed biological and fish and game literature received. During part of afternoon, tried out brush hook loaned by the Forest Service as a device to help open up reed beds in Gull Lake; this form of scythe works very well if kept sharp and will be tried on a large scale. Remainder of afternoon taken off duty.

FRIDAY August 2

Day taken off duty.

SATURDAY August 3

Forest Service continued checking of anglers at June Lake and took measurements and scales from marked and unmarked trout, returned. In the mid-afternoon, at Fern Cr. Hatchery, dissected and examined under binocular and compound microscopes examples of "pin-head" fry from June Lake eggs; the trout were suspected of having Octomitus by Mr. I. H. Hussey. No parasites of any kind were located after detailed tissue examinations. Returned to June Lake and continued creel census until late afternoon.

Probably Fern

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

212

[SIGNED]

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DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE August 11, 1940

SUNDAY _____ *(Give date)*

Tended to correspondence and reviewed current biological literature received. For the remainder of the day recorded angler's catches and took scale samples and measurements of marked and unmarked trout returned from June Lake.

MONDAY _____

Left June Lake-to Grant Lake (until midafternoon), drove to Mammoth Lakes and examined particularly Lakes George, Mary and the Twin Lakes [illegible] and outlet streams of these waters. The heavily fished inlet section of Lake Mary was checked for young trout of the year and [illegible] so five fishermen were watched as they caught Eastern Brook and Rainbow Trout 6 to 8 inches long. Following the observations, returned to June Lake and continued the creel census during the remainder of the day.

TUESDAY _____ Clay mud tests at Cutlb.

[illegible] morning, continued checking of angler's catches at June Lake and took scales and measurements from marked and unmarked trout returned by creels. Transferred [illegible] to June Lake in the hold of Mr. Robert Forth and together with him, during the early afternoon, made tests with fine clay mud in [illegible] areas in the south end of the lake. Since the fine clay mud remained in suspension [illegible], it was possible to watch its progress as it permeated those areas of the lake. Returned to June Lake and continued the creel census for the remainder of the day.

WEDNESDAY August 7

Tended to correspondence and reviewed current biological literature received. Throughout the day continued checking of angler's catches at June Lake, took scale samples and measurements of marked and unmarked trout returned. In the early evening left for Bishop, en route to the Owens Valley to investigate fish-use conditions in the lakes and stream.

00213

(OVER)

THURSDAY August 9, 1940

Bishop to Horton Creek Basin by Pony to Gull Lake. Following a hard climb and hike in the morning up into Horton Basin, examined the g and the two lower Horton Lakes carefully for signs of diseased trout, following reports of them received from the San Francisco office and from residents in Bishop. Neither of these trout were seen and inhabitants of a mining camp were positive they had seen no such trout in the three months they had been there. The second and largest lake showed trout raising occasionally, but the lowest lake in the basin showed an almost continual raise of Gull Eastern Brook. Word was received from the camp should trout be taken showing any malady. Returned to Gull Lake.

FRIDAY August

Most of day taken off duty. In the afternoon washed and otherwise clean up State car 00543 and tended to correspondence.

SATURDAY August 10

For most of the day continued the creel census at June Lake and took measurements and scale samples and measurements from marked and unmarked trout available. Early this in the afternoon drove to Fern Cr. L and examined with the compound microscope scale samples saved from trout of special interest from the lakes in the upper Rush Cr. Basin. Scales fr a black spotted, rainbow and eastern brook trout were examined. Returned to June Lake to continue the creel census.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 214

[SIGNED]

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HATCHERY June Lake, California DATE August 18, 1940

SUNDAY Aug 11 *(Give date)*

Throughout the day continued checking anglers' catches at June Lake and took measurements and scale samples from marked and unmarked trout returned. Distributed additional catch record forms to concessionaires on the lake at boat landings.

MONDAY Aug 12

Continued pre-spawning observations at June Lake and took scale samples and measurements from marked and unmarked trout returned in catches. Tended to correspondence and replied to inquiries and distributed some literature received.

TUESDAY Aug 13

Until noon afternoon, continued pre-spawning observations at June Lake and recorded catches, and took scale samples and measurements from both marked and unmarked trout returned. During afternoon visited Mr. Heterow and toured, for volume and extent of discharge, his portable pump used on the Gull Lake Rough Fish Control project. Returned to June Lake and continued the pre-spawning observations for the remainder of the day.

WEDNESDAY Aug 14

Tended to correspondence. Practically entire day taken to complete outline of crew and equipment and recalculate volumes of lake sections and amounts of timber to be used in these sections; new size of map corrected to individual outline maps of Gull Lake to be issued with directions for use in assisting in the rough fish control project.

001 215

(OVER)

THURSDAY Aug 15

Gull L. to Bishop to Independence to Bishop to Gull L. During the forenoon, at June Lake, continued the creel census, recording catches and taking scales and measurements from marked and unmarked trout returned. In the afternoon, drove to independence and obtained second sample of black powder for tests, from supply stored at Mt. Whitney Hatchery. In return, stopped at Tinnemaha Dam to investigate report of fish dying below the dam; catfish were found dying in small numbers from a skin disease resembling furunculosis. Had oil changed in car [illegible] and returned to Gull Lake.

FRIDAY Aug 16

Thoroughly went over the check-3 angler's catches at June Lake and took scales and measurements from marked and unmarked trout returned. Large numbers of marked trout of the 1934 series from Rush Cr. have continued to appear in catches. In mid-afternoon, used a brush hook, loaned by the U.S.F.S. Service to clear inshore path through reed area for boats in Gull Lake; in places the reeds are so dense and interwoven that the margin of lake bottom is completely obscured.

SATURDAY

Tended to correspondence and revised biological report; revised paper by C.M. Gilbert on "Welded Tuff in Eastern Calif."; meanwhile, at June Lake checked angler's catches preceding from Lake L., and took scales and measurements from marked and unmarked trout returned. For and interval during early forenoon, drove to Rush Cr. and L.A. Venturi Weir and examined stream and for Loch Leven reported to be migrating. None were seen, however, after careful search from Rush Cr. Fish Taking Station to about ½ mile above the weir.

Welded tuff paper on "Welded Tuff"

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00216

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HATCHERY June Lake, California DATE August [illegible], 1940

SUNDAY [illegible], 1940 *(Give date)*

timbo c 1:3 million

[illegible] to correspondence. For remainder of forenoon and until mid-afternoon recorded anglers catches at June Lake and measured and took scales [illegible] ed and unmarked trout returned. At Gull L. set up two experiments with timbo powder and used small chubs [illegible] to 1 inch long. All concentrations of the timbo and water up to 1: [illegible] million killed the chubs. [illegible] to pack car [illegible] for trip to San Francisco.

X

MONDAY [illegible], 1940

[illegible] Tioga [illegible] Yosemite [illegible]. In [illegible] Yosemite Museum [illegible] tributary [illegible] conditions [illegible].

TUESDAY [illegible], 1940

[illegible] University of California [illegible] conference [illegible] and [illegible] report.

WEDNESDAY [illegible], 1940

[illegible].

00 217

[illegible]

(OVER)

THURSDAY

[illegible] Lake and other projects in June Lake area.

FRIDAY

[illegible] State gar [illegible] checked over [illegible] in Rio[illegible] [illegible] found short in wiring; found battery [illegible] no gas split cell [illegible] dashboard and [illegible] cell out of function. [illegible] day [illegible].

SATURDAY

Storm for Sonny Pass

[illegible] to [illegible] Sonora Pass. In [illegible] encountered [illegible] cars; [illegible] no gas to [illegible] [illegible] [illegible] [illegible].

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 218

[SIGNED] [illegible]

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DEPARTMENT OF NATURAL RESOURCES

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HATCHERY June Lake, California DATE September 1, 194[illegible]

SUNDAY Aug. 28 *(Give date)*

Through most of day examined and recorded angler's catches at June Lake and measured and took scale samples from marked and unmarked trout returned. Tended to correspondence and reviewed biological literature received. During the past week according to boatmen on the lake, fishing was hindered considerably by a strong wind, but sport picked up presently as the wind lessened in strength. Catches continue to predominate in legal trout.

MONDAY [illegible]

Until [illegible] noon continued examination of catches at June Lake and took scale samples and measurements from both marked and unmarked trout returned. During the remainder of the afternoon conducted experiment with [illegible] at Gull Lake. Tended to correspondence.

TUESDAY [illegible]

[illegible] to courtesy once[illegible], during first part of morning. In L[illegible] vining crew with District Ranger procuring additional help from tri-C unit at Gull Lake [illegible] camp for Gull Lake experiment and also loan of mechanics equipment from District fire unit for the work. In June Lake obtained first of signatures from persons interviewed who use Gull Lake water for domestic purposes. Obtained track car from Mern Cr. Hatchery in preparation for use at June Lodge in evening. For remainder of morning until midafternoon continued creel census at June Lake. For reminder of day continued timber experiments at Gull Lake. In the evening conducted preliminary meeting in organization of volunteer help in Gull Lake project from June and Gull Lake residents.

WEDNESDAY [illegible]

[illegible] morning until midafternoon, continued checking of creels and taking of measurements and scale samples from marked and unmarked trout at June Lake. Complaints are common regarding chumming in the lake with messy mixtures of corn meal mush, canned dog food, varieties of canned corn, pudding, American cheese, salmon eggs, chopped liver, and standard hatchery food (such as is fed at Hot Creek Hatchery). During remainder of day worked with men loaned by Forest Service to clear paths for boats working into reed areas in Gull Lake project. The reed [illegible] turning green at the tops. Took down track car soon as and left lake before late afternoon.

(OVER)

00 219

THURSDAY [illegible]

~~In the morning cleaned and dusted out State car [illegible]. Drove to Mt.~~ [illegible] hatchery during afternoon and obtained samples from cases of ~~[illegible] stored there. At [illegible], in return, had car serviced and lubricated and obtained additional supply of cord for trolling crewed in Gull L. [illegible].~~

timber
Sawyer
@ Nat Wildlife

FRIDAY [illegible]

~~Thursday at June Lake, continued examination of cutthroat and took~~ scale samples and measurements from marked and unmarked trout returned. ~~In interim periods between cutthroat revived old-fashioned lit[illegible] received.~~ In the [illegible] for one hour conducted detail meeting on procedure in Gull ~~Lake project with leaders of open [illegible] stations, outlined limits and signs~~ for disposition of material for treating lake.

SATURDAY [illegible]

~~Conti[illegible] examination of cutthroat at June Lake for [illegible] of day and~~ took scale samples and measurements from marked and unmarked trout returned ~~in [illegible]. [illegible] brief interval during afternoon [illegible] day [illegible]~~ [illegible] (Mono Gulch) in rescue of trout during Gull Lake project. Much lit[illegible] ~~has been [illegible] in this phase of the project by residents and visiting~~ sportsmen [illegible] have been assured that every effort will be made to ~~[illegible] stricken trout as possible.~~

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

60 220

[SIGNED] [illegible]

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STATE PRINTING OFFICE

June Lake, California December 8, 1940

Dec. 1

On vacation leave.

Dec. 2

On vacation leave.

Dec. 3

Examined marginal areas of Gull Lake and check screens and dams above and below the lake. Gull Lake has risen steadily to a point 7 inches above the level when lake was chemically treated on Sept. 11. Although gradually disappearing, the green "raft" of decomposing timbo powder still discolors the lake to the lee. Cleaned lower check screen and with a shovel opened outlet wider and cleared culvert of accumulated debris clogging it. Typed and submitted monthly field report; tended to correspondence. Gull. 9/11/40

Dec. 4

Checked over again map of the Inyo-Mono area in attempt to locate "missing" streams and lakes for Bureau check list; re-typed and submitted streams and lakes located to Bureau office. Examined check screens above and below Gull Lake and cleaned lower screen; outlet flow now running an est. 1½ CFS; margins of Gull Lake, in places, beginning to freeze. Tended to correspondence and reviewed biological literature received.

Dec. 5

Examined and cleaned check screens above and below Gull L. Using a device made with a garden rake, dragged from the bottom of Gull L. samples of water plants and organisms associated therewith; preserved same. Removed remaining experimental live-cars from lake and preserved specimens of Eastern Brook held therein since Oct. 17. Reviewed biological literature received.

Dec. 6

Reviewed biological literature received. Cleaned out State car 50543. Began routine summary of June Lake catch records taken during 1940 trout season.

Dec. 7

Continued summarization of 1940 June Lake catch records. Tended to correspondence and reviewed biological literature received.

June Lake, California December 14, 1940

December 8

Day taken off duty.

December 9

Half day taken off duty. Portion of after-noon taken in emergency trip to Mono County Hospital following painful injury during morning to forearm, in which major structures were cut. In late afternoon met Mr. Brian Curtis and began conference with him concerning future survey program here.

December 10

Continued conference with Mr. Curtis until early afternoon. With him, visited Hot Cr. Hatchery; in return made observational trip via Grant Lake, Rush Cr, L. A.--Venturi Ditch, Silver Lake, Reversed Creek, and Gull Lake.

December 11

Review of Silver L. problems w/Curtis

Continued conference with Mr. Curtis and drafted tentative outline for survey schedule 1940--1943. During the afternoon, visited Mammoth Lakes area; again visited Silver Lake and with Mr. Curtis discussed decline and status of fishing there.

00221 A

December 12

Tended to correspondence and reviewed biological literature received. The remainder of the day was spent reviewing and preparing a note outline on "A Biol. Survey of Thirty-one Lakes and Ponds of the Upper Saco River and Sebago Lake Drainage Systems in Maine," by Gerald P. Cooper and staff. Cleaned check screen at outlet of Gull Lake.

December 13

Tended to correspondence. Cleaned out State car 50543 and after draining and flushing radiator, entered anti- freeze. Examined and cleaned check screen below outlet of Gull Lake; During night, temperature dropped to 10 degrees below zero and by morning about 70% of lake frozen over.

10 of below zero at Gull L.

December 14 (Gull L. completely frozen over)

Prepared revision of outline of survey work program formulated during conference with Mr. Curtis. Tended to correspondence and prepared weekly report. Checked over photo illustrations for project report on Gull Lake Experiment and drafted working outline for report. At close of day examined check screens and dams above and below Gull Lake and cleaned outlet screen; ice has sealed tightly, screen at inlet, but water continues to flow freely.

00 222

A 1552 00

12/15/1940

15 Sun. Day off duty. Tried to correspond [illegible] unloading equipment for State car + [illegible]

16 Mon. In absence of [illegible], [illegible] June Lake, [illegible] State drove to a parking place near highway at June Lake. Returning to Gull Lake [illegible]; there broke up around Fish + Game hatchery & drove it down off the frozen [illegible] lake. Half of day taken off duty.

17 Tues. Entire day taken to check through planting receipts + roster of planting released by Inyo-Mono hatcheries. On roster on which number of planting receipts were not included, the number were recorded to correspond with the planting receipts. Field data recording of planting data.

18 Wed. Turned over stocking records and survey forms for streams and lakes and began copying 1939 planting data from planting roster for Inyo County.

19 Thur. Took advantage of temporary stall in storm to make trip to Bishop for supplies. On return, stopped at Hot Creek Hatchery + discussed location of some streams + lakes + some planting data with R.C. Lewis.

20 Fri. Forenoon and part of afternoon taken to work and movement micromate bandings on disc. Burned into the bottom primary load treatment. Remainder of day taken to continue & complete copying of planting data on survey stocking records for streams + lakes in Inyo County.

21 Sat. Began recording planting data for 1939 for streams + lakes in Mono County on survey stocking records; [illegible], checked bottoms of some streams + lakes on U.S.G.S., Forest Service, and outing maps on board.

00 223

22 Sun. In the morning, continued ~~Continued~~ recording of planting data for streams + lakes on survey stocking records. During the afternoon, checked over lake survey equipment, ~~[illegible]~~ and re-lagged snowshoes in readiness for field work as soon as weather breaks. Snow squalls + stormy

23 Mon. Continued + completed recording of planting data for streams + lakes in Mons Co; checked over receipts and stocking forms and packed receipts for return to S.F. office. Typed correspondence + reviewed biological literature received.

24 Tues. Day off today. Snow squalls + stormy

25 Wed. ~~Went on holiday~~ Intermittent snow squalls

26 Thu. Half day ~~time off~~ off duty. In the afternoon stopped to ~~[illegible]~~ see the postoffice ~~[illegible]~~ Sheldon found in need of repair; ~~[illegible]~~ outlet flow est. 3 CFS. at Bull L. checked Kammer water bottle and rigged up for trip to Revenue Park.

27 Fri. Went to Junction post office. In ~~[illegible]~~ afternoon, checked Sheldon dam below outlet Bull Lake and caulked with ~~[illegible]~~ ends of check screen. The remainder of day, using water sample from Bull Lake, ran chemical tests for ~~[illegible]~~ pH, alkalinity, and dissolved oxygen. Rain + sleet, stormy

28 Sat. Continued tests for pH, alkalinity, + dissolved oxygen of Bull Lake water; unfinished because of rotten weather. Finally gave up some distance ~~[illegible]~~ knowledge of the ice were permanently lost. ~~[illegible]~~ Fished Fish + Game boat ~~[illegible]~~ snow + ice and launched it as was broken clear for boat. Snow squalls

Revenue Park water

29. Sun. trip to Revenue Park lake; chem. tests on water sample

30. Mon. Checked dams, outlets, reported Bull Lake, routine monthly reports; compiled

31. Tues. Day off

97750 9-48 20M SPC

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** June Lake, Mono County

TO: Bureau of Fish Conservation **DATE** May 1, 1939

SUBJECT: Monthly report for April, 1939

As the volume of water in the South Fork of Eel River continued to decline throughout April so, also did the numbers of adult steelhead upstream. As compared with the migration in March, in which a total of 3,142 fish were recorded, that for April (at least to the week ending April 22) reached a seasonal low with 227 steelhead recorded over both fishways. The migration of lampreys also fell off markedly; and where the ends of the dam and apron had been previously blackened by their hundreds, by the end of the month less than 20 were to be seen clinging to the dam at any time. The migration of young fish downstream, however, seemed to speed up as the river dropped in volume. Literally thousands of young King salmon were seen on various days along the river particularly from Benbow Dam to Sawmill and Sproul Creeks. For the three weeks ending April 22, 4,827 young fish downstream were recorded. Of this number 688 were King salmon, 2,188 were Silver salmon, and 1,951 were steelhead. Until a strong current through the downstream trap was broken up by a diversion flume on April 11, losses among the King salmon of the year were heavy. By April 22, when the writer was accompanied by Leo Shapovalov on a general survey of the river from Benbow Dam to Sawmill creek, many small steelhead and Silver salmon of the year were to be seen. In places, side streams were heavily populated with these fish newly appearing from the gravel.

Observations on food habits of American mergansers were continued on April 6,7,8,9,11, and 22.

From April 12 to 15 and from April 17 to 21, Asst. Warden Ira J. Taylor was left in care of the Benbow Station while Asst. Warden Carl Tegen and the writer accompanied Leo Shapovalov to Fort Seward hatchery to mark young King salmon. For a progress and concluding account of this work see the forthcoming report for April by Shapovalov.

The interim day, April 16, was occupied in a return in the morning to Benbow Dam for a check on the determinations of young fish in the downstream migration. In the afternoon a trip was made to a falls (Humboldt: 4S,2E,31) on the Mattole River near Thorn beyond which, earlier in the season, King salmon, it was said, could not pass. The river was examined in detail just above the falls and in two other places about equally spaced (Humboldt: 5S,2E,4 and 5, where tributary streams enter the river). King salmon of the year were present, but generally were not abundant— in most places were not common; young Silver salmon and steelhead however, were common in the sections examined. It is quite probable

97750 9-48 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE April, 1939

SUBJECT: Monthly report for April (cont'd)

that strategic improvement of the barrier would enable many more King salmon to proceed to good spawning gravel upstream.

Part of April 23 and the morning of April 24 were occupied in packing equipment in preparation for leaving Garberville and and the Benbow project. The trip to Richmond was made in the afternoon of April 24.

During 4½ days vacation leave from April 25 to 29, additional equipment and supplies, both for subsequent work at Benbow Dam and for use of the writer in Mono County, were obtained at the S. F. office. A conference with Mr. Alan C. Taft was held on Friday, April 28.

A trip to the East slope, in beginning work particularly in the June Lake area of Mono County, was made as far as Lone Pine on Sunday, April 30.

Jr. Inland Water Fish Reseacher
June Lake, Mono County

37750 9-48 20M SP

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal PLACE June Lake, Mono Co., Calif.

TO: Bureau of Fish Conservation DATE May 31, 1939

SUBJECT: Monthly report for May 1939

On May 1, the trip from Richmond to June Lake was completed. Stops were made at Mt. Whitney and Hot Cr. hatcheries en route and conferences were held with both Mr. McCloud and Mr. Lewis. Preliminary arrangements were made with Bob Lewis through Mr. McCloud for trout for a marking experiment in June Lake. At Bishop, maps of the Mono-Inyo area were obtained at the U.S. Forest Service Office.

The remainder of the day, together with most of May 2-4 were occupied in general acquaintance with the June Lake-Mammoth areas, using U.S.G.S. sheets loaned by Bob Lewis. From time to time general creel checks were made for recognition of fish from the principal lakes and streams. During mid-day on May 4 notes and photographs of an artificial barrier on Deadman Cr. were taken; this barrier has cut off some choice trout stream for two-thirds of a mile below the well used Big Springs Public Camp and could be easily changed to the best interests of anglers and the resort owner who built the dam.

Part or all of May 5-7, 10-15, 17-19, and 31, were used to continue work on manuscripts concerning the migration and merganser studies at Benbow Dam and to attend to an unusually heavy correspondence pertaining to the papers in preparation, change of residence, and needs for residence and work at June Lake.

On May 8 a trip was made to the Long Valley dam project to investigate the "lake" accumulated in an open excavation for the dam. According to Supt. W.F. Rennebohm and his Asst. H. Ewert the pond measured 65 feet deep; I noted further that it was about 220 yards long and 80 wide. Numbers of fish were present, but the character of the water was such that any accurate estimate for fish rescue was impossible. Trips were again made May 12, 17, 20 and 22; and by the latter date the pond level had been pumped low enough for one to see that it would be impossible to haul a seine with a bottom of slimy silt about 3 feet deep. Bob Lewis and I estimated close to 400 fish, mostly suckers, dead on top of exposed mud bottom.

Some time on May 6-7, 13-14, and 20, was taken to checks creels in The Reversed Creek Recreation Area for species, total catch, and stomach samples especially from the June Lake fish.

On May 9 a trip was made with Leon Talbott and fish planting units to the Bridgeport reservoir and East and West Walker Rivers.

Portions of May 16-17 were required to study new performance forms and complete ratins for Assistant Wardens Ira J. Taylor and Carl C. Tegen at Benbow Dam. The rest of the time was largely occupied in conference woth Mr. Alan C. Taft pertaining to the survey and experimental program for the Reversed Creek Recreation Area.

On May 20 a trip was made to Bishop for supplies for residence at Fern Cr. hatchery and to arrange with the Forest Service for tri-C help in the marking of fish.

May 22-27 was required to mark 30,000 rainbow trout from Hot Creek

97750 9-46 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE May, 1939

SUBJECT:

hatchery. Three tri-C boys from Mammoth Camp assisted in the work and did an excellent job with a minimum of supervision. On the peak day 7200 were marked. The trout averaged 2.63 per ounce and were of ungraded stock; the plan was to prepare a plant similar to 40,000 previously assigned to June Lake. A new aerated tank truck from Elk Grove and aerated pick-up units placed the fish in the lake in fine condition; only 16 were lost from various causes.

Using marine catch record booklets sent by Mr. Taft, the creel census work was begun in earnest May 27 on June Lake and has been carried on to date with the assistance of tri-C boys from the Gull Lake spike camp. Over the recent holiday, the actual and conservatively estimated total for fish from June Lake amounted to about 2200. On Monday, May 29, basic data for an average condition factor on the 30,000 trout marked at Hot Cr. was taken from a comparable random sample; a tri-C bou, Bill Hilliard, assisted in this work. In the afternoon on this day arrangements were made with the Carsons to set up creel census registers at both Silver and Grant Lakes.

/s/ ELDEN H. VESTAL

Jr. Inland Water Fisheries Researcher
June Lake, Mono Co., California

37750 9-48 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal PLACE June Lake, California

TO: Bureau of Fish Conservation DATE June 30, 1939

SUBJECT: Monthly report for June 1939

Throughout the month the creel census work on June Lake was continued with the assistance of tri-C boys obtained from the Gull Lake spike camp. The boys have been rather carefully selected and seem to be well adapted to the work. Records are daily kept at the two principal piers on the lake in the marine catch record booklets, which have been adapted to the survey on the suggestion of Mr. Taft. Following the July 4 holiday, which is practically a mid-point in the season, records will be summarized for inclusion in the next monthly report.

Each day, with several exceptions, in the period June 1-18, after taking the tri-Cs to the lake and getting them started in the registration of catches, the main part of the day was occupied in preparation of a manuscript for the American Fisheries Society meetings in the last of the month. This was completed June 18.

On June 6 and 14 trips were made to Bishop largely to service V8 5952. Although the care is in need of several large repairs, such as renewal of the intermediate gear (the slipping out of the 2nd gear has twice nearly caused a bad accident on steep grades), grinding of valves, possibly installation of oversize pistons and new rings, reline brakes, and a new tire, it was deemed unwise to undertake anything but the most needed and least expensive repairs in view of a contemplated change of the car by the Bureau.

On June 13, a pack trip was made with Mr. Slim Tatum, packer at June Lake, Leon Talbott, and others to higher lakes in the Rush Cr. drainage for acquaintance with this area and to assist in the planting of the Eastern Brook trout assigned. Examinations and photographs were made of the stream (Rush Cr.) above and below Waugh Lake. Above the Lake at Rush Meadows, the Southern Sierras Power Company was accepting about 60 CFS (Temp. 58.0 F) but allowing only about ½ CFS (temp. 64.0F) to flow into Rush Cr. below Waugh Lake for 2½ miles of excellent trout stream. Following the trip, arrangements were made with Mr. Killian, superintendent of the Power Company, for at least 5 second feet to flow in Rush creek at all times.

Arrangements were made June 17 with District Ranger Fisher at Leevining for the tri-C boys assisting in the creel census work on June Lake to stay at the Gull Lake guard station in my absence during a trip to Humboldt County. This was done to obviate a transportation problem to June Lake for the boys during this time.

June 19-24 was occupied in a trip to Garberville, Humboldt County, for additional information on the feeding habits and population of American mergansers in the South Fork of the Eeel River. The principal

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FIELD CORRESPONDENCE

FROM: PLACE

TO: DATE

SUBJECT:

drainage of this large tributary was covered during the week and much information was obtained. A number of ducks and ducklings were seen and notes on their feeding habits taken. As in most of the Anatidae at this time of year, there were no adult drake mergansers to be seen; where they migrate to during the breeding season is still one of the interesting questions in the study to be answered. As might be expected, the present population of ducks and their broods in the South Fork is rather highly localized although widely distributed. It will be desirable to again conduct a re-check on the numbers, distribution, and feeding habits of the birds in the last of September or in the first part of October immediately prior to the seasonal immigration of King salmon.

On June 25 a trip to Richmond was made and on the next two days sessions of the 69th annual meeting of the American Fisheries Society were attended and participated in. June 28 was occupied largely in Richmond in miscellaneous work (correspondence, cleaning up of V8 5952, etc.) and the afternoon was spent at the Museum of Vertebrate Zoology in Berkeley in pamphlet work on the merganser problem.

In the morning on June 29, the very excellent symposium on Dams and the Problem of Migratory Fishes was attended at Stanford University. In the afternoon, following removal of personal equipment from former headquarters at the Natural History Museum a return trip to Richmond was made.

June 30 was required in return to June Lake via Yosemite Nat'l Park and Tioga Pass. A visit was made en route to the hatchery in Yosemite.

/s/ Elden H. Vestal
Jr. Inland Water Fisheries Researcher.

97750 9-46 20M SPC

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal PLACE June Lake, California

TO: Bureau of Fish Conservation DATE July 31, 1939

SUBJECT: Monthly Report for July 1939

A retrospect of the work in the Mono-Inyo Area during the month of July divides itself into several phases, somewhat as follows: 1) Work in the vicinity of the Reversed Creek Recreation Area, concerning particularly June Lake and the catch record and special survey work in progress there; 2) the Grant Lake situation; 3) field trips to other drainages and lake basins in the Area; and 4), a miscellany including trips to Bishop for supplies and service of the car, V8 5952.

The period including July 1-6, 12-22,24, 27, 30-31 was spent largely at June Lake. Much of the time was taken, together with the assistance of tri-C boys, in the checking and recording of catches and the taking of additional scales, weights and measurements on the experimental plant of marked rainbow from Hot Cr. hatchery. It is planned to take a re-series of accurate data on the experimental trout at about 30-day intervals as the season progresses for a re-check on the condition factors of these fish when first planted. The latter special information was taken on July 18, 19, and 20. On July 21 and 22 large posters were completed and hand printed calling the attention of anglers to the marked trout in June Lake. More or less time was occupied during the period in correspondence and review of recent literat re on fish and game management.

In the two days, July 30 and 31, catch record data taken at June Lake from May 27 to July 30 was brought together and partly summarized. Of 1151 catches reported, including 2442 anglers, 7869 trout were recorded. Of this number, 7814 were rainbow and 55 were eastern brook. A small number of suckers (Catostomus arenarius) and sticklebacks (Gasterosteus aculeatus)caught were unrecorded. Out of the total number of rainbow, 596 were of the experimental plant of 30,000 from Hot Cr. Considering the numbers for each month, only for rainbow trout caught, we find that during May (3 days) 1450 were recorded; during June 2748 and during July 3616 trout were reported at the two main piers on the lake. Three hundred and sizty-five persons caught and reported trout the last three days in May; 902 persons reported creels in June and 1175 reported creels in July. One marked trout was reported in May, 22 in June and 573 in July. The weights of trout taken follow a somewhat different trend due to the increase, particularly in July, of small rainbow of the year from Hot Cr. Of all catches, 781 weights were recorded, totalling 3336.0 lbs. (The trend in weight of fish in creels was shown in a summary of 201 catches and weights recorded from one of the piers). During May 216 rainbow weighed 176.9 lbs., and averaged .81 lb. per fish. In June, 324 trout weighed 276.5 lbs., and averaged .85 lb. each. But in July, it took 775 trout to weigh 302.7 lbs., and the average weight per trout was .39 lb. In all, then, 1315 trout weighed 756.1 lbs., and averaged

June Lake
7,869 Total
7814 RT
55 ET
Also sucker stickleback

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: PLACE

TO: DATE July, 1939

SUBJECT:

.57 per lb.

Looking ahead with the above notes (considering only the rainbow stock), the figures derived therefrom are a little startling and no less interesting. An average of 124.03 fish per day were reported in the 63 fishing days from May 27 to July 30. If this average is maintained over the full season of 156 days, somewhere near 19,348.6 trout will be caught and these will weigh 5,514.3 lbs., or about 2.7 tons. I'm curious as to the weight of the salmon eggs (largely used here as bait and chum) required in a season to attract and catch over 19,000 trout.

Special survey work on June Lake during the month included the following: On July 8, the C F and G boat was used to map plant beds, gravel and sandy areas, and the locations of sub-surface springs supplying the lake. On July 28, a satisfactory plankton net was made out of some muslin, a piece of wire, and an acme beer can. A haul was made at the surface (Temp. 68.0F) over a course of a half mile and the trap examined. Although a wide variety of organisms were identified, most of the sample consisted of Phytomonad protozoan (chefly Volvox perglobator). Pandorina morum, Dinobryon sertularia, Ceratium hirundinella, a peritrich ciliate, copepods, Spirogyra and rotifers were among other organisms most commonly found. Two other hauls made July 29 and July 31; both were made at deeper levels and showed a much larger proportion of ostracod and copepod curstaceans.

Improving plankton co[illegible] catch.

On July 7, it was reported that Grant Lake was at a very low level; this was investigated in the evning. It was found that sheepmen in the Mono basin were withdrawing over six CFS and little or no water was being released from upper Rush creek by the Nevada-California Electric Corporation. A series of warm days occurring at this time increased the posibility of Grant Lkae becoming over-heated with consequent chance for an epidemic to arise among the biota in the lake. On the following day an appointment was held in Levining with Mr. Ralph Goodman, hydrographer for the Los Angeles Department of Light and Power. Mr. Goodman declared that at least 26 CFS was required by the stockmen for irrigation purposes and to water the sheep on the Mono range. It was clear, however, that less water would be needed within about two weeks, since much irrigation would be discontinued. Goodman agreed to hold the relase flow down if arrangements could be made with the power company to turn down some water supplementary to the regular outflow from Silver Lake. Such arrangements were made and the decline of the Grant lake level checked. On July 10-11, 14, and 22, the flows in and out of the lake and the condition of Grant Lake itself was examined. By July 22, the level

Attempts to work on lake level / [illegible] release "[illegible]" program

Note meeting Grant L. [illegible] vs. Rush Cr. [illegible]

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: PLACE

TO: DATE July 1939

SUBJECT:

of the lake had raised about three inches. Especially, from July 27 on, thunder showers and cool winds materially aided the general condition of the resevoir for its users.

Five days during the month were largely occupied in reconnaissance field trips to other drainages and lake basins in the Mono-Inyo area. On July 10, Saddle-bag and Greenstone lakes were examined and photographed as were others at the very head of the Lundy basin. On July 11, a pack trip was made into Thousand Island lake with 20,000 RT. On July 13, another pack trip was made with an allotment of RT for Garnet and Badger Lakes; en route, Clark lakes 1 to 3 were examined. A trip was made July 17, to the Twin Lakes basin near Bridgeport. Twin lakes and upper Robinson creek as far as and including Barney lake were examined and photographed. On return to Fern creek, a brief examination was made of Lundy lake and diversions and the stream below were noted. On July 23, another pack trip was made with an allotment of 11,000 RT for upper Rogers lake. Notes and photographs of the lake were made. On return, an examination was made of the flow in upper Rush Creek, above and below Waah lake. The latter resevoir was found to be overflowing at the rate of about 30 CFS. Two days later a pack trip was made into the upper Pine creek basin and some lakes and the stream there examined, photographed, and recorded in a field sketch-plan. Incidentally, a visit was made to Moon lake, in upper French Canyon, where on or about July 15, according to a report, Golden Trout had been dynamited. Post-mortem examination of trout found in the lake and in the outlet stream revealed ruptured air bladders and hemorrhagic areas on the surface of the brain. On July 26, a trip was made to the Virginia lakes basin where notes, a sketch-plan, and photographs were made of the upper lakes. From crags near Virginia Lakes Pass a preliminary sketch-plan of the upper Green lakes basin was made.

Trout dynamited

On July 7,21, trips were made to Bishop to purchase supplies and to have the V8 5952 serviced and checked over.

A conference was held at June lake with Mr. Allan C. Taft on July 30, during his visit to the Mono- Inyo Area.

JR. INLAND WATER FISH RESEARCHER

97750 8-48 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal PLACE June Lake, California

TO: Bureau of Fish Conservation DATE August 31, 1939

SUBJECT: Monthly report for August 1939

During the month of August about half of the time was occupied, together with tric-C boys, in continuation of the creel census on June Lake. Although no records were summarized during the month, a cursory review of data showed a decline in catch returns. The numbers of marked trout returned were actually and relatively high. Aug. 1-4, 6,9,14-,5, 19-20, 23,26,27,30, were days spent at June Lake in catch record concern. The monthly re-check on condition factors of the marked RT from Hot Cr. was made August 19 and 20.

During a trip to the S.F. office Aug 10 to 13, some data on condition factors of the marked trout were summarized. The first data, with which to match subsequent CF series taken, was obtained at Hot Cr. May 29. The average and extremes in condition factors of 50 RT (sampled from the same lot as the marked trout) were 1.678 (.146-3.136). A re-check on the factors of the experimental fish returned from June Lake on July 18-20, showed an average and range of 1.726 (1.009-2,808).

Plankton hauls on June lake were again made Aug. 5 and 16. In both, the quantity of phytomonad protozoans was still high, but a much larger number of copepod and cladoceran crustacea was noted. Stomach analyses have shown at times great numbers of cladoceras with little else included. So far there seems little room for doubt that the lake has a tremendous natural food supply.

Also during the trip to S.F., a further conference was held with Mr. Taft on the problem of Gull Lake. On July 30 it was suggested that the lake be treated with 5% rotenone in order to eliminate from it the troublesome chub minnows (Siphateles obesus), which this year have propagated themselves in great numbers in staging a comeback following an epidemic and natural check in their population in June 1938. Pending additional information on Gull Lake (soundings, determination of volume, taking of temperatures, mapping of coves rocky and sandy areas, plant beds, shallows and deeps, etc.) and on the chemical properties of rotenone and the results of tests on plankton, fish and higher vertebrates, it was planned to treat the lake about mid September. Experimental samples of rotenone were ordered from the Chicago branch of S.B. Penick & Company.

On Aug. 3, 17, and 24, examinations were made of the inlet and outlet flows at Gran- Lake. According to Mr. Ralph Goodman, hydrographer for the City of L. A. at leevining, the flow range has been from 15 to 18 CFS , Since the period of thunderstorms occurring late last month, the lake has risen and has been in a more satisfactory condition biologically. No satisfactory explanation has been given, however, for continuation of the large outflow, now excessive since the removal of most of the sheep from the Mono basin range.

97750 9-48 20M SPC

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE August, 1939

SUBJECT:

During the month several field trips were made for examination of lakes and streams in the Mono-Inyo Area. On Aug. 8, a trip was made to the upper Green Lake basin where Summit, Upper and Lower Hoover and Gilman Lakes, as well as upper Green Cr., were examined, On Aug 18, Conness Glacier Lakes (above Saddlebag) and Cascade, Alpine and Steelhead Lakes in the upper Lundy chain were examined and photographed. Some excellent Golden Trout 5 to 7", were seen in Cascade Lake. Accompanied by Mr. Slim Tatum, packer at June Lake, a trip was made Aug 21, to Joos Lake in the Reversed Cr. basin in order to survey it preliminary to replanting it. In view of the popularity and adequate natural properties of the little lake, it was recommended that a small plant of EB be tried in it, - previous plants of RT and BS having failed. Accordingly, 3000 EB were planted Aug 31. On Aug 24, a trip was made to the Parker Lake basin and both Parker Lake and Creek were examined; trout checked in catches here were small and in rather poor condition. Upper Deadman Cr. near Crestview, was examined in two places Aug 25; Deadman goes dry on pumice flats three miles West of Crestview, but is an excellent stream above for about two and a half miles.

Headwaters trib. to Clear

On Aug 26, 50 EB and 5 LL, 3 to 7" long, were rescued from an isolated branch of Reversed Cr. near the Tatum property; the trout were replanted in Reversed Cr. opposite Fern Cr. Lodge. On Aug 28, the two largest of the four Reversed Peak Lakes were planted with 2500 RT from Fern Cr. hatchery; one of the lakes had been previously planted with no result.

A trip to Bishop was made Aug 15 for supplies and general service of V8 5952.

During the month additional supplies were received from S.F. and the same acknowledged.

Elden H. Vestal
Jr. Inland Water Fish Researcher.

97750 9-48 20M SPC

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** June Lake, California

TO: Bureau of Fish Conservation **DATE** September 30, 1939

SUBJECT: Monthly report for September 1939

Again during September, much of the time was occupied in continuation of the creel census, assisted by tri-C boys. Sept. 1 4,9,17,19,21,23,24 and 26 were taken in this work. In the first few days, including Labor Day, Sept. 4, there were few trout taken in comparison with the holidays earlier in the season. By th opening of the hunting season, Sept. 16, catch returns appeared to be on the increase, with more trout (mostly this year's plant from Hot Creek) being returned with considerably less total effort. On Sept 26, creel data for the period July 31 to Sept 26 inclusive was tabulated and examined; a full summary of creel census data for the season will be included in the report for October.

The regular monthly series of CF data, as a re-check on the condition factors of the marked trout from Hot Creek, were taken Sept 21 and 23, The short delay in taking the information this month was due to the inavailability of the torsion balance from the U.S.B.F. at the Convict Creek Experimental Stream.

Considerable time was taken to experiement further with Derris Root on chub minnows (Siphateles obesus) in view of the proposed large scale experiment on Gull Lake which is now planned for next year. Sept 2,3,5-9,14-17,19,27,29, and 30 were mostly required for this work. Without entering into too much detail here, the following notes might be included regarding the nature of the work; Chubs entered into preliminary solutions of Derris 1:35,000 and 1:66,000 at 1:55 p.m., temperature 58.0 F., were all dead in 1 hour. Another lot of chubs placed in two containers of Derris and water 1:40,000 at 2:11 p.m., lost equilibrium in 12 minutes and at 2:35 p.m., all were belly up with only very weak, but regular, opercular movements discernible. By 3:15 p.m., all of the chubs were dead. Using another solution (Derris thoroughly mixed with a little water to resemble a light colored cocoa before using) Derris 1:2,000,000, with a starting temperature of 48.0 F in Fern Creek, 5 chubs 2 3/4 to 3 inches long were entered at 11:10 a.m. By 12:40, the fish began to show distress and at 12:59 one of the chubs began to go wild in the characteristic reaction to the chemical. From this time on, one after another of the minnows bellied up in short order and by 3:10 p.m., two were dead (solution 57.5 F). At this time a minnow that had completely lost equilibrium was transferred to fresh aerated water. By 4:55 p.m., all 4 minnows left in the tank of Derris 1:2 million were dead, but the minnow in fresh water regained equilibrium gradually and subsequently fully recovered. The latter finding at once suggested what I would term a threshold of tolerance to the poison, beyond which recovery of equilibrium and normal physiology

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DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: PLACE

TO: DATE

SUBJECT:

were impossible. Further experiments have strengthened this contention. In one experiment, 5 RT fry, rescued to fresh aerated water, after completely losing equilibrum, fully recovered; but the rate of recovery was much longer for two of the fry allowed to remain in the poison for a longer interval after fully losing balance. Water plants (Nitella, Potamogeton, Spirogyra, and some other green algaw) were allowed to remain in a solution of Derris 1:100,000 for 4 days. Meantime two lots of chubs entered into the trough with the plants were quickly killed. at the end of 4 days, microscopic examination of sections of the plants showed them to be alive and apparently in good condition with only local cellular changes in cytoplasmic constituents noticeable (changes in cell wall, granulation, chloroplastids, etc.,). Aside from several experiments in the new future, a rather complete series of experiments are planned for next year, on both lakes (glacial tarns of various sizes) and streams (sequestered sections relatively unimportant to the Waltonian horde).

The period Sept 10 to 18, inclusive, was taken on sick leave to Richmond, during serious family illness.

Field trips were taken Sept 18,22, and 28. On Sept 18, on return from a trip to Bishop, via Benton and Black Lake basin, afforded some insight into streams on the Round Valley side of the White Mts. Practically all these streams are too steep and the drainages too arid to support much fish life. Mathew Creek, near Benton, is apparently the most suitable stream in the section. On Sept 22, a short trip was made to Parker L. basin and the stream and weir examined; on this date thunderstorms had increased the flow by apparently half. On Sept 28, help was given Mr. I. J. Hussey at Fern Cr. hatchery, in releasing Black-spotted and Rainbow trout in the upper Saddlebag Lake section. Four tri-C boys were loaned by the Forest Service to help pack the fish in shoulder cans.

Trips were made to Leevining and Bishop for supplies and service to V8 5952 on Sept 2, 18, and 20.

&

Jr. Inland Water Fish Researcher
June Lake, Mono Co., California

97750 9-48 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: ELDEN H. VESTAL **PLACE** June Lake, California

TO: BUREAU OF FISH CONSERVATION **DATE** November 1, 1939

SUBJECT: Monthly report for October 1939

During the month of October the days Oct. 1,3-4, 5,8,10,18-21, 23,26-29, and 31 were mostly taken in continuation and conclusion, for the season of 1939, of the creel census on June Lake. Preliminary summaries of the catch record data were made on Oct 3 and 4. Oct 19 and 20 were required to take an additional scales, weights, and measurements as information basic to another monthly series of condition factors from the marked trout planted in May from Hot Creek hatchery. During Oct 27 and 29 stomach samples were taken at random from catches recorded. On Oct 31, final summaries of catch record data were made; and the following somewhat surprising notes were obtained. The total number of fish, all kinds, recorded during 156 of the 162 days in the season was 18085, or an average of 113.9 per day. Seventy-one of these were Eastern Brook, probably migrants from Gull Lake; the rest (18014) were rainbow trout. The total of actual weights recorded amounted to 4714.04 lbs., or 2.35 tons. From this figure it is seen that the average weight per fish was about .38 lbs,; thus, it is probable that had individual weights of all fish been taken, the total catch weight (from reported catches) would be nearer 6872.30 lbs., or about 3.43 tons. The total number of persons in boats reporting catches was 4712. Of the total number of trout reported, 3224 were marked (AD & LV) of the Hot Cr. series planted in May; this represents about 10.7 per cent of the original plant. A form submitted to concessionaires on June Lake revealed that at least 36 cans of corn, (for chum), 1800 jars of salmon eggs for chum, 2628 jars of salmon eggs as bait, 26,000 angleworms, and about 1822 grubs (Prionus californicus) were sold to anglers. It is estimated that (excepting the grubs) these figures are only about one-third of the bait materials actually used for the season, since most people bring their baits with them.

Estimate via Conservation

Several days during the month were taken in special work. On Oct 5, a backdrop, to be used in color photography of California fishes, was painted in oils. Oct 7, the day generally snowy and inclement, was taken to sort photographs prepared this year of streams and lakes in the Inyo-Mono Area. On Oct 12, 2000 Eastern Brook were marked (AD & LV) at Hot Cr. hatchery for planting in Little Walker L. Nearly all, of Oct 13 was required to build and paint a large aquarium to be used in the color photographic work. On Oct 16 and 17, trips were made to Hot Cr. hatchery, Rush Cr. Egg Collecting Station, and to Carmen L. Egg Collecting Station for photographs of Rainbow, Loch Leven, and Eastern Brook trout, respectively, in breeding colors. Conferences were held Oct 21 and 22 with Mr. Burton Frasher (Frasher's Fotos, Inc., Pomona), in which technical aspects of color photography were discussed and contact proof pictures and various Kodachrome transparencies were critically viewed.

97750 9-48 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE Nov, 1939

SUBJECT:

On Oct 23, a gill net was set and hauled on Gull Lake and scales, measurements and stomachs were saved from the Eastern Brook trout caught. Oct 24, a day generally snowy and inclement, was taken to segregate and pack equipment and materials to be taken to Mt. Whitney, in transferring headquarters for the winter. A series of stomach analyses for July from June Lake was completed and data recorded Oct 25. Next day was required to re-summarize, correct and return weekly reports from Benbow Dam Exper. Station, Mar 26 to May 13 inclusive, sent by Leo Shapovalov.

Several field trips were made during October, largely to gain familiarity with territory hitherto unseen. On Oct 2, the section of Owens River below the Thompson and Arcularius ranches was visited; a return was made through the Shaft #2 and Indiana Summit section which has been honeycombed with roads by the City of L. A. On Oct 14, a trip was made to Bishop Cr. basin as far as Power House #2; the drainage and stream was briefly examined as far down as the junction below plant #4. On Oct 15 the area near Shaft #1 and Devil's Punch Bowl was visited, where pumping operations from the Mono tunnel have created a small lake.

On Oct 30, a trip was made to Mt. Whitney Hatchery to transfer equipment and materials to winter headquarters.

Trips were made to Bishop for supplies and service to V8 5952 Oct 6,14, and 30; service and supplies were obtained in Leevining during trips to this place Oct 9 and 20.

District Biologist

97750 9-46 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal

PLACE Mt. Whitney Hatchery, Independence, Calif.

TO: Bureau of Fish Conservation

DATE November 30, 1939

SUBJECT: Monthly report for November 1939

The program for the season at June Lake, Mono County, and summer headquarters there were formally closed on Nov. 2 by a trip to the San Francisco office. During the period Nov. 3-8 (the days 3,7, and 8 being mostly spent at the S.F. office) conferences were held with Mr. A. C. Taft and Mr. A.E.Burghduff, part of Nov. 8 was taken to obtain bids on the old car, V8 Sedan 5952, and at various hours, machines in the Bureau of Marine Fisheries were used to calculate condition factors and summarize figures on catch returns at June Lake.

Following a trip to Garberville, Humboldt County, on Nov. 9, the period Nov. 10-18 was occupied in threefold purpose, namely: To be of service to the salmonid migration survey at Benbow Dam Exper. Station, to gether additional notes on the relation of the American merganser to Eel River inland fisheries, and to make a general reconnaissance of at least the South Fork of the Eel drainage in the brief time at hand. The two latter purposes were naturally more or less integrated.

At Benbow Dam Exper. Station, conferences were held with C.A.Woodhull in charge, and C.C.Tegen, who at present is assisting. Some notes and present schedules were reviewed and the general routine in detail, as conducted during the migration season 1938-1939, was discussed. Several local changes in the mechanical set-up at the South ladder was suggested and completed during the period. Sketch-plane were prepared and lumber ordered for a weir to be built into the top of the North ladder; sections for the weir were to be prepared for immediate installation on removal of the flashboard extension and "I" -beams by the Northern (Benbow) Light & Power Company.

On Nov. 12, together with Fred Krieg from Fortuna, the lower Eel River from Palmer Cr. to Fulmor Bridge was examined for both immigrant salmonids and fish-eating birds. King salmon in abundance (looked like stacked cordwood in places) were seen corwded in Fernbridge pool. Adult steelhead and halfpounders were seen frequently leaping from the water at Fulmor and Dungans pools. 83 pleasure boats were counted at lower Dugan and Fulmore. A large number of fish-earing birds, mostly gulls, were seen from Fernbridge to Fulmore bridge; at Snag pool, 3 mergansers were observed. On return to Garberville, stops were made along the lower Eeel River at Weymouth, Scotia, Rio del, Holmes, and Dyerville. For want of adequate fall rains, the river is in very poor shape and there is not enough water to amply deepen riffles for passage of immigrant fish. Many have been stranded and died; more have already struggled upstream to spawn and die. But many hundreds are yet waiting to move upstream. If rains do not occur very soon there will be a tremendous loss this year to especially the King salmon fishery in the Eel basin.

97750 9-48 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE November, 1939

SUBJECT:

Along the South Fork of the Eel River a census of Mergansers was made the same day (Nov 12) from Surveyor's Canyon to Dyerville; C.C.Tegen assisted in this in the upper half of the river down to Benbow Dam. 156 ducks, birds of the year and adult females, were seen. It is interesting that 118 of these were seen in the section from Benbow Dam to Dyerville.

Attempts to collect mergansers for stomach examinations were made on November 14, 16, and 17; despite previous experience in stalking them, the birds repeatedly escaped shots and only 3 ducks were obtained. However, many more were watched while feeding on riffles and in pools.

On Nov. 15, at the request of sportsmen in Garberville, a trip was made again to the falls on the Mattole River, 1p miles from the Schreiber ranch, and the barrier examined and photographed. with the extremely low water conditions (2/3 CFS) prevailing, an exceptionally good view of the ledge and plan of the barrier was obtained. Contrary to former belief (at higher water), there is no deep pool just below the falls from which King salmon and steelhead can leap to clear the barrier; and in view of this condition and the presence of several miles of fine spawning gravel upstream as well as the present existence there of a narrows to facilitate spearing of fish, it would be highly desirable to improve the falls at once. In its present exposed condition a very small amount of powder (two boxes of 40% Giant) well placed would greatly improve the barrier. If drills and single jack were available, much less powder would be needed; probably a half box would suffice.

The trip in return to San Francisco was made Nov. 18. On Nov. 22, V8 Sedan 5952 was turned in at the S.F. office. Nov. 19 to 30 has been taken in vacation leave.

District Biologist, Inyo-Mono

97750 9-48 20M SPO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal

PLACE 341-23rd Street
Richmond, California

TO: Bureau of Fish Conservation

DATE January 3, 1940

SUBJECT: Monthly report for December 1939

A. Major Activities:

1. December 8-9 were required to complete tabulation of data from stomach analyses of 120 June Lake rainbow trout.

2. Practically all of December 5, 11-15, 18, 19, and 20 were taken to completely re-tabulate, check, and re-summarize catch records taken at June Lake the past season. Calculating machines at the S. F. office in the Bureau of Marine Fisheries were used to expedite this work.

B. Minor Activities:

1. December 1-4 and 23-30 constituted 7½ days vacation leave taken during the month.

2. At Stanford University, on December 6, discussed with Leo Shapovalov some details of migration studies this year at Benbow Dam Experimental Station; with him, made some final corrections on weekly reports from the Benbow Station, April 2[illegible] to May 13, migration season 1938-1939; and lastly, with Shapovalov, looked over newly filed stream and lake survey records for coastal streams.

3. Part of December 8., 21 and all of 22 were used in obtaining and writing up further notes on the American merganser at the Museum of Vertebrate Zoology in Berkeley and to continue a revision of a paper on their food habits in the South Fork of the Eel River.

C. Miscellaneous Activities:

1. All of December 7, and parts of 9,11,14,16,19,20, and 21 were utilized in a miscellaney of correspondence, review of recent literature in fish and game conservation, and filing of reprints and publications received.

2. Part of December 12 was required to check over and return a report of performance submitted by the Bureau.

District Biologist

STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

INSTRUCTIONS FOR MAKING THIS REPORT

At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY [illegible] ~~[illegible], California~~ DATE ~~September 4, 1940~~

SUNDAY [illegible] 1 *(Give date)*

~~Continued creel census at June Lake and recorded age-groups~~ and numbers of marked and unmarked trout in catches. Summarized data ~~for monthly reports and completed all but field report. During~~ mid-afternoon, drove to Reversed Cr. and checked outlet and entering ~~[illegible] from as far as Horn Cr. Lodge, returned to June Lake~~ and in interim periods of creel census reviewed fish and game literature ~~received.~~

MONDAY [illegible]

~~Continued the creel census at June Lake and recorded marked~~ and unmarked trout brought in. Completed and typed monthly field report ~~and [illegible] correspondence.~~

TUESDAY [illegible]

~~[illegible]~~ volunteer [illegible] meeting at June Lodge. Continued creel census at June ~~Lake [illegible] and at the [illegible] deliveries.~~ Afternoon ~~interrupted by a fire occurring below Silver Lake, which burned [illegible] 1200 acres [illegible] above Rush Cr. [illegible] Calif.; drove~~ to location [illegible] remained on call until latter of forenoon over. In the ~~evening conducted detailed meeting on procedure with volunteers in Gull~~ Lake rough fish control project at June Lodge; all volunteers not in ~~attendance because of bad weather and of Silver Lake fire.~~

WEDNESDAY [illegible] 4

~~Continued the creel census at June Lake during forenoon;~~ few catches were brought in because of high winds sweeping the lake. At Gull Lake ~~tended to correspondence and reviewed biological public tips received.~~ Remainder of day taken off duty.

00 243

(OVER)

THURSDAY Sept. 5

[illegible] used at Gull L. Sept 11. Continued on to Independence and called at home of Harlan Walters; in his absence, left message on Gull L. project with Mrs. Walters. At Mt. Whitney Hatchery conferred with George McCloud and [illegible] of time spent for remaining cases yet unsolved. Returned to Gull L.

FRIDAY [illegible]

[illegible] correspondence; [illegible] for observation for [illegible] of clubs from Gull L. Remainder of day spent cleaning out cellar space in Gull L. [illegible] for equipment and supplies for Gull L. project to be gathered on Monday. In the evening, drafted panels of map in various [illegible] work, and [illegible] procedure [illegible]

SATURDAY [illegible]

[illegible] hatchery check on lake [illegible] and oil on hand for Gull L. work.: pick-up truck at hatchery not available [illegible] equipment collected in Gull L. project. After [illegible] snow stakes at Crestview Highway Maintenance Stat., [illegible] markers on Gull L. Cut new lines for extra use in trout in [illegible] in lake.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

244

[SIGNED]

68675 12-38 5M.
STATE PRINTING OFFICE

STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

Sept 11, 1940 Gull L. Chem treatment

INSTRUCTIONS FOR MAKING THIS REPORT

At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY June Lake, California DATE September 15, 1940

SUNDAY September 8 (Give date)

Tended to correspondence and prepared weekly report. Continued the creel census at June Lake boat landings and recorded catches brought in. Relatively large numbers of trout of the year from Hot Cr. Hatchery still make up most of the trout returned, although a few larger and older trout are brought in.

MONDAY September 9

Throughout the day gathered equipment and supplies from residents in the June Lake area for the Gull Lake project; boats for marking the lake were hauled from June Lake and set anchored into position according to map of the project. Yellow-flagged snow stakes set up around shore line and in anchored boats. Supervised excavation of pit dug by McMb Co., for fish removed from Gull Lake. Helped unload chemical sent from Mt. Whitney Hatchery for Gull Lake project; samples from newest bags of timbo powder tested with small chubs from Gull Lake and found to be very effective.

TUESDAY September 10 GD 245

In the morning supervised completion of pit for chubs from Gull L. and assisted in hauling of trolling boats and boats for pumping treated water to Gull Lake. During the afternoon held final meeting with Gull Lake volunteers at Gull Lake and gave teams final directions. Leaders especially told to caution men in their teams to follow directions given in individual maps issued teams and to concentrate on making every ounce of the powder do its work. In the evening, met Alan C. Taft and Dr. George Myers at June Lake and held conference on strategy planned for the Gull Lake project.

WEDNESDAY September 11, 1940 Gull Lake Chem. treatment

From 3 a.m. until 5a.m., with Robert Gerth Jr. from June Lake, set out apportioned quantities of timbo powder at distributing stations along west and north shores of Gull Lake. At 6 a.m., met Gull Lake volunteers at inlet end of lake and again went over line-up of teams, following roll call; teams sent to stations and told to prepare for starting signal. At 8:05 signal given to begin and remainder of day, until 3:30 p.m., spent distributing timbo powder and treated water in Gull Lake. Mixing teams, distributors, pumpers around the marginal zones, and rescuers on the whole cooperated very well and within a half hour large numbers of chubs began to appear. At the end of day spot special detail of 6 boys into inlet areas for second treatment of this section. Set gill net in Gull

(OVER)

THURSDAY September 12 Drew gill-net set in Gull L. and found 45 chubs enmeshed. (Later in the day re-set net in the deepest part of lake)

With A.C Left used back pump to treat outlet section between culverts near U.S. Forest Service Guard Station with heavy concentration of timbo. then examined carefully marginal zones of Gull Lake, paying especial attention to reed and marsh areas, for signs of live fish of any kind. Large number s of dead chubs and a few dead Eastern Brook trout were seen at various depths; dead dragon-fly, damsel fly larvae were found. Large numbers of dead leeches were seen. Suckers seemed to be unaffected by the timbo treatment, deadly to most other forms of life in the lake. No living fish life was found except for several chubs 5 to 6 inches long that were almost dead. All plant life in the lake appeared unaffected.

FRIDAY September 13

Drew gill-net and found one dead chub; re-set gill net in deep part of lake. Helped men return boats and equipment borrowed from residents in the June Lake area for the project. Supervised county men sent in by Supervisor Walter Dombrowski to rake up chubs and otherwise clean up shores. With Robert Gerth Jr. of June Lake, again carefully checked entire shore-line for signs of fish life but found none; at this time not even a chub or other fish in the last stages of the dying condition were found. With Mr. Gerth took 5 gallons of water from deepest part of lake (49.5 degrees Fahrenheit); obtained RT fry 1 3/4 inches long from Fern Gr. Hatchery and placed two in the deep water sample. In 37 minutes the 2 trout were belly up and an hour later were dead.

SATURDAY September 14

Drew Gill net but found nothing in it after 19 hours setting; re-set net. With Mrs. K.H. Vestal, returned equipment borrowed from U.S. Forest Service and again examined entire shore zone of Gull Lake; dead fish were seen the entire route; aquatic birds (coots, egrets, American bittern Calif. gulls, Pacific terns) were seen and seemed unaffected after presumably drinking water from the lake. A pint of the lake water taken internally by myself had no effect whatsoever. Drove to Hot Cr. Hatchery and obtained 30 foot seine from Mr. Lewis in order to draw in "rafts" of dead chubs in Gull Lake around its margin. With a back pump borrowed from the U.S. Forest Service treated for the third time the inlet stream and springs above Gull Lake, although no sign of fish life was seen in them at this time. It seems certain that the experiment on rough fish control at Gull Lake was a complete success.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOST	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 246

[SIGNED]

68575 12-38 5M.
STATE PRINTING OFFICE

June Lake, California September 22, 1940

Sept. 15

With committee of sportsmen selected by Mr. Wallace Gerth of June Lake, thoroughly examined Gull Lake, paying especial attention to inlets and reed and marsh areas. Lake found completely devoid of fish life by the group, but gratifying were the finds of abundant scuds and damsel-fly larvae, alive and apparently healthy. Hundreds of thousands of leeches were killed by the timbo treatment. A gill net drawn before the group was empty; net was re-set at once. Returned outboard motor and accessory equipment borrowed from June Lodge. Tended to correspondence and reviewed biological literature received. In the late afternoon borrowed outboard motor for use at Gull Lake from Gerth landing.

Sept. 16

Examined marginal areas and outlet of Gull Lake; thousands of chubs and an occasional trout continue to line the shores despite over 2 tons cleaned up by county laborers. In leaving conferred with Supervisor Walter Dombrowski on additional help in cleaning up chubs from shores of Gull L.; left word with asst. to Dist. Ranger for communication on tri-C help to augment that from the county. Returning to Gull L. made shore-line counts of chubs and trout; including only trout/chubs 2 to 9 inches long the timbo treatment killed 392,500. A total of 243 EB and 9 LL were remove or seen dead in Gull L.

Sept. 17

From time to time throughout the day, supervised efforts of county laborers in cleaning up chubs from Gull L. Again examined entire marginal areas of lake and drew and re-set gill net. At Fern Cr. Hatchery obtained pack cans and trout fry for continued tests at Gull L. With committee of two residents from June Lake obtained deep water samples at Gull L. at a depth of 60 ft. At 3:18 p.m., surf. temp. 59.5 F; deep temp., 49.5 F. In the evening, conducted final meeting with volunteers in Gull L. project at June Lodge and using deep water obtained in afternoon experimented with RT fry. The fry turned belly up in 1 hr. 17 min.

Sept. 18

Returned outboard motor loaned by Gerth landing. June L. to Bishop to June L. to Gull L. In Bishop had State car serviced and cleaned and obtained supplies, chiefly part of cement necessary for permanent barriers above and below Gull L.

Sept. 19

Day taken off duty.

Sept. 20

Day taken off duty.

Sept. 21

Returned gasoline drums and pack can to Fern Cr. Hatchery. Continued around "loop" in observat. trip to Rush Cr., Grant L., and lower Rush Cr. Grant L. dam is now near completion and large tracts of aspen grove and brush are being cleared below Rush Cr. Est. by bulldozers. At Gull L. made two small live cars for holding trout fry and experimenting with them in Gull L. Took fry for holding to June L. for remainder of afternoon continued creel census at June L.

00 248

00 247

STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

INSTRUCTIONS FOR MAKING THIS REPORT

At the end of each week forward a concise report of the official duties performed during the week. State condition of the weather, number of fish taken, spawned, etc., and any items of interest connected with the work.

HATCHERY June Lake, California DATE September 29, 1940

SUNDAY Sept. 22 (Give date)

Tended to correspondence and prepared weekly reports; reviewed biological and fish and game literature received. Remainder of afternoon taken off duty.

MONDAY Sept. 23

Drove to Fern Cr. Hatchery and checked on report that screen for Gull Lake check dams had been sent there by Hess Lumber Co. in Bishop. Screen at hand but was unable to obtain entrance to hatchery. Returning to June Lake, continued the recording and checking of angler's creels, until midafternoon. For remainder of day experimented with RT fry on water from surface of Gull Lake; the water turned the fry belly up in 30 minutes.

TUESDAY Sept. 24

249

Tended to correspondence; arranged for county men to fill chub pit at Gull Lake. Checked back through survey notes and figures from soundings in Gull Lake and recalculated volume and concentration of Gull Lake water to timbo powder used on Sept. 11 during Gull Lake project. Expending volumes and concentrations used in experimental work, found that concentration used to remove fish life was ~~1:1,111,000~~ 1:2,089,000

WEDNESDAY Sept. 25

For a time in the morning supervised filling in of chub pit at north end of Gull Lake; job completed by end of the day by men from Mono County employ. Drove to Bishop and obtained remainder of cement needed for check dams above and below Gull Lake.

Made observational trip up Bishop Cr. beyond power house #4 and examined flows above and below main intake to power house. Returned to Gull Lake.

(OVER)

THURSDAY Sept. 26

Starting at 5a.m., drove to Twin Lakes above Bridgeport and at once set gill net near upper end of the upper lake. Examined marginal area carefully for inlet streams and beds of aquatic plants and examined dams and control mechanisms at outlets of both lakes. In midafternoon drew gill net after having set 7 hours and found 7 chubs (Siphateles obesus) 5 to 6½ inches long and 2 suckers (~~Pantosteus lahontan~~ Catostomus arenarius) 6 and 7 inches long. Returned to Gull Lake. In the evening formulated reply to William Dill regarding suggestions for fish treatment of Huna Lake.

FRIDAY Sept. 27

Day taken off duty. In the evening tended to correspondence and reviewed biological literature received.

SATURDAY Sept. 28

Collected catch record forms from piers at June Lake and distributed additional forms to last until last of season; tended to correspondence and continued work on biennial budget to Bureau office for district.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 250

[SIGNED]

65675 12-38 5M.
STATE PRINTING OFFICE

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

00 251

FROM: Elden H. Vestal PLACE June Lake, California

TO: BUREAU OF FISH CONSERVATION DATE October 1, 1940

SUBJECT: Monthly report for September 1940; map supplement.

Major Activities:

1. The creel census at June Lake was continued during the month of September on practically the same basis as the previous month. However, due to other work looming large, fewer days were spent in person in recording of catch record and other data. From time to time, catch record forms completely filled in by the operators of boat landings were collected and new lots of forms equal in amount were distributed. Following Labor Day, the third and last principal holiday of the season, there was a marked drop in usage of the lake. Catches continued, however, to predominate in fish of the year planted from Hot Creek State Hatchery. Again this season, the concurrent deer hunting season in District 4½ apparently has not even temporarily increased the lake usage and creel returns.

The month saw the entrance of the lake into typical fall season conditions with reeds and other aquatic plants entering distinct retrogression along with terrestrial grasses, shrubs, and trees.

The lake level continued to drop rapidly and by September 30 was 26 inches below the high water level of spring. Coots and Eared Grebes tended increasingly to replace Calif. Gulls, and took heavy toll on Sticklebacks.

The days September 1-4,8,21,23,28-29, were spent wholly or in part in continuing the creel census.

2. September 5,6-17,23-25,30 were occupied largely in working toward and bringing to successful completion the first phase of the Gull Lake Rough Fish Control project. Sept. 5,6-10 were required in preparation for the experiment and included: a detailed evening meeting with volunteer personnel signed up to assist in the project, which meeting designed to familiarize the men thoroughly with the theory and practice of the experiment; a trip to Mt. Whitney Hatchery for final series of samples from cases of timbo stored there; tests on same on chubs from Gull Lake; location and supervision of excavation of disposal pit for dead fish at north end of lake; completion of panels of men in various teams and revision and completion of map on procedure in the experiment; preparation of yellow-flagged markers using snow stakes from State Highway Maintainance Station at Crestview; location and gathering of supplies and equipment mostly property of residents in the June Lake area, such as boats, outboard motors, fuel cans, galvanized wash tubs and pails, extra rope, anchors, sixty burlap sacks, etc.; flagging of Gull Lake to indicate subdivisions for teams working on the lake; receipt of total quantity of timbo powder from Mt. Whitney Hatchery and tests on chubs with samples from newest material from Los Angeles. On Tuesday, Sept.10, 8 rowboats for trolling chemical and 3 larger

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

TO:

SUBJECT:

PLACE

DATE Sept, 1940

boats for pumping into marginal areas were hauled from June Lake. The work was completed by 1 p.m., at which time a final meeting, requiring most of the afternoon, was held with the Gull Lake volunteers at Gull Lake. Leaders of teams were given individual maps (see supplement) of the Gull Lake Project to be distributed among their men on which were alloted sections of operation and instructions; men were cautioned to follow directions and to make every last amount of chemical do its work. Late in the afternoon laborers from Mono County used truck loads of dirt to completely shut off the outlet of the lake. The latter move affected negligibly lower Reversed Creek, since adequate supply entered from a spring about 120 yards below the outlet barrier. In the evening, at June Lake, a conference with Mr. Alan C. Taft and Dr. George Myers, from Stanford University, on strategy planned for the project.

The first phase of the project, including chemical treatment and removal of fish life, was accomplished on Wednesday, Sept. 11. From 6 a.m. until 8 a.m., with Robert Gerth Jr., of June Lake, apportioned quantities of timbo powder were set out at distributing stations along the west and north shores of Gull Lake (see map). The lake had been divided into one open-water zone of 18 sections, which was in turn redivided into two planes of treatment, north to south and west to east, subdivided into four lanes each, in which a two-man boat per lane was to operate (see map). The lake was further divided into a marginal zone of four sections in which one two-man boat trolled chemical while three two-man large boats, equipped with portable pumps, in three over-lapping zones pumped the super-treated marginal water back into the extreme marginal areas, paying particular attention to fresh inlets and to reed and marsh areas. On shore, aside from the team of mixers, consisting of nine two-man stations- one for marginal treatment and one each for the other lanes(six men were assigned to treat critical marginal areas with 5-gallon back pumps loaded with timbo solution). The latter crew were to work as near as possible with the three large boats pumping chemically treated water inshore from the marginal area of the lake and were to take care also of special treatment of the inlet streams, springs, and of the outlet. The inlet streams were treated continuously by staking well up into them small sugar sacks filled with thin timbo mud; as a matter of fact, they were all given three separate treatments a full day apart with heavy concentrations of timbo. The combination of back-pump treatment and stationary placement of bags of chemical in the headwaters of small streams and in springs was found to be most effective technique. Likewise, was the combination of back pumps, chemical trolling and pumping of chemical and effective pumps of chemically treated water in the marginal areas of Gull Lake.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

TO:

SUBJECT:

PLACE Lex

DATE ~~Oct~~, 1940

With the exception of the fish rescue squad, made up principally of hatcherymen from Mt. Whitney and Fern Creek State Hatcheries and of District Wardens, the volunteer teams and leaders met with the writer at the inlet of Gull Lake at 6a.m. Following roll call, the team line-up was again gone over and time was taken to make some last minute shifts, to give several last minute instructions, and to demonstrate the mixing and. This was followed by the filling and securely fastening of a burlap sack to prevent loss during trolling. Trolling teams were instructed to troll chemical at the surface and at 15 and 30 feet. For the most part the 15 foot level was adequate; trolling at the 30 foot level was found to be extremely difficult and greatly slowed up treatment. The open water trollers were instructed to distribute chemical marginally, toward the center of the lake (north-side lanes working both west to east and east to west, see map), and downwind (west-east lanes working toward the north). The plan was perfect, in this manner, a more uniform distribution of the chemical.

At 8:03 a.m., two pistol shots informed all participants in the experiment to make ready and two minutes later a single shot started the actual program. Light brown to buff streams of timbo and water extended out behind boats as they started in their courses, and streams of water shot out from 60 to 90 feet as the portable pumps rained treated water into sections of the marginal zone. The first chubs began to appear within thirty minutes and included large numbers of fry from 3/4 to 1½ inches long. Some Eastern Brook Trout, pursuing the helpless and affected small chubs into the marginal zone, became overcome within the first hour and necessitated fish rescue in advance of schedule. Chemical treatment and fish rescue continued practically unabated until 1 p.m., when brief intervals were taken out for lunch; but by 3:30 p.m., the last of the 3300 pounds of timbo powder had been distributed and all teams hauled out to rest. Main efforts at fish rescue were over by 1 p.m. Many trout were rescued by inexperienced laymen along shore and some were lost, but of trout taken to Fern Creek Hatchery, where abundantly aerated cold water checked the action of the chemical on the gills, most survived and were later placed in the exhibition pool for observation. Of 254 trout observed or removed from Gull Lake 10 were Loch Leven, the remainder being Eastern Brook. Seventy-eight trout survived to be replanted in the drainage lower down (in Silver Lake).

By the end of the day the shores of Gull Lake were lined, rows deep, with dead and dying chubs, all Siphateles obesus from 3 to 9 inches long. No count was made on chubs under 2 inches (of which shore estimates indicated earlier in excess of 100,000), but of chubs 2 to 9 inches the chemical treatment killed 392,500. A variable mesh gill net was set in the lake at the end of the day.

All told, certainly at least a half million Siphateles were destroyed by the timbo treatment.

00 253

Next day, together with Alan C. Taft, the writer examined the gill net and carefully examined marginal zones of the lake, paying special

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

TO:

SUBJECT:

PLACE

DATE Sept, 1940

attention to reed and marsh areas. Large numbers of dead chubs and a few dead Eastern Brook trout were seen at various depths; dead dragon-fly larvae, damsel-fly larvae, and tremendous numbers of leeches were seen. Scuds, dozens of which were seen, seemed to be unaffected by the timbo treatment. Except for several chubs 5 to 6 inches long belly up and almost dead, no living fish-life was found. All plant life in the lake appeared unaffected. The gill net contained 45 chubs, some of which merely drifted into its meshes.

During the next three days gill-net sets in the deepest parts of the lake (60 to 63 feet) failed to reveal any sign of living fish. Carefully repeated examinations, of the lake especially in the marginal and inlet areas, failed to reveal any sign of fish life. Five gallons of water from 62 feet(49.5 F) on Friday, Sept. 13, caused Rainbow Trout fry one and three-fourth inches long, to lose equilibrium in 37 minutes. A final treatment of the inlet areas was accomplished on Saturday by the writer, using a back pump loaned by the Forest Service.

In the period Sept. 15-17, Gull Lake was again examined by an official group. A committee of sportsmen headed by Mr. Wallace Gerth of June Lake examined the lake thoroughly, paying special attention to marsh and inlet areas. The lake was found to be devoid of fish life by the group, but gratifying were the finds of abundant scuds and numbers of small damsel-fly larvae alive and healthy. A gill-net drawn before the group was found empty. On Sept. 17, with a committee of two residents from June Lake, deep water samples from Gull Lake at 60 feet were again obtained. At 3:13 p.m., the surface temperature was 59.5F; the deep temperature was 49.5. 4 Hours later the sample turned Rainbow Trout fry belly up in 1 hour 17 minutes.

Chubs were raked up and hauled to the disposal pit by laborers from Mono County on Sept. 14 and 17. The rough fish remaining have decomposed rapidly and at present comparatively few entire fish are to be seen.

Equipment loaned from various sources for the experiment was returned on Sept. 13 and 14.

In the period Sept. 33-25,30, routine examinations of the lake, a test of the surface water on trout fry, and plans and a start on permanent barriers above and below the lake were accomplished. It is planned to construct a concrete barrier below the lake and screen a culvert at the outlet and construct

2,580 1,3

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

2.089 p.p.m. by weight

FROM:

PLACE

TO:

DATE Sept, 1940

SUBJECT:

two concrete barriers above the lake. Insofar as is practicable the barriers planned are dual and self-operating; but arrangements are to be made for periodic inspection by men from the Forest Service, Mono County, and Division of Fish and Game.

On September 24 a complete re-calculation of lake volume to amount of chemical was made and the following points were determined: On Sept. 9, Gull Lake contained 2,537.09 acre feet or 826,656,380.19 gallons. Treatment with 3300 pounds of timbo powder effected a concentration for the lake of 1:1,114,500, or 25.7 per cent greater than was originally planned (1:1,500,000).

Summary:

At this time, it is appropriate to summarize that the first phase of the Gull Lake Project, including chemical treatment and removal of fish-life, has been a complete success. The cooperation from various sources, especially from the volunteer help from June Lake, was extremely gratifying and I have much praise for these men. A special word of thanks was given to the women folks of June Lake, a number of whom supplied the men with the much needed nourishment at lunch time. The second phase, including lake observation and testing of the lake water on trout, and freshening of the lake and re-stocking, with interim construction of permanent barriers above and below the lake, is well under way; and given favorable weather, such as storms and winds, it is probable that by November 1 Gull Lake may be replanted with Eastern Brook trout. It is recommended that an initial plant of at least 50,000 trout up to from one to four per ounce or larger be tried.

Beyond the removal of rough fish, such an experiment is designed to demonstrate the feasibility of the artificial creation of a barren lake with the refreshment and replenishment of its productivity to the sporting public without radical closing measures of any kind--at least for any great length of time. The undoubted availability of Gull Lake as a fishable water on May 1, 1941 will greatly enhance the value of the Gull Lake Project.

Minor Activities:

1. Two trips were made to Bishop on Sept. 13 and 25 for cement and other supplies for the permanent check dams at Gull Lake. An observational trip to Bishop Creek was made during part of the day on Sept. 25. At both times, occasion was taken to check on and otherwise service the State car 30543.

2. Parts of Sept. 13 and 21 were taken to return an outboard motor, pack cans and gasoline drums to sources of loan, being June Lake and Tern Cr. Hatchery.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

Sept 21, 1940 Section of Fish & Game to be inundated by Grant Lake. Mono Independent Mono Press Bridgeport

FROM: PLACE

TO: DATE Sept., 1940

SUBJECT:

3. An observational trip was made to Rush Cr. and Grant Lake dam on Sept. 21; along lower Rush Cr., large tracts of tamarack and beautiful aspen groves are being ripped out by the work of bulldozers. Water in Grant Lake will back up later into this one time beautiful camping area.

4. On Sept. 26 a trip was made to Twin Lakes above Bridgeport and a gill net set in the upper lake. Marginal areas were carefully examined for inlet streams and beds of aquatic plants; the dams at outlets of both lakes and outlet control mechanisms were examined. In the mid-afternoon, the gill net was drawn after having set for 6 hours and 7 chubs (Siphateles obesus) and 2 suckers (Catostomus arenarius) were obtained.

5. On Sept. 29, budgets for the biennium July 1, 1941 to July 1, 1943 were completed and submitted to the Bureau office.

Miscellaneous Activities:

1. Variable amounts of time during the month were taken in official correspondence and reviews of biological and fish and game literature received.

2. Supplies received during the month were acknowledged.

3. Copies of J.O. Snyder's "Trouts of California" were distributed to volunteers in the Gull Lake Project.

Edward H. Serdal

District Biologist

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

INSTRUCTIONS FOR MAKING THIS REPORT

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HATCHERY June Lake, California DATE October 3, 1940

SUNDAY Sept 29 *(Give date)*

Tended to correspondence and reviewed biological literature received. Half of day taken off duty.

MONDAY Sept. 30

Tended to correspondence during first part of morning. Located form material for Gull Lake check dams and obtained permission from District Ranger to use same on Gull Lake project; examined same at intake reservoir of June Lake water district above Gull L. Rest of day spent excavating on sites above Gull Lake for check dams.

TUESDAY October 1

Day taken off duty. In the evening tended to correspondence and reviewed fish & game and biological literature received.

WEDNESDAY October 2

Tended to correspondence and prepared and typed monthly field report. Unloaded form material from intake reservoir above Gull L.

00 257

(OVER)

THURSDAY October 3

Completed excavation at site of check dam immediately above Gull L. and began construction of form for dam; diverted stream around site of dam.

FRIDAY October 4

Continued construction of form for check dam above Gull L. Tended to correspondence late in day.

SATURDAY October 5

Continued construction on form for check dam immediately above Gull lake and completed same except for insertion of reenforcement wiring. Cut portion of form material for check dam at June Lake.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

[SIGNED]

65575 12-38 5M.
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STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE October 13, 1940

SUNDAY Oct. 6 *(Give date)*

Tended to correspondence. Drove to County Supervisor's Dombrowski's place on Mono Lake and conferred with him on SRA men to help pour concrete check dams at Gull Lake; Dombrowski okayed request for county men to haul sand and gravel from West Portal. Returned via Grant L. and Rush Cr. and examined progress in construction of Grant L. dam and of the clearing below Rush Cr. Egg Collecting Station. Returned 30 ft. seine borrowed from Hot Cr. Hatchery and examined condition of Eastern Brook trout assigned to Gull L.

MONDAY Oct. 7

Tended to correspondence and reviewed biological literature received. Completed form for check dam immediately above Gull L. and spent remainder of day cutting form boards for check dam below outlet of Gull L.

TUESDAY Oct. 8

Rain and light snow storm. Enlarged excavation at site of check dam below outlet of Gull L. and began construction until early afternoon. Remainder of day taken off duty.

00 259

WEDNESDAY Oct. 9, 1940

Until mid-afternoon continued construction of form for check dam below outlet of Gull L.; men from Mono Co., arrived with part of sand and gravel from West Portal and portions deposited at sites of proposed check dams. Drove to Dombrowski place on Mono L. and obtained permission to use Mono Co. concrete mixer. At Hot Cr. Hatchery obtained first series of experimental Eastern Brook trout for use at Gull L.; fish placed in live-car in lake. From all indications Gull L. will be ready for planting of Eastern Brook by October 20.

(OVER)

THURSDAY Oct. 10

Continued construction on form for check dam below outlet of Gull L. In mid-afternoon drove to Goat Ranch on North side of Mono L for Mono Co. cement mixer but found machine lately removed to Bridgeport beyond the knowledge of the County Supervisor. Returned to Gull L. In the evening attended semi-annual meeting of the Inyo-Mono Assoc. at June Lodge.

FRIDAY Oct. 11

Continued and completed construction and wiring of form for check dam below outlet of Gull L. Remainder of day taken to prepare form material for check dam at outlet of June Lake. Made 14 ft. flume to facilitate pouring of concrete. Called State Highway Maintainance Station at Crestview in attempt to obtain State concrete mixer; in absence of Station Supt. asked to call again.

SATURDAY Oct. 12, 1940

Tended to correspondence. Enlarged excavation at site of check dam at outlet of June Lake, and began construction of form for check there. Again called Crestview and arranged to obtain State's concrete mixer for use on Tuesday at which time SRA men from county supposed to be available.

First series of Eastern Brook trout entered in Live-car in Gull L. still doing well with every indication of them continuing to do so. Series of small RT fry saved from Fern Cr. Yesterday also in live-car doing well.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND
		00 260						

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HATCHERY June Lake, California DATE October 13, 1940

SUNDAY Oct. 13 (Give date)

Tended to correspondence and reviewed biological literature received. Examined experimental trout in live-cars in Gull Lake; to date the trout have survived very well and have shown no indication of affectation by timbo remaining in the lake. Drove to Hot Cr. Hatchery and obtained second series of experimental brook trout for entry into Gull Lake.

MONDAY Oct. 14

Completed form for check dam at outlet of June Lake. Obtained concrete mixer from State Highway Unit at Crestview. Drove to Domorowski place on Mono Lake for assurance from Supervisor Walter Domorowski that Mono Co. men would help pour concrete on Tuesday.

TUESDAY Oct. 15

Throughout day, after inserting new spark plug and making mechanical adjustments in cement mixer, with Mono Co. men mixed and poured concrete checkdams at June Lake outlet and immediately above inlet of Gull L. Returned mixer to Crestview at end of day.

WEDNESDAY Oct. 16

Tended to correspondence. Examined concrete check dams poured Tuesday at inlet to Gull Lake and at outlet of June Lake. Loaded Kodachrome cut film holders and drove to Carmen Lake; there set up camera and until 4 p.m., took separate color photos of male and female Eastern Brook trout in spawning colors. Returned to Gull Lake and examined live-cars containing experimental brook trout; trout still apparently all right.

(OVER)

THURSDAY Oct. 17

Made up small live car and entered 3 Eastern Brook (1.5 per ounce) and 3 Rt 2 inches long; placed car within 4 feet of bottom of Gull Lake at a depth of 35 feet. Examined setting progress of concrete check dams and jarred loose part of form to assist drying. Drove to Bishop for additional cement for check dams below Gull Lake outlet; at same time had State car 50543 serviced and lubricated. Returned to Gull Lake.

FRIDAY Oct. 18, 1940

Again examined concrete check dams above Gull Lake and at outlet of June Lake; cold weather and some frost has not harmed the new concrete from all appearances. Drove to Crestview and obtained concrete mixer; helped county men get started pouring the check dam below the outlet of Gull Lake, after obtaining for them auxiliary gasoline, boards, and carpenter tools to assist in the work. During the photic mid-day, after loading another series of Kodach rome cut film-films, took series of color photos of male and female LL in spawning colors at Rush Cr. Fish Stat. Returning to Gull L. examined newly poured check dam and returned cement mixer to Crestview. In the evening raised live car from bottom of Gull L. and found all exper. trout doing well. Lake has risen about 1 inch since Sept. 11.

SATURDAY Oct. 19

Examined all concrete check dams; concrete still too "green" to remove all form boards for insertion of check screens and racks. Siphoned and otherwise diverted water backing up behind newest check dam below outlet of Gull Lake.

At June Lake discussed catch record form with concession operators and collected forms filled in; it was their opinion that the present record will exceed the one for 1939. At Gull L. raised and emptied live car from bottom of lake; all trout apparently doing very well after nearly three days at bottom of lake.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

262

[SIGNED] [illegible]

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STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

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HATCHERY June Lake, California DATE October 27, 1940

SUNDAY Oct. 20 *(Give date)*

Tended to correspondence. Examined check dams above and below Gull Lake and loosened form on newest dam below outlet; built and installed overflow flume in latter dam. Trout in live-cars at margin of lake and bottom still doing very well.

MONDAY Oct. 21

Examined check dams above and below Gull Lake; pressed in additional load of earth brought by county men for outlet of lake. Removed most of remaining form from check dam at inlet and chiselled out form pieces in part for check screen; cut off diversion flow and dyked up ends of dam with sod and earth.

TUESDAY Oct. 22

Half of day taken off duty. Tended to correspondence. At Hot Cr. Hatchery obtained third series of experimental brook trout for use at Gull Lake; trout placed in live car in lake, following construction of new and larger car for marginal use.

WEDNESDAY Oct 23

Examined June Lake and Gull Lake outlet check dams. Built and installed check screen in dam at inlet of Gull Lake; tightened dykes with more sod and earth and spent rest of day cleaning up site of scraps of lumber and debris.

(OVER)

THURSDAY Oct. 24

Examined Gull Lake inlet check screens and dykes. Drove to Hot Cr. Hatchery in arrangement for experimental plant of Eastern Brook trout f Gull Lake; trout brought up by Asst. Warden Charles Cuddigan at 2:30 p.m. and 2,030, at 1.3 per ounce, entered in lake. Lake temperature at boat landing at Gull Lake Camp Ground 50.5F. Puttied and repaired photographic aquarium.

FRIDAY Oct. 25

Examined live-cars at margin and from bottom of lake; trout in them still doing very well. Measured and made up check screen for outlet, checked dam and removed form material at port of dam preparing for opening outlet of lake. In past week lake has risen 1½ inches and is still coming up. Measured and cut frame pieces for June Lake check screen. Dam and screen at inlet examined and found to be operating very well. In the evening tended to correspondence and reviewed biological literature received.

SATURDAY Oct. 26

At June Lake, collected catch record forms completed to date by boat operators. During the past week, according to them (also from personal observation) the colder and inclement weather has favored comparatively slight angling effort on the lake; anglers who "stayed with it" caught trout, the latter almost entirely fish of the year planted from Hot Creek. Routine examination of live-cars at Gull Lake showed trout in them apparently still all right; no trout from the trial plant were observed about the lake, probably because of difficulty in observation due to a wavy and rippled surface.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00264

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DIVISION OF FISH AND GAME

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HATCHERY June Lake, Calif. DATE November 2, 1940

SUNDAY Oct. 27 *(Give date)*

Tended to correspondence and reviewed biological literature received. Examined marginal and bottom live-cars in Gull Lake containing exper. E.B. and found all trout in apparently good condition. Together with L.L. Tatum, from Inyo-Mono fish and game committee, examined check dams in operation, examined reed and marsh areas for aquatic foods, organisms, and checked flow in Reversed Creek prior to releasing outlet of Gull Lake.

MONDAY Oct. 28

Day taken off duty.

TUESDAY Oct. 29

Tended to correspondence. Until mid-afternoon continued creel census at June Lake and took measurements and scales from marked and unmarked trout return in angler's catches. In mid-afternoon, opened outlet of Gull Lake and again checked condition of check screens and dams. Returned to June Lake and continued creel census for remainder of day.

WEDNESDAY Oct. 30

Throughout the day, continued creel census at June Lake and took measurements and scales from marked and unmarked trout returned in angler's catches. In 8 catches, totalling 48 trout, 47(97.3%) were trout of the year from Hot Cr. Hatchery; 25 of the 47 were marked 1940(52%) and 22 were unmarked 1940 (45.8%). One was a marked trout of the 1939 series from Hot Creek.

00 265

(OVER)

THURSDAY Oct 31

Examined check screens and dams at Gull Lake; reconnaissance about the lake failed to show any of the experimental plant of 2,080(Oct.24) in adverse condition. Continued creel census at June Lake for remainder of morning and through afternoon. Again today, better than 90% of the individual catches were trout of the year from Hot Creek Hatchery.

FRIDAY Nov. 1

Collected all catch record forms and supplementary data from boat concessionaires at June Lake. Prepared routine monthly reports (except field report) and remained on hand to assist men from Hot Cr. hatchery plant Eastern Brook trout in Gull Lake. During the day, 18,720 trout at 1.2 per ounce were planted; only 11 were lost and without exception these had defective gills eroded by feeding on coarse food particals.

SATURDAY Nov. 2

Outlined and prepared monthly field report to Bureau office. Tended to correspondence and intermittently assisted hatcherymen Cook and Blane from Hot Cr. hatchery plant trout in Gull Lake. During the day, 21,600 trout at 1.2 per ounce were planted with only 8 lost, bringing the total lost to 19 out of 40,320 trout planted. Several coots and an eared grebe were eliminated from the list of prompt predators on the scene.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

[SIGNED]

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal

PLACE June Lake, California

TO: Bureau of Fish Conservation

DATE November 2, 1940

SUBJECT: Monthly report for October 1940.

A. Major Activities:

1. The creel census at June Lake was continued and brought to a close during the current month for the season of 1940. Except for five days, Oct. 19,26, and29-31, the catch records were kept on the regular forms for the writer by the operators of boat liveries on the lake. With increasing shortness of weather fewer anglers fished on June Lake, but those who did, caught trout. In the five day period, particularly Oct. 29-31, personal attention was afforded the creel census work and scales and measurements were taken from as many catches as possible. On Oct. 29, of 48 trout from 8 individual catches, 47 (97.8%) were trout of the year from Hot Creek State Hatchery and 1 (2.2%) was a marked trout of the 1939 series from the Hot Cr. Hatchery. Among the 47, 25 (or 52%) were marked and 22 (45.8%) were unmarked.

2. During the period Oct. 2-5,7-15,17-27,29,31 the second phase of the Gull Lake rough fish control project(including observation and testing of the lake water on trout, interim construction of permanent barriers above and below the lake, a general follow-up of the natural freshening of the lake up to time of re-planting, and re-stocking of the lake with trout) was continued and practically completed.

From Oct. 7 on, trout placed in live-cars in Gull Lake survived in apparently good condition. From Oct. 17 to date two live cars containing Eastern Brook trout, one placed at the bottom of the lake in water from 40 to 55 feet deep and another placed in the marginal zone of the lake, have been used as controls under intermittent routine observation. The continued liveliness of of the trout in the cars indicated that the lake was ready for planting of trout by Oct. 20, but not until Oct. 24 was an experimental plant of 2,000 trout introduced. The survival of these, as indicated by the absence of dead or sick trout about the lake and by the continued survival of the controls in the live cars, led to scheduled replanting of the lake starting Nov. 1, 52 days after chemical treatment of Gull Lake. To date some 40,320 trout, averaging 1.2 per ounce, have been planted from Hot Creek Hatchery (all Eastern Brook).

Practically two weeks were required by the writer to construct and wire forms for the permanent concrete check dams above and below Gull Lake. Arrangements were made with County Supervisor Walter Dombrowski for county help in pouring the dams, and after locating a concrete mixer at the State Highway Unit at Crestview, the pouring was accomplished on Oct. 12 and 13. At intervals thereafter the dams were examined for hardness until ready for removal of the form material; and by Oct. 25, the principal dams with check screens, at the inlet and outlet of Gull Lake, were

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE Nov. 2, 1940

SUBJECT:

completed and in operation.

During the later stages in the refreshening of Gull Lake, especially on calm days, a rich green bloom appeared on the surface in certain areas, depending on the direction of the wind. Close examination revealed the material to be decomposing particles of lime powder which would gather in a raft-like mass of about 5 acres in extent at the surface and float about the lake. When a wind of moderate or high velocity churned the lake, the material would be widely dispersed about the entire lake in its upper strata.

B. Minor Activities:

1. On Oct. 5, in return from a conference with Mono County Supervisor Walter Dombrowski, at Mono Lake, routine observations were made at Grant Lake dam and along Rush Creek. On the same day a 30 foot seine was returned to Hot Creek Hatchery.
2. A semi-annual meeting of the Inyo-Mono Association was attended at June Lodge, June Lake, on Oct. 10.
3. Most of Oct. 16 and 18 were taken at Carmen Lake and Rush Creek Egg-taking Stations in color photography of Eastern Brook and Loch Leven trout.
4. A trip to Bishop was made on Oct. 17 for additional cement for the Gull Lake check dams. At the same time the State car 5044 was serviced, lubricated, and otherwise checked over.
5. On Oct. 24 part of the day was taken to call and repair the aquarium used in color photography of trout.
6. Parts of ten days during the month were taken in official correspondence and reviews of biological and fish and game literature.
7. Trips were made on Oct. 9, 18, and 22 for experimental series of Eastern Brook trout for use at Gull Lake.

District Biologist

HA 268

Nov 1 — Monthly field report; helped plant Bull L.
2 — " " " Bull L.
3 — Cones. Fraser & Sarvance line-cons; helped plant Bull L.
4 — Bull L. plant completed (76,200 at 1.1 per acre)
5 — Exams. marginal areas on Bull L.; obtained & tested. Jennie brought home
6 — " " " " ; prepared catch forms from June Lake for 1920
7 — Cones & lit.; cont'd & compl. grouping of catch forms from June Lake

Major Activities

1. June Lake creel census 1, 5-7, 8,

2. Bull L. 1-4, 5-9, 10, 18, 20,

Minor Activities

1. Cones + lit. + miscell. office work 1-2, 3, 6, 10, 23,

2. Observations to Rush L. + Grant L. 5, 20,

3. Vocation cave 11-17 incl.; (interim area of Bull L.); 25-30

4. Location of Stream + Lake 18, 19, 22,

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

Fishculturist's Weekly Report

Gull L. tested 9/11/40
Restocked w/ EB 11/4/40

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HATCHERY June Lake, California DATE November 10, 1940

SUNDAY November 3, 1940 *(Give date)*

Tended to correspondence. With Mr. Burton Frasher Sr., from Pomona, Calif. examined bottom and marginal live-cars and principal parts of the shore-line while he, at intervals, took movies to add to his already valuable and interesting reel on the Gull Lake project. Remained on hand to assist J. H. Cook from Hot Creek Hatchery unload large can truck with trout for Gull Lake.

photo of Harry Cook unloading cans of EB for Gull Lake.

MONDAY November 4

Day taken off duty. Re-stocking of Gull Lake completed by late afternoon with last of 76,200 trout, including 4 experimentals released from one of the live-cars, averaging 1.1 per ounce. Examination of live-cars at margin and bottom late in day showed all controls still lively and apparently in first- rate condition.

Cont'd 76,200 trout (total)

TUESDAY November 5, 1940

Early in morning, with Gull Lake calm, examined marginal areas for presence of newly planted trout; especially near Gull Lake camp ground trout were seen rising to feed. Half of day taken off duty. Obtained boat records from June Lodge for Sept and Oct. and tabulated same; returned same at end of day. During observ. trip to Rush Cr. and Grant Lake dam took photos of Grant Lake dam and clearing of trees etc. at inlet delta area

WEDNESDAY November 6

Examined marginal areas of Gull Lake and live cars and found all satisfactory so far. Until mid-afternoon, filed pamphlet and other biological literature on hand; packed books and periodicals; cleaned optical equipment and surgical instruments. Tended to correspondence and began grouping by concessions and chronologically catch record forms from June Lake, season of 1940.)

00 270

(OVER)

THURSDAY November 7

Tended to correspondence and reviewed biological literature received. Continued and completed grouping of June Lake catch-records cronologically and according to concessions.

FRIDAY November 8, 1940

Examined marginal areas of Gull Lake and live-cars; newly planted trout seen working along east side of lake where also were active two loons (Gavia Immer) and three pied-billed grebes(Podilymbus podiceps). Tended to correspondence and for remainder of day tabulated measurements taken from principally marked and unmarked trout observed in angler's catches during season of 1940 at June Lake.

Observance of first predators at Gull L.

SATURDAY November 9

Examined marginal areas of Gull Lake and check screens and dams at inlet and outlet; with hammer and chisel lowered spillway of outlet dam and re-set check screen. Made up check screen for dam at outlet of June Lake and with hammer and chisel cut out form pieces in part for insertion of screen.

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00271

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HATCHERY June Lake, California DATE November 17, 1940

SUNDAY November 10 *(Give date)*

Examined marginal areas of Gull Lake and experimental live cars; control Eastern brooks were found as usual in apparently satisfactory condition. Many trout of the new plant from H. Creek Hatchery were seen working near the surface particularly near reed beds at th Lake. Examined check screens and dams. Tended to correspondence and reviewed biological literature received.

MONDAY November 11

On vacation leave.

TUESDAY November 12

On vacation leave. In late afternoon returned tools borrowed for use on Gull Lake check dams and also contour maps.

WEDNESDAY November 13

On vacation leave.

100 272

(OVER)

THURSDAY ~~November 14~~

~~On vacation leave.~~

FRIDAY ~~November 15~~

~~On vacation leave.~~

SATURDAY November 16

On vacation leave. Examined shed screens & dams in forenoon

RECAPITULATION

FISH AND EGGS (Variety)	FROM	PREVIOUSLY REPORTED	TAKEN OR RECEIVED	LOSS	NUMBER PER OUNCE	NUMBER OF OUNCES	NUMBER SHIPPED	BALANCE ON HAND

00 273

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June Lake, California November 24, 1940

Nov. 17

On vacation leave.

Nov. 18

Together with Carleton Rodgers, examined check screens and dams above and below Gull Lake; examined marginal areas and observed recently planted Eastern Brook trout feeding here and there around the lake. Following correspondence and review of recent biological literature received, human location of lakes and streams needed to complete Bureau index for Inyo-Mono.

Nov. 19

Tended to correspondence. Continued location and listing from U.S.G.S. and outing maps available of lakes and streams needed for completion of Bureau index for Inyo-Mono.

Nov. 20, 1940

Examined and cleaned check screens above and below Gull Lake; gradually as the lake raises the green "flower" of decomposing timber powder is moving through the outlet and down Reversed Creek. In Lee Vining, had defective Ford battery checked and serviced; battery housing has torn loose one cell inside box and will need replacement. Returning via Grant Lake dam, examined progress in construction; dam is nearly complete and lake is raising rapidly. Workmen have heavily muddied the entire lake. At L.A.-Venturi weir observed Loch Leven above the weir lately released from the Rush Cr. trans.

00274

Nov. 21

Thanksgiving Holiday.

Nov. 22

Continued and completed location and listing, from U.S.G.S. and outing maps available, of streams and lakes for completion of Bureau index for Inyo-Mono.

Nov. 23

Tended to correspondence and reviewed recent biological literature received. Half of day taken off duty.

June Lake, California December 1, 1940

Nov. 24

Day taken off duty.

Nov. 25

On vacation leave.

Nov. 26

On vacation leave.

Nov. 27

On vacation leave.

Nov. 28

On vacation leave.

Nov. 29

On vacation leave.

Nov. 30

On vacation leave.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal PLACE June Lake, California

TO: Bureau of Fish Conservation DATE December 2, 1940

SUBJECT: Monthly report for November 1940

A. Major Activities:

1. Immediately following the close of the trout season, complete boat records were obtained from each of the boat liveries on June Lake. These daily records were then totalled by months of the season and for the season entire. In addition, during the period in question, Nov. 1,5-8, some 143 pages of creel census records were grouped chronologically by concessions, preliminary to summarizing, and all measurements taken from marked and unmarked trout in angler's catches sampled during the 1940 creel census on June Lake were tabulated. With the concessionaires more familiar with the creel census and survey of lake usage this season, a more accurate representation of the production for June Lake is certain.

2. During the period Nov. 1-4, the writer gave every assistance to the fish planting crew from Hot Creek Hatchery while they carried to completion the re-stocking of Gull Lake. The planting ended on Nov. 4 when the last of 76,200 Eastern Brook trout, averaging 1.1 per ounce, were entered in the lake. All planting was done by Assistant Wardens Russell Blane and J.H. Cook; and their effective handling and earnest care of the trout in the frequently bitter weather deserves special mention. It is interesting that on the morning of Nov. 2, some of the newly planted trout were noticed working along the margin on the opposite side of the lake. Some time was taken on Nov. 3 to demonstrate the marginal and bottom live-cars for Mr. Burton Frasher, Sr., from Pomona, Calif., who took motion pictures to add to his reel on the Gull Lake rough fish control experiment. During the period Nov. 5-10,13, and 20, periodic examinations were made of the marginal areas and live cars in Gull Lake. The cars were removed from active positions on Nov. 20, assuring, in view of the excellent condition of all the trout held in them, complete success of the restocking phase of the Gull Lake project. During the period mentioned, periodice inspections were also made of the check creens and dams above and below the lake. In all but a few instances the creens and dams were free of debris and were operating efficiently.

Particularly on quiet mornings, the rich green film of decomposing timbo powder can be seen still to cover about from three to four acres of lake surface. Gradually it is disappearing and a good deal has already moved downstream through the outlet.

B. Minor Activities:

1. Care of official correspondence, review of current biological and fish and game literature, and sundry office work was accomplished in mostly part-days on Nov.1-3,6. 12,and 23.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE Nov, 1940

SUBJECT:

2. Two observational trips were made to Rush Creek and the Grant Lake basin on Nov.5, and 20. Photos were made of the new Grant Lake dam and of the arboreal carnage from clearing operations in the upper section of the basin, particularly along Rush Creek for a half mile below the egg-taking station. At this writing, the dam is completed and Grant Lake is raising rapidly. According to an engineer in the employ of the Dept. of Water and Power all construction buildings and housing are to be moved from city property by Jan. 1, 1941.

3. A number of streams and lakes required to complete the Bureau Index for Inyo-Mono were located and listed by township, range, and section from U.S.G.S. and outing maps available on Nov. 18, 19, and 22.

4. Eleven days vacation leave were taken from Nov. 11-17 and from Nov. 25-30.

District Biologist

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** Richmond, California

TO: Bureau of Fish Conservation **DATE** January 31, 1940

SUBJECT: Monthly report for January 1940

A. Major Activities:

1. During the month the revision of the paper on studies of food habits of mergansers was continued and a final script for presentation completed. Jan. 4, part of 5 and 6, part of 8,12,13,17,23, were mostly occupied in this work.

2. Much of the month was taken to mull over and consider final figures arrived at in re-tabulating results of survey work of the past season at June Lake, particularly the creel census. Following draft of a main outline parts of a report on the work were begun and several of them tentatively completed. Progress in this work was reviewed and discussed with Mr. A.C.Taft on Jan. 30 at the S.F. office. Part of Jan. 5., Jan. 9-12, 15, part of 18,22, and 25-31 were taken in this activity.

3. In the days Jan. 16-19, results of a study on the effect of preservation on condition factors, made in 1938, were reconsidered and the paper prepared on the work at the time re-written. All of the summary data was entirely re-calculated, using the tables and modified formula sent to the biologists by Leo Shapovalov, and the tables enlarged. The paper was discussed with Mr. Taft at the S. F. office on Jan. 24.

B. Minor Activities:

1. Delivery was taken in San Francisco Jan. 24 of a new Ford Sedan V-8 to replace V-8 Sedan 5952 traded in.

2. As opportunity permitted at the Division Library in S.F. and at the Biology Library at the Univ. of Calif. in Berkeley, search for literature on limnological studies was continued and a number of papers were reviewed and studied.

3. Papers on studies on condition factors were hunted out as time permitted and a number on the subject reviewed and studied. The literature on the subject of condition factors is a long way from replete. There is a definite need for common agreement on what is to be under stood as the condition factor- and, above all, in the methods to be used in preparing material and in taking basic data for computing them.

4. Two days vacation leave were taken Jan. 2-3.

District Biologist

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal

PLACE Mt. Whitney Hatchery
Independence, California

TO: Bureau of Fish Conservation

DATE February 29, 1940

SUBJECT: Monthly report for February 1940

A. Major Activities:

1. The period Feb. 1-4 were required to service Ford 50543, pack equipment, and make the trip from Richmond to winter headquarters at Mt. Whitney Hatchery. Some time was taken on Feb. 3 to interview engineers at West Portal on recent hydrography of June and Gull Lakes. Permission was obtained to examine meteorologic tables and records for the past several years, kept for the Mono Basin.

2. On Feb. 6, accompanied by Warden Carl Walters from Independence, a trip was made to West Line Street, Bishop, where it was reported that bass had been stranded by a temporary diversion of a slough from the Owens River by the City of L.A. Dept. of Water & Power. Numerous carp and suckers had been stranded, but careful examination revealed very few bass left in the isolated pools. Because of abundant reeds and trash, rescue work would have been exceedingly difficult.

3. Through Feb. 7-8 a complete check was made through 2181 catch records from the June Lake creel census of 1939 and the notes compared with the tabulated catch records.

4. During Feb. 9, 12-13, a quantity of stomach samples taken from trout from June Lake, Oct 28, 1939, were analyzed and the results tabulated.

5. In the periods Feb. 13-16, 19-21, representative scale samples from June Lake trout were mounted in Karo and examined. The scales showed a six-year age group and another in the second year of life; a third, and largest group, are trout of the year.

6. Much of the time from Feb. 23-24, and 26-29 was occupied in continuing work on the report of the June Lake Creel census during 1939, in which time new graphs and tables were made and composition of the report re-outlined.

B. Minor Activities:

1. On Feb. 10, on receipt of planimeter readings for contours of both June and Gull Lakes from Sam Kabakov of the Bureau of Hydraulics, areas were calculated in numbers of acres for each contour. The data will be used to compute approximate volumes for each lake.

2. Meetings of the Inyo-Mono Association, Feb. 17, were attended

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FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE**

SUBJECT:

at Furnace Creek Ranch, Death Valley, at which occasion questions pertaining to measures for conservation of East Slope fisheries were discussed.

3. In the evening, on Feb. 27, the annual business and general meeting of the Rainbow Angling Club was attended in Bishop.

C. Miscellaneous:

1. Some time was taken to clean out the room at Mt. Whitney Hatchery and clean and otherwise straighten up Ford 50543.

2. Various amounts of time were regularly occupied in tending to correspondence, preparing and correcting new auto vehicle reports, and preparing weekly reports.

3. Papers sent from the S. F. office and a number borrowed from the S. F. Library (Division) were studied and returned.

District Biologist

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** June Lake, California

TO: Bureau of Fish Conservation **DATE** April 1, 1940

SUBJECT: Monthly report for March 1940

I. Office Work

A. Major Activities:

1. In the period March 1-8, the report, "Creel Returns and Trout Production at June Lake, Mono County, California, Season of 1939", was continued and completed and a copy submitted to the S. F. office. The following is a tabular summary by months of the creel returns:

1939 Creel Report Completed

Months	Duration of records (days)	Number of catch records	Species of trout caught: Rainbow	Species of trout caught: Eastern Brook	Total Number of Fish	per Cent of Total Catch
May	4	157	1471	1	1472	8.94
June	30	451	2782	45	2827	17.18
July	31	568	3693	8	3701	22.48
August	31	511	3647	7	3654	22.21
September	30	333	3042	5	3047	18.52
October	30	161	1748	3	1751	10.64
Seasonal Totals	156	2181	16,383 (99.58%)	69 (0.42%)	16,452	------

Approximately 57.9 per cent of the catches of the entire trout season at the lake were obtained by the creel census. Using this per centage figure, seasonal estimates for the total number of anglers and fishing effort were computed from the actual records and are shown in the following table:

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE** March, 1940

SUBJECT:

Estimates of total anglers, anglers per acre and per day, and estimates of return per angler hour of fishing effort on June Lake, Mono County, California, season of 1939.

Actual total number of anglers reporting catches	4,520.0
Estimated total number of anglers	7,294.9
Estimated total hours fished	36,474.5
Estimated total trout caught	25,977.7
Estimated total anglers per acre of lake	23.4
Esti ated total anglers per day	45.0
Estimated length of angler day (hours)	5.0
Estimated number of trout caught per angler day	3.5
Estimated trout caught per angling hour	o.7

It was estimated that 11,659.25 pounds of trout were caught during the season, with an average weight per trout of 0.44 lb. The estimated yield in pounds per surface acre of lake was 37.50, or 1.61 pounds per acre foot of lake (June Lake has a surface area of approximately 310.9 acres, with a volume calculated at 18,873.1 acre feet).

An estimated 4,956.4 marked trout, or 16,5 per cent of the total experimental plant of 30,000 marked Rainbow Trout from Hot Creek Hatchery (all planted by May 27, 1939), were caught the first season. If this figure is correct, it is probable that 11,550 trout, or nearly half the estimated total number of fish caught during the 1939 season, were from the plant of 70,000 trout placed in the lake the first part of that season.

2. On March 15 and 16, the contents of stomach samples from Gull L. Eastern Brook Trout, taken Oct. 23, 24, 1939, were analyzed and the results tabulated. The principal contents consisted of the larvae of dragon-flies and damsel-flies, and scuds. Over half of the total contents by volume were of the insect larvae named.

Stomachs of RT and EB taken from June L., March 23, 24, were analyzed March 28 and the results tabulated. In general, the EB had been feeding chiefly on snails, dragon-fly and damsel-fly larvae, and scuds; the RT had not fed to any extent at all. One of the RT stomachs contained an estimated 3000 Daphnia.

great # of plankton (Daphnia

B. Minor Activities:

1. Various amounts of the days March 1, 4-8, 12-16, 19-21, and 27, were occupied in correspondence and review of current publications in fish and game re ceived. A number of publications from the

DEPARTMENT OF NATURAL RESOURCES

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FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE** March, 1940

SUBJECT:

Division library in S.F., were studied and returned. Among the latter was "Fishes of the Lahontan System of Nevada and Northeastern California", by Dr. J.O. Snyder. This was followed by a study of several papers from the Inyo County library and two received from Stanford University on the geology and glaciation of the Inyo-Mono Area.

Check Blodwicken papers

2. On March 14 and 15, a talk for Conservation Week before the Independence Parent Teachers Association was prepared and delivered.

3. On March 22 and 28, lake and stream survey notes taken during 1939 in the Inyo-Mono Area were copied in duplicate from a field notebook onto the standard stream and lake survey forms.

II. Field Work

1. Field work during the month involved principally the Reversed Cr. Area and June Lake, in order to observe and note conditions during winter and immediately following the disappearance of ice from the lakes. From March 9 to 11, during a trip to the Reversed Cr. Area there was yet 12 to 14 inches of snow at Fern Cr. Hatchery. About 25 acres of June L. was open at the north end and at places around the south-facing shoreline. Grant Lake had all but about 35 acres of it's area free of ice and the lake level was within 4 feet of the top of the spillway. All open water and gravel areas at June L. were examined for signs of early spawners; only one Rt was seen. Again on March 11, open areas of June L. were examined for spawning trout, but none were seen.

On March 18, all marginal water around June L. was again examined for spawning trout; 15 RT, 7 to 8" long were seen in spawning activity at the north curvature of the lake. Two Eb, 9 and 11 inches, were seen at the south end. Although trout were moving near the sandy beach at the south end, no count was possible due to poor light and rippled water surface. The outlet screen at June L. was found damaged by ice. In open water in Gull L., at the inlet and northeast end, several hundred young Eb, 7/8 to 1½ inches long were seen. Gull L. was still mostly frozen over. During the afternoon, Reversed Cr., from Gull L. to Fern Cr. Lodge, was examined for trout from last year's plant.

2. In the afternoon, on March 20, a biologic reconnaissance was made of the middle Owens River and diversions from Bishop to as far as Tinnemaha Dam. At the latter place the river was flowing an estimated 118 CFS and the dam was completely drawn down for repairs to the outlet wings. Suckers (Catostomus arenarins) were watched spawning on the apron, and two of these were examined.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE** March, 1940

SUBJECT:

3. Again on March 23-25, the Reversed Cr. Area was visited and by afternoon on March 24 June L. was entirely open. Gull and Silver Lakes were yet closed. On March 23, a visual census of trout was made in Reversed Cr., from Gull L. guard station to Fern Cr. Lodge. From counts obtained, it was estimated that 3,288 trout were present in three miles of stream, which was planted September 29, 1939 with 5,808 Eb at 2.2 per ounce from Hot Cr. Hatchery. At 25 trout to the limit there would be available to anglers on May 1 131,5 limits; at 15 trout per limit there would be available 219.2 limits to anglers on the opening day of trout season. The census was repeated on March 25 over the same area, but a smaller count was obtained probably due to the still frightened condition of the trout.

On both March 23 and 24 a gill net set in June L. caught Eb and RT and 2 Lake Chubs (Siphateles obesus), one of which was lost. The trout were in excellent condition; scales, measurements, and stomachs were taken from the trout retained. The Lake Chubs caught were the first to be recorded from the lake.

On March 24 there was about 10CFS flowing in lower Rush Cr. and and estimated 60 CFS was being released from Grant L. The

The Damaged outlet screen at June L. was repaired and replaced March 25.

En route in return to Mt. Whitney Hatchery, March 26, a visit was made to Long Valley Dam which is now about two-thirds completed. Workmen were scarifying the rocky bluffs on either side of the gorge in preparation for the top part of the dam.

III. Miscellaneous Activities:

1. On March 12, 13, 14 and 29, the photographic aquarium was cleaned and soaked and two series of Kodachrome and black and white pictures of Rainbow, Golden, and Loch Leven Trout taken.

2. On March 28, a series of fish, locally known as "bullheads" (said to have been dumped into June L. by an angler during last season) were examined. The fish is one of the Gobiidae, but the genus and species are yet undetermined. The Siphateles taken March 24 was also examined in detail and compared with the description of that fish given by Dr. Snyder in his paper on fishes of the Lahontan system.

3. On March 30, equipment was packed and the transfer to summer headquarters at June L. made in the afternoon.

Edward A. [illegible]

District Biologist

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** June Lake, California

TO: The Bureau of Fish Conservation **DATE** June 1, 1940

SUBJECT: Monthly report for May 1940

Major Activities:

1. During the month of May, the weekends and the 30th and 31st (aggregating 10 days) were occupied in getting under way the creel inventory on June Lake for the 1940 season. The three boat concessions on the lake were covered alone until the second weekend when the Forst Service supplied men on relief to assist in the work. Although the men are, on the whole, of the rough and tough sort they have followed guidance well and at present (May 31) are doing good work.

The catch record form in use this season has been modified to further closer cooperation with the bo at concessionaires. The form contains columns for both the boat accounting of the operators and for the effort and catch return by each rentee. Aside from the survey data desired, it is hoped that such a form will aid toward a greater appreciation bv the concessionaires of some of the problems in fisheries management of an inland lake such as June, and help to bridge toward a better understanding by the sporting public of these same problems.

Parts of May 8, 23, 24 were taken to summarize a number of the catch records returned so far.

During the season, an attempt will be made to correlate limnological and atmospheric data with the daily effort and catch returns, in order to provide some inferences on the time honored problem of weather versus fishing.

2. May 14-18 and part of 17 were spent at Little Walker Lake in beginning a biological survey of that water by request of the President of the Fish and Game Commission. During the period, plankton samples, stomachs, scales, weights, and measurements of a number of trout were obtained, the area and volume of the lake were calculated, preliminary marginal and bottom examinations were made, and the inlet stream was examined. On May 23, part of the stomach samples and plankton sample were analyzed.

Minor Activities:

1. On May 1 and 2, creels were checked on Grant Lake, Rush Creek, and on Gull Lake by way of sampling the opening of the season trout returns for the recreation area. In general, fishing was only fair for these waters and might have been

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE** June, 1962

SUBJECT:

better had not high winds hindered fishermen.

2. On May 6 a trip was made principally to Mammoth Lakes, Convict Creek, Convict Lake, and Hot Creek, and from all places visited the report was made that opening of the season trout fishing was poor. Only two limits were known from the reknown Hot Creek on the opening day.

3. On May 9, a trip was made to Leevining Creek and return to June Lake via lower Rush Creek and Grant Lake Basin. The mining pollution earlier reported in Leevining Creek was still intense, but by no means as heavy as when previously seen on April 23rd, Lower Rush Creek, Grant Lake and the weir on Rush Creek were examined.

4. On May 22, a visit was paid to Mt. Whitney Hatchery and some formaldehyde and the aquarium for trout photography were obtained. During the return to June Lake, Division Creek above the power house was examined; some supplies were obtained and a defective battery was checked.

5. On May 24, a quantity of stomachs from June Lake Rainbow Trout taken May 11 were analyzed and items found therein recorded.

6. Following a report by Webb Talbott, report in turn received from an employee (one Mr. Paul Mullen) in Bishop Postoffice, a trip was made on May 28 to Horton Creek Basin where a disease has broken out in particularly the trout in the lakes. Dull grayish white patches of fungus were observed on an occasional Rainbow Trout in eddies and more quiet water in the stream, but no trout in faster water was seen infected. The Eastern Brook Trout seemed unaffected. The difficulty of the trip for one day obviated the collection of specimens. It is planned to make further observations a month from now to note any change in the fish.

Miscellaneous Activities:

1. Official correspondence was prepared and literature in fish and game management was reviewed at various times during the month.
2. Several supplies were received during the month from the Bureau office and the same acknowledge.

3. An Ekman Dredge, soil sieve, and solid messenger were received from District Biologist Brian Curtis.

4. A performance report was checked over and returned to the Bureau office.

Edward A. Chester

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** June Lake, California

TO: Bureau of Fish Conservation **DATE** July 1, 1940

SUBJECT: Monthly report for June 1940

A. Major Activities:

1. June Lake Project: During the month, on the days 1-16, 22,23,25,26, and 28-30, the creel census and limnological work on June Lake were continued. Until June 16, ERA men loaned by the U. S. Forest Service from the Full Lake Spike Camp assisted in obtaining and recording the creel data; since that date there has been no men on relief available to the project. A conference was held with District Ranger Wm. Fischer on June 15 regarding renewal of the ERA help.
On June 6 and again on June 14, plankton hauls were made which revealed tremendous numbers of water fleas (Daphnia sp.). Ekman dredge hauls made on the same days were on the whole unsuccessful because of the tendency of the pumice bottom material to jam the dredge. On June 28, temperatures were taken from deep water samples; at 2:30 p.m., the surface temperature was 66.0 degrees F. and at 19 meters the temperature was 48.5 F.
2. Marking of trout at Hot Creek Hatchery: June 17-20 were principally occupied in marking (VV) of another experimental lot of 30,000 Rainbow Trout for the June Lake creel survey. Five CCC boys from the Mammoth Camp were loaned by the U. S. Forest Service (through the courtesy of Mr. Roy Boothe, Supervisor, Inyo National Forest). The boys did remarkably well in completing the marking in two and a half days. Additional time was occupied in completing reports on the boys at their Mammoth Camp, taking photos of the marking work, and arranging and clearing set-up. All of the trout (19,972 ounces) were planted in June Lake by June 19 and averaged 1.5 per ounce.

B. Minor Activities:

1. On June 4 a trip was made to the East Walker River and the stream and entering tributaries were examined from Sweetwater Reservoir to the Nevada line. In return to June Lake, Green Creek and Dog Creek were examined.
2. A trip was made to lake Mary of the Mammoth Lakes to confer with Mr. Barney Johnson at Crystal Crag Lodge regarding trout and generally poor fishing conditions in the lake. According to Mr. Johnson the trout were very dark and seemed to be sluggish in action. The condition seemed quite natural in view of the fact that the lake had been free of ice only a short time.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE** June, 1940

SUBJECT:

3. A portion of June 7 was required to attend to fisheries conservation meeting at Convict Creek consisting largely of Forest Service, California Division of Fish & Game, and U. S. Bureau of Fisheries officials.
4. Grant Lake was visited and construction progress on the new dam examined on June 2, 9, and 22.
5. On June 10 a trip was made to Pickel Meadows and the West Walker River and tributaries to Sonora Pass were examined for stranded trout. At Pickel Meadows, 17 trout 1½ to 1 3/4 inches long, together with many tadpoles were seen in sidewater of the river but no trout were observed stranded nor did residents at Leavitt Meadows know of any location of stranded trout. In return to June Lake, Green Creek was examined in two places below Green Lakes Camp.
6. A trip was made to Robinson Creek and Twin Lakes above Bridgeport on June 13. The flow in Robinson Creek and the stream itself were examined at two stations, In Twin Lakes tens of thousands of lake chubs (Siphateles obesus) and suckers (Catostomus arenarius) were observed spawning in shallows where control seining could be very easily accomplished.
7. Lake Sabrina, North Lake, Lamarck Creek between Lamarck L. and North Lake, and north fork of Bishop Creek below Lake Sabrina were visited and examined on June 21.
8. On June 24 a trip was made to Alpine Hatchery, near Markleville, and thence to upper Blue Lake, Alpine County. Survey equipment was left at the hatchery for Brian Curtis and at upper Blue Lake, color photographs (also black and white) were made of Black Spotted Trout from the traps.

C. Miscellaneous Activities:

1. The state care 50543 was serviced in Bishop on return from the trip to upper Bishop Cr. June 21. A special trip was made to Bishop June 28 for emergency repairs on the car necessitated by an accident during the trip to Alpine County June 24.
2. A galvanized metal tank was cleaned out and prepared for a new series of Derris Root experiments.
3. A brief conference was held with Mr. Nate Milnor at his residence on June 12.
4. During the month several supplies were received from the S. F. office and the same acknowledge.
5. Various amounts of time were occupied in official correspondence and in review of fishand game biological literature received.

D. Visitors: Mr. Brian Curtis and Mr. Alan C Taft were visitors to June Lake on June 5 and June 8 respectively.

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Junior Fisheries Biologist

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** June Lake, California

TO: BUREAU OF FISH CONSERVATION **DATE** September 1, 1940

SUBJECT: MONTHLY REPORT FOR AUGUST 1940

A. Field Activities:

1. The June Lake project was continued during the month of August in cooperation with conessionaires at the three boat landings. All or half of the days Aug. 4-7, 10-18, 25-28, and 30-31 were taken to record and weigh catches and take scales and measurements of both marked and unmarked trout caught. Trout of the 1940 stocking from Hot Creek Hatchery continued to predominate in the catches and commonly marked trout of the 1940 group made up over three-fourths of an individual catch. In the regular catch records every effort is made to record the number of trout in the different age series (1938-1940) appearing in catches; determinations of the age series are checked by scale examinations and comparison of marked with unmarked trout in the catches.

Frequent were discussions with anglers on the question of chumming, since it is common practice to use messy mixtures of corn meal mush, canned dog food, canned corn of several brands, salmon eggs, raisins, etc., In the lake. A limit of trout was taken early in August with bits of American cheese, as an example of the extreme in-chumming practice.

2. Work at Gull Lake, in connection with the rough fish control project planned for early in September, was continued for part-days including Aug. 6, 13-16, 18, 22, 26-28, and 30. Included in the work accomplished were: trolling tests with fine clay for estimation of penetration of trolled material deep into reed areas; use of a brush hook loaned by the Forest Service to clear paths into reed areas to facilitate distribution of chemical in these troublesome parts; continued tests on chubs with samples of timbo powder from material stored at Mt. Whitney Hatchery; complete re-calculation of volume and material to be used in the rough fish control project; tracing of individual outline maps of Gull Lake with sections assigned to volunteer workmen in the project; soliciting and organization of help and equipment to be used in the project; taking of deep water samples and temperatures; and conducting two preliminary meetings at June Lodge with volunteer personnel in the project, outlining equipment, method, and procedure planned in treating the lake and rescuing trout.

3. On August 5 a part-day trip was made to Mammoth Lakes and observations were made at particularly lakes George, Mary, and Twin Lakes. The heavily fished inlet section of Lake Mary was checked for young trout of the year and numbers were seen.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE**

SUBJECT:

It has been suggested by Barney Johnson, at Crystal Crag Lodge, that this inlet area be closed to fishing to help give the young trout a start in the lake.

4. Part of Aug 7 and all of 8 were taken in a trip into Horton Lake basin, following a letter of inquiry to the San Francisco office from a sportsman regarding the disappearance of trout in the upper lakes. Although fungus-infected Rainbow Trout were observed during the first rip to the basin May 28, 1940, no diseased trout were found during the latest trip and no evidence was found that would indicate a cause for the reported disappearance of the trout. A bottole containing preservative was left with Boy Scouts at the second lake who later returned the vial and reported white patches on only one trout during the two weeks they were camped in the basin.

5. On Aug. 15 and 29, trips were made to Mt. Whitney Hatchery to obtain samples of timbo powder from cases of the material stored there. Tests with the powder on Lake Chubs have been made at intervals to determine its continued effectiveness; to date no loss in strength has been noted.

6. In return ffom the trip to Mt. Whitney Hatchery on Aug. 15, a visit was made to Tinnemaha Dam below which it was reported that large numbers of catfish were dying from a disease. Only one fish was found and small rugose patches in the skin on the dorsal surface and at the base of the anal fin were examined. Other catfish were found that had been chewed by a coyote almost beyond recognition. Samples of the diseased skin were preserved in formaldehyde for examination.

7. On Aug. 17, Bush Creek, especially below the L.A.-Venturi Weir, was examined for Loch Leven trout reported to be migrating upstream; careful search failed to reveal the "dozens" of trout reported to be present in the early migration.

8. During the period Aug. 19-24 a trip was made to the San Francisco office and a conference was held with Mr. A. C. Taft particularly on plans for the Gull Lake project. Tentative and alternative dates were set and additional timbo powder was ordered for the work.

The afternoon of Aug. 20 was spent at the reference room in the Museum of Vertebrate Zoology in Berkeley where bibliography in the use of derris in fish management was looked up. Soil surveys for the Bishop and Independence sectors of Inyo County were reviewed.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: **PLACE**

TO: **DATE**

SUBJECT:

B. Office Work:

1. Variable amounts of time during the month were occupied in official correspondence and review of current biological and fish and game literature received.

2. The forenoon of Aug 22 was taken to pack pamphlets and library stored in Richmond to be taken to June Lake.

C. Miscellaneous Activities:

1. On Aug. 3, a portion of the afternoon was sepnt at Fern Creek Hatchery, at the request of Mr. Ivo Hussey, in examination of "pin-head" Rainbow Trout for Octomitus. Individaul fry were dissected and examined under binocular and compound scopes but none of the protozoans were found, nor were parasites of any kind found.

2. Part of Aug 10 was taken to examine, at Fern Creek Lodge, scale samples saved from trout caught in the upper Rush Creek basin. The resort owners were anxious to determine the age of the several trout from which the scales were taken.

3. The forenoon of Aug. 23 and the occasion of trips through Bishop, Aug. 15 and 29, were taken to service and check over the State car, 50543.

Edward L. Vestal
District Biologist

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM: Elden H. Vestal **PLACE** June Lake, California

TO: BUREAU OF FISH CONSERVATION **DATE** January 3, 1941

SUBJECT: Monthly report for December 1940

A. Office Work:

1. Portions of Dec. 3-6, 12, 13, 15, 16, and 30 were occupied in official correspondence preparation of routine monthly field and maintainance reports, and in review of biological and fish and game literature received.
2. A report on locations of some "missing" streams and lakes in the Inyo-Mono Area was typed and submitted to the S. F. office, on Dec. 4.
3. A start was made on summarization of the June Lake catch records for 1940 on Dec. 6 and 7, but this work was temporarily deferred through changes in a survey schedule resulting from a conference with Mr. Brian Curtis
4. A conference and tentative program for biological survey work for 1941-1943 was outlined and discussed during the conference with Mr. Curtis from Dec. 9 to 11.
5. A project report on phases of the Gull lake rough fish control experiment was tentatively outlined on Dec. 14.
6. Part or all of the days Dec. 17, 18, 20-23, were occupied in checking planting rosters and planting receipts for the Inyo-Mono Area for 1939 and recording of planting receipt bumbers on planting rosters to facilitate the work of copying the planting data on the stocking records in survey files. During the work of copying, the locations of certain streams and lakes were checked on U.S.G.S. and other sheets at hand.

B. Field Work:

1. At Gull Lake routine examination and cleaning of check screens and dams was accomplished at intervals of Dec. 3-5, 13,14 26, 27, and 30. During the severe snowstorm of Dec. 12-23. damage to the outlet screen was repaired. On Dec. 5, samples of lake bottom plants and animales were taken and preserved; and following this, the experimental live-cars were entirely removed from the lake and Eastern Brook Trout in them preserved in formaldehyde. Analysis on water samples fro Gull Lake, for temp., ., pH, alkalinity, and dissolved oxygen, were made in repeated series on Dec. 27 and 28; at this time. because of the treacherous condition of the ice sheet covering the lake, only marginal samples were used.
2. Both a trip on snowshoes was made to a snow lake on Reversed Peak for water samples and analysis of the samples was made on Dec. 29. The dissolved oxygen content of the sample from the bottom was determined at 1.2 p.p.m., while the top samples contained up to 1.5 p.p.m. Both carbonates and bicarbonates were present, but in comparatively small aount.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FISH AND GAME

FIELD CORRESPONDENCE

FROM:

PLACE

TO:

DATE

SUBJECT:

3. Together with Mr. Curtis, observational trips were made on Dec. 9 and 10 to Hot Creek Hatchery, Mammoth Lakes, Grant Lake L. A. Weir on Rush Creek, Rush Creek Egg Station, Silver Lake, Reversed Creek, and Gull Lake. A second trip was made with Mr. Curtis to Silver Lake on Dec. 10.

C. Miscellaneous work:

1. Annual vacation leave was completed on Dec. 1 and 2.
2. Cleaning and general straightening of the State Car was down on Dec. 6 and 13. On the latter date the radiator was flushed and cleaned and anti-freeze entered.
3. Removal of the State car to the highway (in advance of the height of Dec. storm) and of the Fish & Game boat from the ice in Gull Lake was done on Dec. 16.
4. A trip to Bishop for supplies was made on Dec. 19.
5. Time was taken to check over equipment for winter survey use on Dec. 22.
6. On Dec. 28, calibration of a sounding line, and an attempt at repair of a Kemmerer water sampler sent by Mr. Curtis was done. The Kemmerer bottle should have tapered rings swetted on both ends to ensure perfect alignment of the closing mechanism.

Edward Ostrom

District Biologist

DEPOSITION EXHIBIT 26
Vestal 3-1-90

Mouth of Lee Vining Creek, Mono Co., CA.; photo by Joseph Dixon, 7-14-1916, No. 2176, Museum of Vertebrate Zoology, Berkeley, CA. Shows fine rapid trout stream flanked by dense riparian cover (creek willow, willows predominate) with partial stream canopy. Stream shows abundant white water, short pools, extensive gravel, rubble, and some boulders. Time: about midday, judging from lighting on stream surface.

Eldon H. Vestal

Subject: Rush Cr. Test Stream

Date: 23 June 1948 Locality: Inyo County

Notes made by: Eckstorm

At 1 p.m. saw 1 snowy Egret fly up from fishing ground 20 yds above upstream barrier in gorge; at this time only about 50 g.p.m. passing over barrier (partly due to lack of irrigation in tableland above, this year) — and City L.A. taking it all (water).

DEPOSITION EXHIBIT
Vestal
27
3-1-90

Eldwin H. Vestal

Subject

Date July 19, 1939 Locality Rush Creek

Notes made by Turbeville

9:20 a.m. Rush Cr. where old road (road to Grant Lake) crosses creek; est. flow = 1 CFS; Temp. 62.0 F; Air 73.5; Av. width 4 ft; av. depth 4 inches.
(Note many irrigation ditches dry along Rushes on 395 toward June Jct. Junction; sheep and lambing sheds in foothills).
photo 1/25/16/50'

9:30 a.m. Rush Cr. 200 yds below outlet at Grant Lake: Av. width 12 ft; av. depth 15"; Temp. 69.0 F; 26 CFS (?)
According to L.A. employee from West Portal, and concerned with Grant L. dam, work to start next spring; lake will have capacity of 62,000 acre ft. or thereabouts.

(over)

Note Taken on fishway at L. A. Weir

Level on Grant Lake seems to be holding its own, although still very down; Stanley Larson tells me a person can pole across anywhere from willows and narrows in upper 1/3 of lake; Conway at this time ranging about 2500 sheep (see Fisher at Lewiston) in meadow at Grant delta near inlet.
photo looking toward dam; shows grazing sheep 1/25/16/100'

DEPOSITION EXHIBIT 28 of 28
Vestal 3-1-90

Edward H. Vestal

(1)

PACIFIC FLYWAY WATERFOWL INVESTIGATIONS

POPULATION DATA

1. Date September 20,1948 Time 4:30 PM

2. Locality (be specific) Rush Creek Delta,Mono Lake,Mono County,Calif

3. Estimated total number of waterfowl by species.

Whistling Swan	0	Redhead	0
Honker	0	Ring-necked duck	0
Lesser Canada	0	Canvasback	0
Cackling Goose	0	Greater Scaup	0
Black Brant	0	Lesser Scaup	0
White Fronted Goose	0	American Golden-eye	0
Tule Goose	0	Barrows Golden-eye	0
Lesser Snow Goose	0	Buffle-head	0
Ross Goose	0	Old Squaw	0
		Harlequin duck	0
Mallard	21#	White-winged Scoter	0
Gadwall	7 #	Surf Scoter	0
Baldpate	13 #	American Scoter	0
Pintail	148#		
Green-winged Teal	47#	Ruddy duck	0
Blue-winged Teal	6#	Fulvous tree duck	0
Cinnamon Teal	0	Wood duck	0
Shoveller	3250#	Coot	460#

DEPOSITION EXHIBIT 24 Vestal 3-1-90

4. Remarks # Eye count. Made on fresh water pond East of Rush Creek (shaded area shown on map) Total number of ducks observed in general area estimated at 175,000 to 200,000.

Weather clear and moderately warm. Light SW wind less than 5 MPH.

Edward Vestal

Submitted by Walter Dombrowski
Walter Dombrowski

(2)

PACIFIC FLYWAY WATERFOWL INVESTIGATIONS

POPULATION DATA

1. Date September 27th 1948

2. Locality (be specific) Rush Creek Delta, Mono Co, California
South shore of Mono Lake

3. Estimated total number of waterfowl by species.

Whistling Swan	0	Redhead	6
Honker	0	Ring-necked duck	0
Lesser Canada	0	Canvasback	0
Cackling Goose	0	Greater Scaup	0
Black Brant	0	Lesser Scaup	0
White Fronted Goose	0	American Colden-eye	0
Tule Goose	0	Barrows Golden-eye	0
Lesser Snow Goose	0	Buffle-head	0
Ross Goose	0	Old Squaw	0
		Harlequin duck	0
Mallard	16	White-winged Scoter	0
Gadwall	0	Surf Scoter	0
Baldpate	10	American Scoter	0
Pintail	42		
Green-winged Teal	19	Ruddy duck	9
Blue-winged Teal	4	Fulvous tree duck	0
Cinnamon Teal	0	Wood duck	0
Shoveller	395		
		Coot	66

4. Remarks The eyecount is low this time on account of last weeks storm taking out the dyke on the East side and we lost most of the water in it. This has been repaired and next weeks count will be much larger. The estimate of all ducks in this vicinity remains at 175,000 to 200,000.

Submitted by Walter Dombrowski

(3)

PACIFIC FLYWAY WATERFOWL INVESTIGATIONS

POPULATION DATA

1. Date ~~October 4th~~ (1948)

2. Locality (be specific) ~~Rush Creek Delta, Mono Co. Calif (South shore of Mono Lake)~~

3. Estimated total number of waterfowl by species.

Whistling Swan	0	Redhead	0
Honker	0	Ring-necked duck	0
Lesser Canada	0	Canvasback	0
Cackling Goose	0	Greater Scaup	0
Black Brant	0	Lesser Scaup	0
White Fronted Goose	0	American Golden-eye	0
Tule Goose	0	Barrows Golden-eye	0
Lesser Snow Goose	0	Buffle-head	0
Ross Goose	0	Old Squaw	0
Mallard	45 #	Harlequin duck	0
Gadwall	12 #	White-winged Scoter	0
Baldpate	65 #	Surf Scoter	0
Pintail	225 #	American Scoter	0
Green-winged Teal	36 #	Ruddy duck	7 #
Blue-winged Teal	0	Fulvous tree duck	0
Cinnamon Teal	0	Wood duck	0
Shoveller	3200	Coot	87 #

4. Remarks ~~Estimated number of ducks in vicinity 175,000 Time 9.00AM Weather cool and part cloudy, Temp 50° Lowest last night 29° Calm. Ducks were not moving very much.~~

Submitted by _____

PACIFIC FLYWAY WATERFOWL INVESTIGATIONS

POPULATION DATA

1. Date October 11,1948 Weather: Cloudy,Southeast wind 25 Mi per hour Temp 62 Minimum last night 30.4°

2. Locality (be specific) Rush Creek Delta,Mono County,Calif

South shore of Mono Lake.

3. Estimated total number of waterfowl by species.

Whistling Swan	0	Redhead	#12
Honker	0	Ring-necked duck	0
Lesser Canada	0	Canvasback	0
Cackling Goose	0	Greater Scaup	0
Black Brant	0	Lesser Scaup	0
White Fronted Goose	0	American Golden-eye	0
Tule Goose	0	Barrows Golden-eye	0
Lesser Snow Goose	0	Buffle-head	0
Ross Goose	0	Old Squaw	0
		Harlequin duck	0
Mallard	#75	White-winged Scoter	0
Gadwall	#15	Surf Scoter	0
Baldpate	#40	American Scoter	0
Pintail	#850		
Green-winged Teal	#235	Ruddy duck	18
Blue-winged Teal	0	Fulvous tree duck	0
Cinnamon Teal	0	Wood duck	0
Shoveller	#5200	Coot	350

4. Remarks Estimated ducks in vicinity 300,000 - 400,000

On account of storm conditions it was impossible to obtain eyecount of birds on pond .Upon first observation it was estimated that there were about 60,000 in pond. Birds were frightened off the pond and a half hour count of ducks returning produced the above count.The coots and ruddies did not leave pond.

(over)

Submitted by Walter Dempronski

Walter Dempronski Leevining,Calif.

In counting the returning birds only flocks were counted as follows:

Species	No of Flights	Ave No of Birds per flight
Shoveller	160	30 -35
Pintail	72	10 - 15
Mallard	9	8 - 10
Green wing teal	14	15 - 20
Gadwall	3	5- 6
Baldpate	7	5 - 6
Redhead	1	12

Singles and pairs were ignored

PACIFIC FLYWAY WATERFOWL INVESTIGATIONS

POPULATION DATA

1. Date of Census ~~November 1, 1948~~ Time of Day ~~8.00 AM~~

2. Locality (be specific) ~~Rush Creek Delta Mono County (S.shore Mont~~

3. Weather for Censusing ~~Strong SE wind Cloudy~~ Visibility ~~Good~~ (Good, Fair, Poor)

4. Temperature ~~46°~~ Condition of tide if applicable

5. Estimated total number of waterfowl by species:

Whistling Swan	0	Cinnamon Teal	0
Canada Goose (Honker)	0	Shoveller	27
Lesser Canada	0	Redhead	3
Cackling Goose	2	Ring-necked Duck	0
Black Sea Brant	0	Canvasback	0
White-fronted Goose	0	Scaup	0
Tule Goose	0	Golden-eye	0
Lesser Snow Goose	9	Buffle-head	4
Ross Goose	0	Old Squaw	0
		Harlequin	0
Unidentified Geese	0	Scoter	0
Mallard	2	Ruddy	9
Gadwall	7	Fulvous tree duck	0
Baldpate	3	Wood Duck	0
Pintail	10		
Green-winged Teal	4	Unidentified Ducks	6
Blue-winged Teal	0	Coot	92
		Mergansers	0

6. Remarks: ~~On account of the open season and concentration of hunters in this area it was impossible to take a census on the 18th and 25th of September. The ducks at present are rafted up near the center of the lake where it is difficult to make an estimate of the number. However including ruddies there are now well over a millio ducks on the lake 80% of which are ruddies and shovelers.~~

Submitted by

(over)

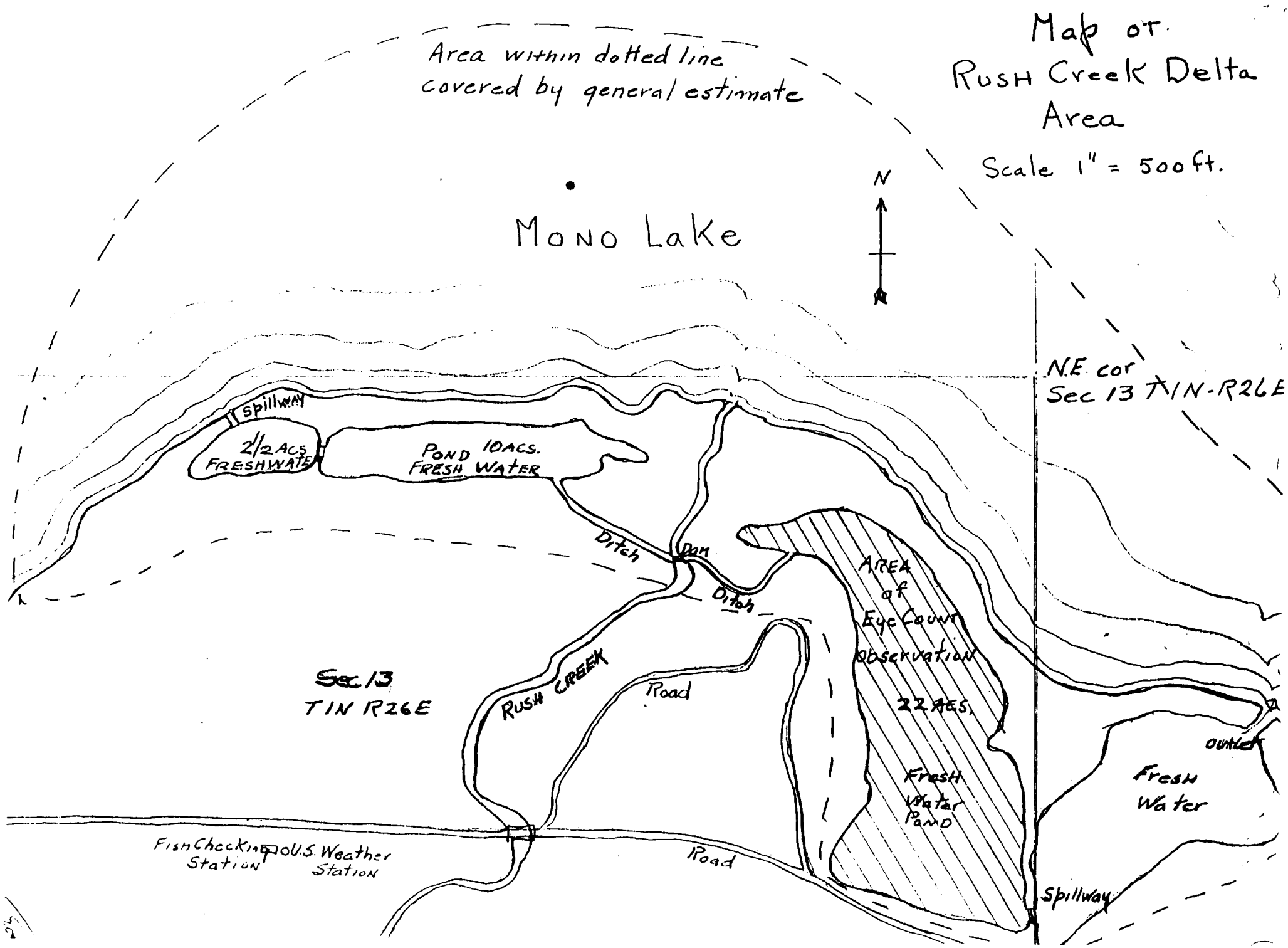
Walter Dombrowski

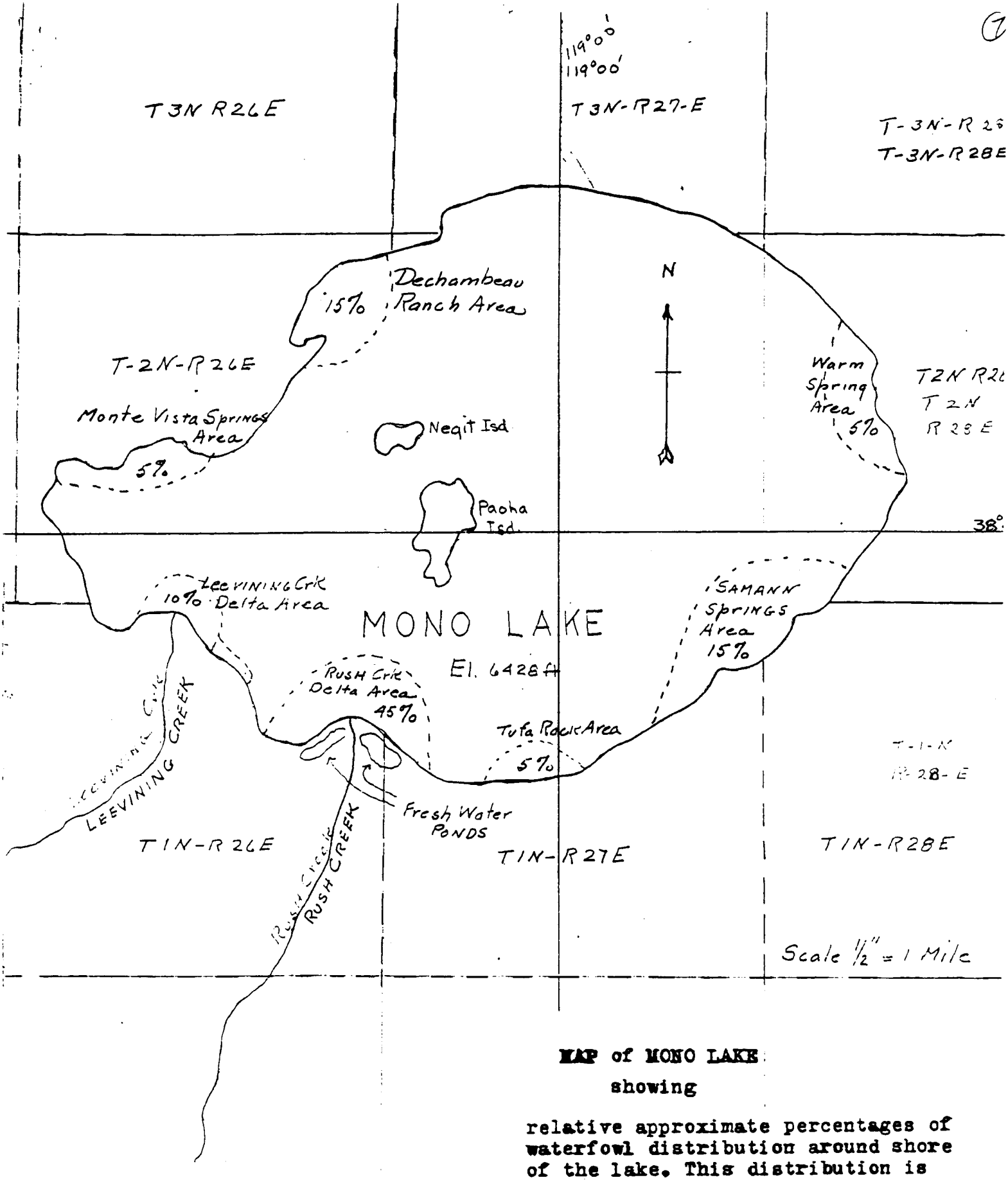
Considering the number of ducks in the area, the season was poor from a shooting viewpoint. With a rough estimate of about 4500 man shooting days less than three thousand birds were killed around Mono Lake. Full moon, fair weather and no wind was responsible. The birds can feed and obtain water from the fresh wter spri ngs in the lake so the birds remained far from shore during the open season

Of the birds killed ABOUT 70% wre shovellers, 15% gadwall, the other 15% pintail, greenwing teal, baldpate and mallards in about equal percentages. Few ruddies were killed. Early part of the season the kill consisted mostly of females but towards the end there were more males.

Since the birds feed on the lake early mornings the morning flight in this area is negligible and the shooting closes to early in the day to take advantage of any evening flight.

WD


Map of
Rush Creek Delta
Area
Scale 1" = 500 ft.
Area within dotted line
covered by general estimate
Mono Lake
N
N.E. cor
Sec 13 T1N-R26E
Spillway
2 1/2 ACS
FRESHWATER
Pond 10 ACS.
FRESH WATER
Ditch
Dam
Ditch
AREA
of
Eye Count
Observation
22 ACS.
Fresh
Water
Pond
Sec 13
T1N R26E
Rush Creek
Road
Fresh
Water
Outlet
Fish Checking
Station
U.S. Weather
Station
Road
Spillway

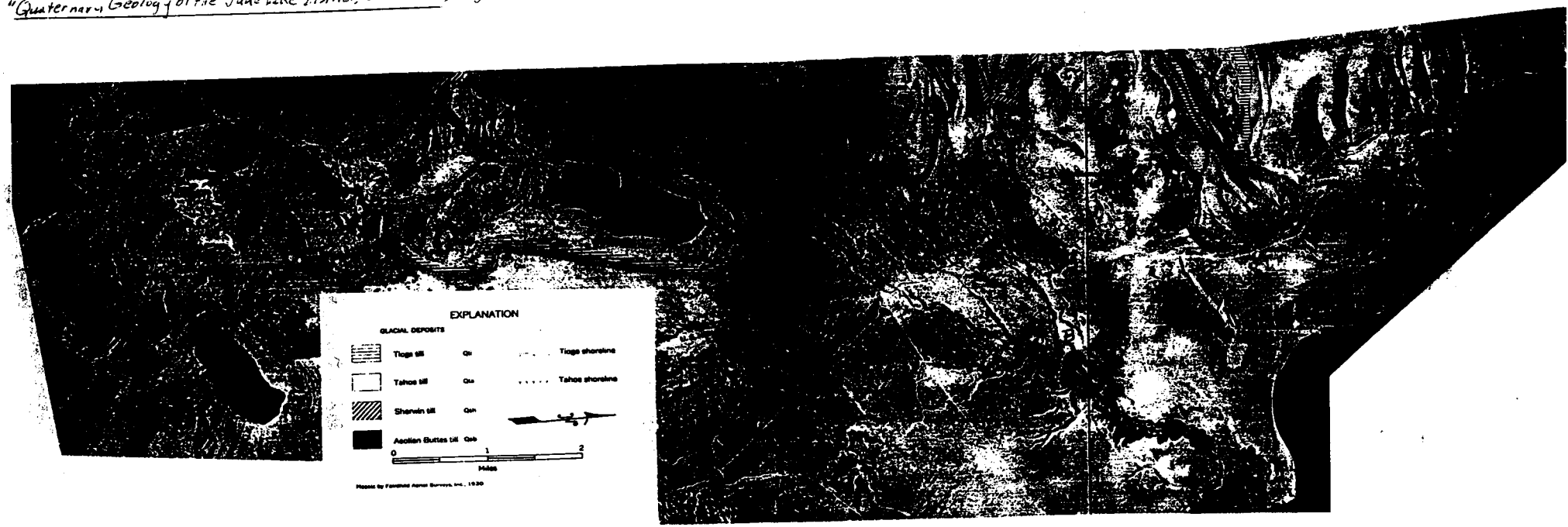


MAP of MONO LAKE

showing

relative approximate percentages of waterfowl distribution around shore of the lake. This distribution is naturally affected by shooting during the open season.

Putnam, William C.
"Quaternary Geology of the June Lake District, California", August 1949.



GEOMORPHIC MAP OF THE JUNE LAKE DISTRICT, CALIFORNIA

1 = The "Meadow"
2 = The Tarn

DEPOSITION EXHIBIT
Vestal
30
3-1-90

Eldemb. Vestal, Exh# _____

THE CREEL CENSUS AT RUSH CREEK TEST STREAM, MONO COUNTY, CALIFORNIA, 1950 [1]

by
Elden H. Vestal
Inland Fisheries Branch
California Department of Fish and Game

The present report for the angling season of 1950 is the fourth and last in a seasonal series prepared on the Rush Creek test project by the writer while District Fisheries Biologist in the Inyo-Mono Area in charge of this and other fisheries management work.

The test stream and its locale was described and a statement of objectives was included in previous progress reports for 1947 and 1948.[2] Results for the season of 1949 presented the first satisfactory opportunity for some comparison and inference from the catchable and fingerling planting tests over the first three seasons.[3] There was also included a more complete analysis of test stream angler use intensity together with an estimated value of the project area for fishing during the 1949 season. The report for 1950 therefore provides a better opportunity for further analysis and assessment of the value of stream-planting practices as currently employed in the Inyo-Mono Area and elsewhere in the State.

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1 Submitted: October 27, 1953.

2 Vestal, E. H. Report on the Creel Census at Rush Creek Test Stream, Mono County, California, 1947. Typewritten, 16 pp., 4 pls. November, 1947.

_____ The Creel Census at Rush Creek Test Stream, Mono County, California, Season of 1948. Typewritten, 14 pp., 5 tables, November, 1948.

3 Vestal, E. H. Creel Inventory at Rush Creek Test Stream, Mono County, California, 1949. Typewritten, 13 pp., 4 tables, 2 figs., January, 1950.

Included in the creel returns for the 1950 season are the first complete returns on the series of fingerling carryover plants.

Although the general plan of project control and operation followed that for previous years, the following further procedural changes were believed necessary:

1. The plant of catchable rainbow was reduced to the 1947 level owing to (a) a gradual reduction in mid-summer flow in Rush Creek from several sub-normal winters, (b) an apparent strain on the resident fishery from continuation of the doubled catchable plant during 1949, and (c) in order to provide another season in the test series for more direct comparison with 1947.

2. No additional carryover plants of fingerlings were made since it was felt that further marking would add to the difficulty in identification of current marks already present in the stream. Moreover, in view of a change of plan contemplated for the 1951 program, toward the testing of the effect of certain types of stream improvement devices, it was desirable to exhaust all information possible from existing planting tests before carrying the project further.

As before, the test stream was open the entire legal angling season of 184 days although the stream was actually fished for 176 days.

Owing to the death of Mr. Walter L. Dombrowski, who was principal recorder at Rush Creek checking station from 1947 through 1949, Mr. Valjean Clark was employed as recorder for the 1950 angling season. In addition Messrs. Ralph V. Beck,

Assistant Fisheries Biologist, and Robert R. Ehlers, Student Biologist, aided the writer in operating the project during regular time-off for Mr. Clark.

The continued interest and cooperation with the Rush Creek project by the Mono County Board of Supervisors, the Inyo National Forest, residents of Leevining, California, and Mr. J. B. Clover of Rush Creek Ranch, as well as by the hundreds of fishermen using the test stream, has been most appreciated.

As in 1949, no water was released into Rush Creek from Grant Lake dam; consequently, the test stream was supplied almost entirely by flow from springs entering just below the upstream barrier.

The City of Los Angeles Department of Water and Power does not contemplate release of water from the dam unless compelled by need for repairs or heavy run-off from unusually wet years.

By now it was clear the City would take it all — i.e. all that could be captured by their diversion facilities! Ed.

THE TEST STREAM PLANTING PROGRAM FOR 1950

The 1950 test stream planting program included catchable rainbow only and is summarized in Table 1.

Table 1. Rush Creek Test Stream Planting Program, Season of 1950

Size	Species	Mark	No.	Size(AV)	Dates of planting	Stock
Catchable:	RT	RV	10,000	6/lb.	4/28, 5/26, 6/23, 7/14, 8/9.*	Hot Cr.

*Includes five spaced plantings of 2000 each.

No further carryover plants of fingerlings were added in 1950 in order to enable existing plants and marks to exhaust themselves

in the catch prior to the 1951 season as well as to reduce the chance for confusion in identification of fish remaining from 1947, 1948, and 1949 carryover planting tests.

In earlier reports it was pointed out that from 1942 to 1946, 13,892 catchable rainbow were planted in lower Rush Creek; and no brown trout were planted there after 1941. The reports for 1947, 1948, and 1949 (loc. cit.) include summaries of the test planting program for those years.

THE CREEL CENSUS: Season of 1950

Records: Again in 1950 directive signing and centralized checking of all anglers in and out of the project was followed as in previous years. It was also necessary to again revise the creel form in order to accommodate all test plantings and this is shown in Figure 1.

Owing to provision of a trailer at the checking station for Mr. Clark and his family, the checking station was as fully attended as in all prior seasons and it is believed that the creel count is as near complete as possible to obtain. Weekly checking and summary of all creel data by the writer was continued as standard procedure.

In addition to the creel census, a daily climatic record, taken at 8:00 A. M., 12:00 Noon and 4:00 P. M. and including air and stream temperatures, was continued throughout the season. Stream flow was estimated by the float method from time to time and the following decline was noted: May 30 - 10 cfs;

Stream flow est. by float method

RUSH CREEK, MONO COUNTY, TEST STREAM: _____ 19___ RECORD

Number of Anglers	Began Fishing	Stopped Fishing	Elapsed Time	Total Hours	Unmarked Fish Caught				Marked Fish Caught													Total Combined Catch
									1948					1949			1950					
					RT	EB	BN	Total	RV	D	LV (BN)	DA	AD	VV	RV (BN)	LV	RV	RV (BN)	LV	Total		

Fig. 1. Sample of creel form revised for use at Rush Creek Test Stream, Season of 1950.

00 071

District 7
April 12, 1950, Revised
100

1950 trend in flows
May 30 – 10 cfs
June 30 – 9 cfs
July 31 – 6 cfs
Aug 31 – 4 cfs
Sept 30 – 3 cfs
Oct 21 – 2½ cfs

June 30 - 9 cfs; July 31 - 6 cfs; August 31 - 4 cfs; September 30 - 3 cfs; October 21 - 2-1/2 cfs.

Catch Composition: Table 2, page 6 provides a complete monthly and seasonal summary of the 1950 creel census at Rush Creek Test Stream. It differs from a similar table in project reports for previous years only in that it includes records for the two open days in April and adds a record of the number of cars passing through the checking station.

Again this season marked hatchery fish predominated in the over all catch and contributed 88.2 per cent of all fish creeled for the season as compared with 11.8 per cent for wild fish. Among wild fish 90.8 per cent were brown trout, 9.0 per cent were rainbow, and only 0.2 per cent were eastern brook trout. The catch of brown trout, though still dominating the catch of wild fish, and proportionately highest yet recorded (90.8 per cent), was nevertheless numerically lower than in any previous season. In contrast, the returns for wild rainbow and eastern brook were both numerically and proportionately lower than in any prior year.

Among planted fish the principal contribution (97.9%) continued to be from in-season spaced plants of catchable rainbow marked RV, while all others, including trout from the 1948 and 1949 carryover plants, contributed only 2.1 per cent. As in previous seasons the great majority of the catch (89.8%) was made in the 4 months of the angling season from May to August, inclusive; and most (69.8%) of the total combined catch for the 1950 season was taken in the top vacation months of June, July, and August.

Table 2. Creel Returns at Rush Creek Test Stream, Mono County, California, 1950[1].

Month	No. Days	No. Anglers	Total Hours Fished	UNMARKED FISH CAUGHT: RT	KB	BN	Tot.	MARKED FISH CAUGHT 1948: RV	D	LV (BN)	1949: UA	AD	VV	RV (BN)	1950: LV	RV	Tot.	Total Comb. Catch	Av. Catch per Angler	Av. Catch per Angler per Hr.
April 29-30	96	276	838	7	1	36	44	0	0	0	0	0	6	1	3	365	375	419	1.51	0.50
May	390	996	3186	8	1	197	206	0	1	3	0	0	7	2	7	1534	1554	1760	1.78	0.55
June	577	1342	4640	2	0	208	210	0	1	6	1	0	0	11	39	1910	1968	2178	1.59	0.47
July	647	1592	5227	44	0	269	313	0	6	9	0	0	0	9	26	1826	1876	2189	1.37	0.41
Aug.	457	1082	3762	28	0	160	188	0	0	1	0	0	0	10	10	1551	1572	1760	1.63	0.46
Sept.	185	424	1208	1	0	60	61	0	0	0	0	0	0	0	2	319	321	382	0.89	0.31
Oct.	46	93	209	2	0	8	10	0	0	0	0	0	0	1	0	79	80	90	0.96	0.45
Totals Av.	2398	5805	19,070	92	2	938	1032	0	8	19	1	0	13	34	87	7584	7746	8778	1.51	0.46

[1]All original creel data completely reworked for purposes of this report.

<u>In-season Yield to Creel in Summer-planted Catchable Rainbow:</u> From a total plant of 10,000 catchable rainbow (marked Right Ventral) planted at five spaced intervals through the 1950 season, 7,584 (75.8 percent) were caught in 176 fishing days. The rate of take was rapid since of this number, 5,635 (74.3 per cent) were taken by July 31st. Moreover, taking the total combined catch for the five 5-day periods immediately following the respective dates of planting, we find that 3,432 (45.2 per cent) of the seasonal total catch of marked catchable rainbow were caught in only 25 fishing days. In other words nearly half the season's catchable plant were caught out in only one-seventh of the total number days the test stream was fished. This fishing was done by 1,823 anglers, or only 31.4 per cent of the total for the 1950 season.

The above yield to the creel is the lowest yet recorded during the four seasons of test stream operation and may be due largely to a combination of: (1) gradual deterioration of habitat through decline in stream flow, and (2) increased mortality owing perhaps to increased vulnerability to anglers and enemies. Some decline in hatchery stock is also suspected, although this is difficult to identify without controlled experimentation.

<u>Carryover Yield From Summer-planted Catchable Rainbow:</u> The above data show conclusively after four seasons of census that the great majority of each in-season catchable rainbow plant is caught out before the close of the angling season. Nevertheless, the data also show that a substantial number of trout remain (theoretically, at least) for possible

carryover into the following year. The extent to which these fish actually fail to contribute to the catch the next season, however, is strikingly shown in Table 3, in which, the per cent of carryover the first winter is a mere 0.1% or less - hardly more than a trace out of

Table 3. Yield to the Creel From Catchable Rainbow Planting Tests at Rush Creek Test Stream, 1947-1950.

Year	Mark	Number Planted	Yield to the Creel 1947	1948	1949	1950	Per cent yield 1st Season	Per cent carryovers next season	Per cent Total yield to Creel
1947	LV	10,000	8881	11	1	0	88.8%	0.1%	88.9%
1948	RV	19,945	- -	18362	16	0	92.1%	trace	92.1%
1949	VV	19,975	- -	- -	15995	13	80.0%	trace	80.0%
1950	RV	10,000	- -	- -	- -	7584	75.8%	?	?
Totals and Averages		59,920					84.8%	trace	85.6%

a possible 15% of a plant on the average theoretically remaining at end of the trout season. Thus, out of a possible 9,098 fish not caught by anglers during the trout seasons 1947-1950 less than one hundred (0.1%) survived to be dreeled the following year. This means that with the present estimated rearing and planting cost to the State of about 15 cents each for catchable trout, the anglers at the Test Stream sustained an overwinter fishery loss of about $1350.00 for the 4 seasons of record shown. In the absence of the complete

creel data for 1951, it is probably safe to assume that the over-winter rate of loss would be about the same as for the previous 3 years.

It may be that the greater part of the mortality occurs within the angling season from various causes and the trout are simply not present for carryover at the onset of winter.

Table 3 also shows equally well, of course, the in-season yield from the catchable rainbow planting tests, which, over a 4-year period has averaged 84.8% (with a range of 75.8 per cent to 92.1 per cent). Judging from the last column of this table we may add that the per cent total yield to the creel for the same period would probably not be more than 0.1% over this amount.

Yield From Summer and Fall-Planted Fingerlings: The test stream season of 1950 has aided considerably in filling out the returns from the test plants of fingerling rainbow and brown trout. A summary of results for the period 1947-1950 is shown in Table 4 in which spring-spawned and fall-spawned rainbow and brown trout are grouped separately.

Out of a total of 25,395 fingerlings planted only 1,342 or only 5.3% were caught during the census period. The data shows that in general spring-spawned rainbow stock provided a better yield than fall-spawned, particularly when the fingerlings were planted late in the season at a larger size. For example, out of 6,000 spring-spawned fall-planted fingerlings 851(14.2%) were returned to creels by the end of the 1950 season; and out of 7,000 spring-spawned summer-planted fingerlings only 218 (3.1%) were returned to creels b the

Table 4. Yield From Summer and Fall-Planted Fingerling Rainbow and Brown Trout in Rush Creek Test Stream, 1947-1950.

Mark	Stock*	No. Planted	Yield to the Creel 1947	1948	1949	1950	Total** Recorded Yield	Yield in per cent of Total Plant
A. Rainbow: Spring-Spawned								
LVA	FP*** (RTW)	2000	14	175	3	0	192	9.6%
D	SP**** (RTW)	4000		18	105	8	131	3.3%
DL	FP (RTW)	4000		444	114	1	559	13.9%
LV	SP (RTW)	3000			0	87	87	2.2%
							969 (7.4%)	
B. Rainbow: Fall-Spawned								
RVA	FP (HC)	2000	114	72	0	0	186	9.3%
Ad	FP (HC)	4000		3	54	0	57	1.4%
							243 (4.7%)	
C. Brown Trout:								
LV	SP Rush Cr	3002		2	75	19	96	2.2%
RV	SP Rush Cr	3003			0	34	34	1.1%
							130 (2%)	
Totals & Averages:		25,395					1,342	5.3%

*RTW are Mt. Whitney rainbow and HC are Hot Creek rainbow; Rush Creek indicates fish from Rush Creek Spawning Station.
**With over all yield in per cent of total plant.
***Fall Plant.
****Summer Plant.

close of the 1950 angling season.

Only 130 (2%) out of 6,395 brown trout fingerlings planted during the summer in the test stream were caught out by anglers. It is entirely possible that more of these fish will reach creel size in 1951; however, judging from past experience with this method of planting brown trout fingerlings, any considerable further return seems unlikely.

The over-all yield from the fingerling plants is somewhat higher than anticipated although in a heavily fished stream situation, where high yield from catchable rainbow planted within the season is expected, predation and other mortality factors may be somewhat lessened and the situation more favorable for survival.

Nevertheless, the above yield data strengthen the conclusion stated in the writer's 1949 report that "the very low yield from fall carryover plants of advanced rainbow fingerlings makes this type of stocking entirely impractical as a means of maintaining angling in a heavily fished stream". We may now go even further by concluding that no heavily fished stream such as Rush Creek can be expected to return reasonably good fishing where fingerlings are ~~incorporated in~~ the back bone of the planting program.

<u>Angling Intensity and Angling Success</u>: The general angling pattern for prior seasons, characterized by rather wide fluctuations in the daily and weekly creel record was again repeated this season. It is apparently a " normal" pattern for heavily fished streams in the Inyo-Mono Area and may also be the typical pattern to be expected in similar streams throughout the State.

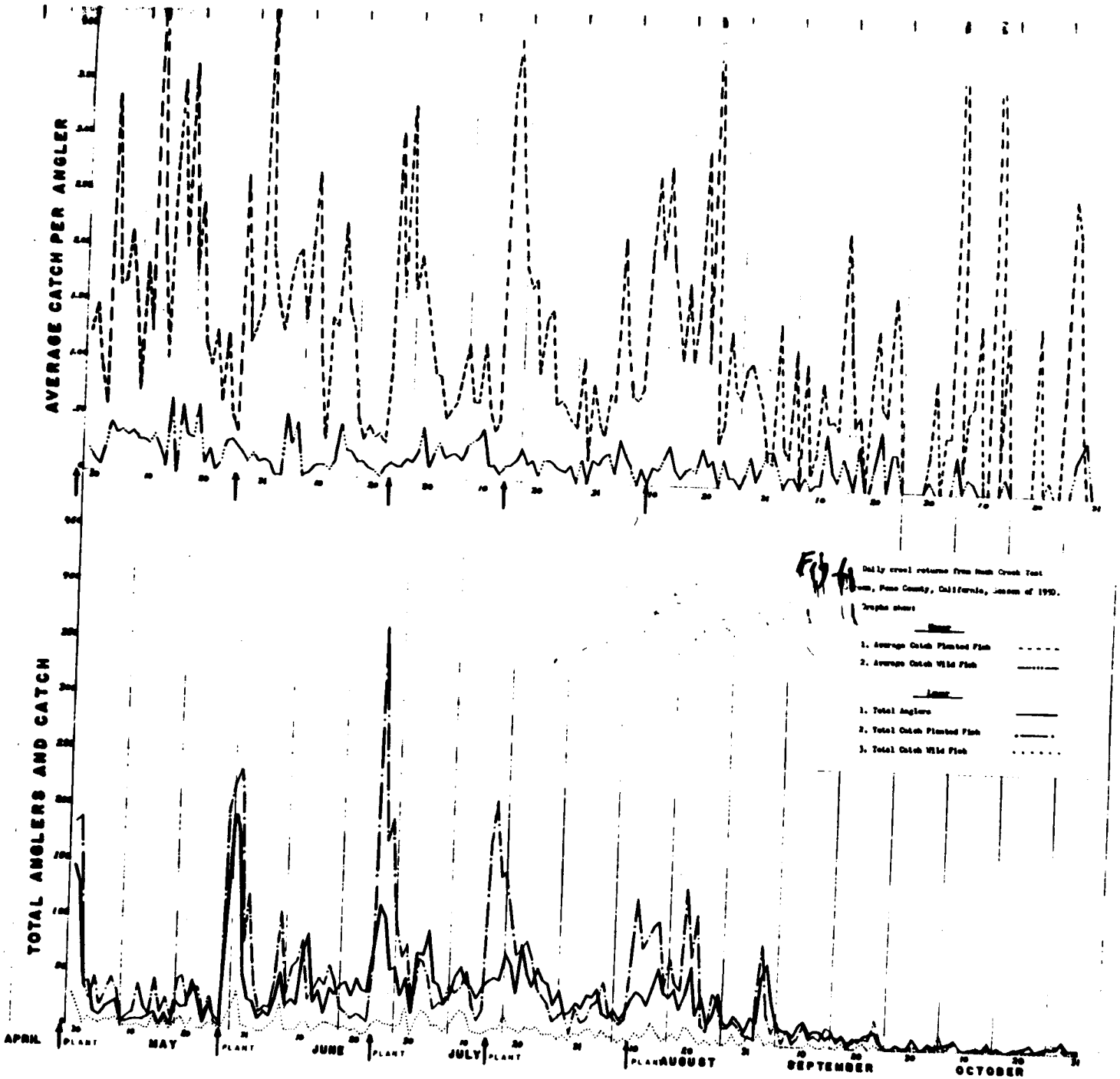

Fig 4 Daily creel returns from Hume Creek Test Plant, Fresno County, California, January of 1970. Graphs shows

Unlike the 1949 season, catch rates were higher in May than in June with the average catch per angler per day at 1.78 and the per hour catch at 0.55. The rates then gradually declined through the remainder of the season, slumping in July and very markedly in September, when the average angler catch per day was only 0.89 at a rate of 0.31 fish per angler per hour. Both rates for the entire season, at 1.51 trout per angler day at a rate of 0.46 fish per hour, are substantially lower than in 1949 (1.8 fish per day at a rate of 0.49 fish per hour).

The drop in the quality of fishing apparently has occurred as predicted in 1949, but without further increase in the number of anglers. It would seem, therefore, that the expected determination in the quality of fishing has resulted from a combination of over-fishing the stream in 1948 and 1949 and the gradual constriction of habitat resulting from lower stream flow with increased temperatures and other adverse conditions.

In Table 5 is shown the increase in the number of unsuccessful anglers through the angling season as the stream fishery is depleted. It is obviously affected by the present system of planting ahead of and

Table 5. Summary of Unsuccessful Fishing Effort at Rush Creek Test Stream, Season of 1950.

Month	Unsuccessful Anglers	Per Cent of Total Fishing Effort
April	88	31.8%
May	426	42.7%
June	561	41.8%
July	694	43.5%
August	465	42.9%
September	213	52.2%
October	50	53.7%
Total and Per Cent of Total	2497	43.0%

favoring the seasonal use "pressure points", following which there is nearly two months in which no planting occurs at all. The numberand proportion of zero catches shown for the season is probably about the same in other heavily fished streams in the Inyo-Mono Area.

The Creel Census at Rush Creek, 1947-1950: Creel returns for four years of creel census at Rush Creek Test Stream are shown in Table 6 in which the 1950 results further strengthen the main conclusions from the test project stated in the 1949 report concerning (1) the value of in-season spaced plantings of catchable trout in maintaining angling in a heavily fished stream, (2) the low uneconomical yield to be expected from the practice of fingerling planting in such a stream, and (3) that despite the increase in angling the over all proportion of "resident" or wild trout in the catch has remained about the same.

The proportional increase in the number of brown trout in the 1950 catch of wild fish and corresponding decrease in the number of wild rainbow, as pointed out elsewhere, is inferred to be due to a constriction of habitat with consequent detrimental effects on the fishery.

It should be noted that the proportion of anglers with zero catches has remained nearly the same. In other words, about 43% of all anglers who fished the test stream from 1947-1950 failed to catch fish for one reason or another. In a way, this is a fortunate circumstance from the stream management stand point, since any lesser proportion would probably mean a temporarily higher catch rate followed by a further slump in fishing quality.

Returns from Rush Creek Test Stream, 1947 - 1950.

	1947	1948	1949	1950	Summary: 1947-1950
ays)	184	184	184	184	736
	180	169	179	176	704
ted	10,000	19,945	19,975	10,000	59,920
	5,778	8,384	10,004	5,805	29,971
	19,569	31,962	36,417	19,070	107,018
.)	3.4	3.8	3.6	3.[illegible]	3.6
sh	1,351 (13%)	1,292 (6.4%	1,657 (9.2%)	1,032 [illegible]	5,332 (9.3%)
	1,104 (82%)	1,131 (87.6%)	1,373 (83.0%)	938 [illegible]	4,546 (85.3%
	214 (16%)	140 (10.8%)	279 (16.7%)	92 [illegible]	725 (13.6%
	33 (2%)	21 (1.6%)	5 (0.3%	2 [illegible]	61 (1.1%)
fish	9,009 (87%)	19,087 (93.6%)	16,063 (90.8%)	7,746 ([illegible])	52,205 (90.7
	38.8%	38.1%	30.0%	75.3[illegible]	84.3%
)	----	5.2%	2.4%	5.3%	5.3%
	10,060	10,379	18,020	3,778	57,537
	1.7	2.4	1.8	1.5	1.9
r.	0.52	0.63	0.49	0.46	0.54
	2,855	3,287	4,150	2,497	12,789
	47.6%	39.2%	41.5%	43.0%	42.7%

The data point squarely to the fact that even though in-season catchable fish planting is the method of choice for maintaining reasonably good fishing in heavily fished streams the bulk of the planted fish are caught by a minority and most anglers have only poor to fair fishing. Planting has to be more than doubled before good catch rates are reached, but such rates are only transient since increased angling effort following such planting soon nullifies them. It, therefore, becomes possible, with catchable fish planting, to vary the quality of angling at will merely by increasing or decreasing the planting allotment. In time, however, as the number of licensed anglers increases the quality of angling in heavily fished streams all over the State would seem to decline and to stabilize itself, as it were, at the theoretical catch rate level where anglers refuse to fish any longer and seek their pleasure elsewhere. The "saturation point" will soon follow when the State has reached its capacity to produce and plant catchable fish. That point is apparently not far distant, judging from the present trend in hatchery production and from the angling results in controlled projects like Rush Creek Test Stream.

Use-Intensity, Season of 1950: Intensity of use at the test stream during the 1940 season, based on a stream use of 3.2 miles, is shown in Table 7.

The average use per mile of stream is considerably lower than 1949 (17.0 anglers per mile per day) and reflects rather clearly the return to the 1947 planting level for catchable rainbow. An average use of about 10 anglers per stream mile per day is believed to be about as much as streams like Rush Creek can stand and still produce fishing at a reasonably good level.

Table 7. Use Per Mile of Rush Creek Test Stream, Season of 1950.

Month	No. of Anglers	No. of Cars	No. of Anglers Per Stream Mile	Angler Use Per Stream Mile Per Day
April	276	96	86	43.0
May	996	390	311	10.3
June	1342	577	419	13.9
July	1592	647	497	16.0
Aug.	1082	457	338	10.9
Sept.	424	185	132	4.9
Oct.	93	46	26	1.0
Totals & Av.	5805	2398	1814	10.3

With a greater number of anglers in 1949, the "rental value" of the test stream was greater and amounted to an estimated $72,029 or about $22,509 per stream mile for the entire season. In contrast, a similar value computed in the same manner for the 1950 season is given as follows, based on a conservative $2.00 per angler hour of stream use:

(1) Av. angler day (3.3 hours) : $ 6.60

(2) 5,805 x $6.60 : $38,313

(3) or, $38,313 / 3.2 (stream miles) : $11,972 per stream mile

From the 1947-1950 summary shown in Table 6 and using the same basis we obtain the following over all estimated "rental" value of the test stream:

1) Av. angler day (3.6 hours) : $7.20

2) 29,971 x $7.20 : $216,791

3) or, $216,791 : $67,747 per stream mile

SUMMARY

1. The Rush Creek Test Stream creel project was again operated throughout the entire season of 184 days in 1950. The stream was actually fished 176 days.

2. A return to the 1947 level of planting in-season catchables, the absence of further planting of fingerlings, and the continued absence of flow from Grant Lake with a consequent decline in test stream flow were chief factors in the 1950 program.

3. Five spaced allotments of catchable rainbow totalling 10,000 trout, all with right ventral (RV) fin removed, were planted from April 28 to August 9, 1950. These trout averaged 6 per pound and about 7 inches long.

4. Creel records showed that 5,805 anglers fished the test stream 19,070 hours for a combined total of 8,778 wild and planted fish as follows:

Unmarked Catch				Marked Catch									
				1948					1949			1950	
BN	RT	KB	Total	RV	D	LV (BN)	DA	Ad	VV	RV (BN)	LV	RV	Total
938	92	2	1,032	0	8	19	1	0	13	34	87	7,584	7,746

5. Marked hatchery fish contributed 7,746 trout, or 88.2% of the total season's catch. Out of 10,000 marked (RV) catchable rainbow planted during the season 7,584 (75.8%) were caught. Some 162 trout were carryovers from previous seasons, of which 87 (54%) were marked catchable rainbow (LV) of the 1949 season and 53 (33%) were carryovers from brown trout fingerlings planted in 1948 and 1949.

6. Wild fish contributed 11.8% of the total 1950 catch: 938 (90.8%) were brown trout, 92 (9.0%) were rainbow, and 2 (0.2%) were eastern brook.

7. The average catch per angler day for the season was 1.5, with the catch rate per angler hour at 0.46.

8. There were 2,497 zero catches, or 43% of the season's total number of anglers.

9. The test stream was fished at the rate of 10.3 anglers per mile per day, or about 60% of the 1949 use rate.

10. Summary of creel returns for 1947-1950 shows that out of 736 days of angling season during which the test project has been operated, anglers have fished a total of 704 days. In this period 29,971 anglers have fished 107,018 hours for a combined total catch of 57,537 trout. Of this number 52,205 (90.7%) have been hatchery fish and 5,332 (9.3%) have been wild fish.

11. In the 4-year period 85,315 marked trout have been planted in the test stream, of which 59,920 have been catchable rainbow planted in-season and 25,395 have been brown trout and rainbow trout fingerlings summer and fall-planted for carryover yield. The above combined total catch (par.10) indicates an overall yield from the hatchery fish of 66.2% (with a loss of some 33.8%).

12. Creel records show that out of 59,920 catchable rainbow planted, 50,822 have been caught, indicating an overall 4-year yield of 84.8%. The creel data further show that scarcely more than a fraction of 1% of these fish survive the winter to carryover the next year. Consequently, the average <u>total yield</u> from these fish approximates 85% and some 15% on the average are lost.

13. Out of 25,395 brown and rainbow trout fingerlings planted from 1947 to 1950, only 1,342 have been caught. Of this number 969 have been spring-spawned rainbow, 243 fall-spawned rainbow, and 130 brown trout. The data indicate an overall yield from the fingerling planting of only 5.3%.

14. Of the 5,332 wild fish caught in the four-year period 4,546 (85.3%) have been brown trout, 725 (13.6%) rainbow trout, and 61 (1.1%) eastern brook. Alone, the naturally spawned brown trout contributed 7.9% of the combined total catch from the test stream.

15. The 4-year average catch per angler per day was 1.9 while the catch per angler hour was 0.54. The average angler day was 3.6 hours.

16. Some 12,789 anglers (42.7%) caught nothing despite the heavy planting program.

17. Based on an estimated value of $2.00 per angler hour the total estimated rental value for the test stream for the 4-year period was $216,791 or $67,747 per stream mile.

Mono Lake Tributary Streams

BN = Brown trout ; RT = Rainbow trout ; EB = Eastern brook trout ; CT = Lahontan Cutthroat Trout (Blue-spotted)

Estimating abundance: A - heavy (50% " 0 " " 1 " "
B - medium (50% " " " " "
C - light (25% " " " " "

14 c Davis, Fishery Circular No. 26, 1956 "Guide-lines for Conducting Stream Habitat Survey"	Rush Creek	Parker Creek	Walker Creek	Lee Vining Creek	Remarks
Section	Lower; 7.93 mi	Lower; 1.9 mi	Lower; 2.9 mi	Lower; 3.5 mi	From L.A. diversion to mouth
Source	Snow; glaciers; springs & surface runoff	Same	Same	Same	Headwater storage in many tarns & lakes
Barriers	Grant L. dam (Elev. 7,060 ft.) Historically, none between mouth and June L.	L.A. diversion dam (Elev. 7,140 ft.) Historically none between mouth & Parker L.	L.A. diversion dam (Elev. 7,145 ft.)	L.A. diversion dam (Elev. 7,150 ft.) Dam and apron at Dr. Dennis Power Plant	Historically, no known barrier between mouth and Lowest glacial lake. With completion of Mono Aqueduct & Mono Tunnel, DWP of past year, tests all flows in main tributaries
Diversions	Ditches for stock water & range irrigation No screens; duck ponds E. of W. of delta.	Same — no screens	Same — no screens	Local irrigation — no screens	
Springs & seepage	up to 18 cfs in meadow section below Gorge	At least 2 spr. near mouth	Seepage near mouth	Some from return flow from town	
Tributaries	Parker Cr.; E. Parker Cr.; Walker Cr.	So. Fork Parker Creek	Bodie Canyon Creek	Stream from Simpson Mine; Log Cabin Creek	
Volume Flow	(1911-1912) Range 16 – 1,260 cfs May – June range 140 – 820 cfs Est. Average 75 cfs at Gil 345, 4-30-1938	7/22/1911 45 cfs; 6/1/1962 21.6 cfs	5/1/1962 26.4 CFS; spring runoff probably reaches 75 CFS	Jan – 26 (20 – 45 cfs); May – 97.13 (65 – 180 cfs); July – 415.4 (210 – 648 cfs); Sept – 51.0 (36 – 70 cfs) Date: U.S.G.S. 1912	At normal flows, low water occurs in winter, gradually increasing to peak in May, June & July, then gradually decreasing to peak in winter period.
Gradient (Av.)	Moderate & rapid; Av. 82 ft/mi. (Av. 58.5 ft/mi in test stream section)	Rapid; Av. 105 ft/mi	Rapid & cascading; Av. 150 ft/mi	Rapid & cascading; Av. 209 ft/mi	All can be terminated at extremely high flows
Velocity	At normal flows from about 1.0 fps in delta & more than 10 fps in Gorge and above at high water	From zero to more than 10 fps at high flows	From zero & more than 10 fps at high flows	From about 1.0 fps & more than 10 fps in reaches above U.S. 395 at high water	Wide range, most productive in stretch from about 0.5 to about 4.0 fps (See also Stations 16): most productive for spawning gravel 1/8" to about 3" dia.
Substrate	Pumiceous pair; glacial gravels; rubble; boulders	Same	Same	Glacial gravel; sand; gravel; rubble & boulders	Extensive braiding may be determined if flows and velocity patterns are dissipated.
Braiding	Braiding of delta reach with extensive grass forming waterfowl marsh.	None	None	Some in reach near mouth, beyond limit of upstream cove.	Turbidity from Simpson Mine lasted for more than 1 week.
Color & Turbidity	Normally white/clear; some turbidity during Spring runoff.	Same	Same	Usually clear; occasional pollution from Simpson Mine	Improved within range of good trout stream
Alkalinity	pH 7.0 – 7.2	No data (See Remarks)	No data (See remarks)	pH (no data) See remarks	Air: 14 yrs. Cain Ranch, U.S.W.B. (1946) Annual Av. 43.6
Temperature	Air: Av. Summer 64.0 F; winter 24.4 F Water: Seasonal range 36 – 72 F.	Air: Same (Cain Ranch) Water: No data – lower section	Air: (Same Cain Ranch) Water: No data – lower section	Air: (Same – Cain Ranch) Water: No data – lower section	
Pools/Shelter	Abundant; some plant debris; some pools to over 3 ft deep.	Abundant; some plant debris	Abundant; some plant debris	Some pools over 3 ft. deep; abundant, some detritus & plant debris	"Over 150 ft. of rock wall – w/ deposits of Pacifica, direct from Mono Craters in lower Rush Creek" – T.C.R.
Bottom Type	Sorted glacial till, gravel, rubble, & boulders; abundant spawning gravel	Same	Same	Same	All streams favored by direction of flow – fine sand for shade.
Shade/Canopy	From zero to more than 75% some sections	From zero to more than 50% in some sections	From zero to more than 30% upstream in well	From zero to more than 50% upstream below & above U.S. 395	
Aquatic Vegetation	Water cress in meadows area; some algae; marsh plants	Sparse (near springs)	Sparse	Sparse	See appended note: Observations of trout indicated good food production at all streams
Fish Foods	Abundant; more than 7 kinds present	Plentiful; more than 7 kinds	Plentiful; more than 7 kinds available and used by trout	Plentiful; more than 7 kinds available and used by trout	
Fish Species	BN; RT; EB; CT Greatly reduced 1916 Dace found 1934 may now be extinct	BN and EB	BN and EB	BN; RT; EB; CT may have been planted originally since 1900	BN tend to dominate in some sections of all tributary streams to Mono L.
Riparian Cover	willows; cottonwoods; creek alder; wild rose; sage & bitter brush; Jeffrey pine; aspen; bitter brush; dense, some sections high pine	willows; cottonwoods; sage and bitter brush; wild rose	willows; cottonwoods; sage & bitter brush & wild rose; wild rose; creek alder	Jeffrey & lodgepole pine; willows; cottonwoods; creek alder; sage; bitter brush; wild rose.	Note: Without exception, all wild trout observed under prevailing flow conditions in Rush Cr., Parker Cr., Walker Cr., and Lee Vining Cr. were in good to excellent condition.
Sparoning	Good & excellent with normal flow regime	Good & fair with normal flows	Good & fair with normal flows	Good & fair at normal flows	
Basic productivity (Est.)	Excellent	Good	Good	Good	
Decree	Generally good; chiefly intermittent; difficult where riparian cover very dense.	Chiefly intermittent; difficult where riparian cover dense	Chiefly intermittent; difficult where riparian cover dense	Good	
Fishing Intensity	B & A	C & B	C & B	Same C. B & A	
Angler/mile Use	Test stream Av. 10/mi/day (1947 – 1951) open sections at least 50% of the stream use.	Use decreased as flows decreased	Use decreased as flows decreased	Comparable to Rush Cr. after spring runoff period; inference from T. stream results	

DEPOSITION EXHIBIT 1 of 30 3-1-90

Eldwell Vestal 2-5-90