RESULTS OF PLANTING CATCHABLE-SIZE BROWN TROUT, *SALMO TRUTTA FARIO* L., IN A STREAM WITH POOR NATURAL REPRODUCTION

John G. Hale, Minnesota Department of Conservation, Duluth, Minnesota
and
Lloyd L. Smith, Jr., University of Minnesota, St. Paul, Minnesota

IN SOME HEAVILY USED TROUT-STREAM AREAS it is desirable to maintain fishing in streams where natural reproduction is negligible but where conditions will support catchable-size planted trout. When fishing can be provided at reasonable cost in such waters, general management will be improved by distribution of the fishing load.

To test certain aspects of this procedure, Watson Creek in southeastern Minnesota was selected for study. Watson Creek permitted little, if any, natural reproduction and, in general, appeared to be a marginal trout water. Marked brown trout (Salmo trutta fario L.) were planted in the fall to determine overwinter survival, contribution to anglers' catch, and practicability of this type of management. Complete creel census was maintained in the season after planting, and periodic checks with the electrical shocker were made to determine the status of the population during the experiment. The work was done as part of a general program of trout investigations conducted by the Fishery Research Unit of the Minnesota Department of Conservation.

Watson Creek originates in a limestone cavern which underlies a limestone sink region. Its normal flow ranges from approximately 3 to 5 cubic feet per second but in dry seasons may be less and during rain storms may carry 47 cubic feet per second. There are occasional flood crests of 6 feet after severe thunder storms, and flood debris has been noted 12 feet above the level of normal flow. When flow is normal, the water is hard and has a total alkalinity in excess of 140 parts per million. The upper 2 miles of the stream channel, which was considered the only trout water on the system, lies in recently cleared and heavily grazed land. The stream bottom is composed of approximately 52 percent rubble and gravel, 38 percent silt and sand, and the remainder comprising several soil types.

The growing season in the vicinity of Watson Creek is long (142 days), and the winters are mild. During January, the coldest month, the mean temperature is 12.5° F. Only light ice is found on the stream, and the rigorous winter conditions observed in more northerly parts of Minnesota do not normally occur in Watson Creek. The open nature of the area surrounding the stream permits summer water temperatures to rise occasionally as high as 80° F., but the heavy spring flow in the upper section usually provides areas of suitably cold water during critical periods of the day. The lower stretches of Watson Creek are too warm to maintain trout, forming an

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effective barrier to downstream movement during the summer.

METHODS

In order to determine the effectiveness of trout planted in the fall to maintain fishing during the following summer season, 1,625 brown trout were placed in the upper 2 miles of Watson Creek during the latter part of September 1948. All fish ranged from 4.7 inches to 12.7 inches in length and were marked by removal of the pelvic fins. During the entire 1949 angling season, a direct-contact creel census was maintained over the trout area of the stream. On the opening 2 days of the season a complete census of all anglers was taken, and thereafter complete check was made on alternate days. Final results were calculated on the basis of these contacts.

Estimation of the total fish population in the stream was made at intervals by the electrical-shocking method similar to that employed by Shetter (1947). Care was taken to select sections that included both riffles and pools and that were representative of the different portions of the stream. Twelve stations were established in 1948 and were used again in 1949, with the exception of one that was considered too deep to shock effectively.

THE 1949 CREEL CENSUS

During the 1949 angling season, 358 fishermen caught 481 trout from Watson Creek. Of this group, 478 fish were finclipped, 2 were unmarked brown trout, and 1 was an unmarked brook trout. These anglers spent 1,047 hours on the stream and caught trout at the rate of 0.6 per hour. At the close of the first 2 days of fishing, 63.5 percent of the total catch of the year had been made; and by the end of the 4th week, 80 percent had been taken. These results are comparable to those found by Smith and Smith (1945) in Duschee Creek, another southeastern Minnesota trout stream, and are similar to results reported elsewhere in the literature. As the season progressed, the number of trout caught each week fell off rapidly, but the rate of catch remained relatively uniform. This maintenance of average success through the season is probably attributable to the much greater skill of the late-season anglers when compared to the average skill of the spring anglers. Forty percent of the total angling effort for the season was made on the opening weekend; and at the close of 4 weeks, 71 percent had been expended. After the close of the 5th week, fishing effort fell off rapidly, although the entire season covered 20 weeks.

FISH POPULATION OF WATSON CREEK

In order to evaluate the total production of fish, the survival of marked trout, and the relation between planted fish and the resident population in Watson Creek, a series of population estimates was made with the electrical shocker in mid-July 1948, on June 25, 1949, and again on September 21, 1949. Smith, Johnson, and Hiner (1949) reported on the standing population of Watson Creek in 1945 from a 0.36-acre sample. Their data permit an evaluation of trends when compared to the results of the present study (table 1). In 1945 there was a total of 109 pounds of fish per acre. Of this weight, trout comprised 33 pounds, suckers (Catostomus c. commersonii) comprised 59 pounds, and other fish comprised 17 pounds. The weight of miscellaneous fish was made up primarily of longnose dace (Rhinichthys c. cataractae), 14.9 pounds, and stone rollers (Campostoma anomalum pullum), 1.46 pounds. In 1948 a 1.95-acre stream sample indicated a total of 195 pounds of fish per acre, of which trout comprised 17 pounds, suckers comprised 126 pounds, and forage fish[1/] comprised 52 pounds (table 1).

1/Forage fish include: Boleosoma n. nigrum, Poecilichthys flabellaris lineolatus, Campostoma anomalum pullum, Rhinichthys c. cataractae, Rhinichthys atratulus meleagris, Semotilus a. atromaculatus, and Pimephales p. promelas.

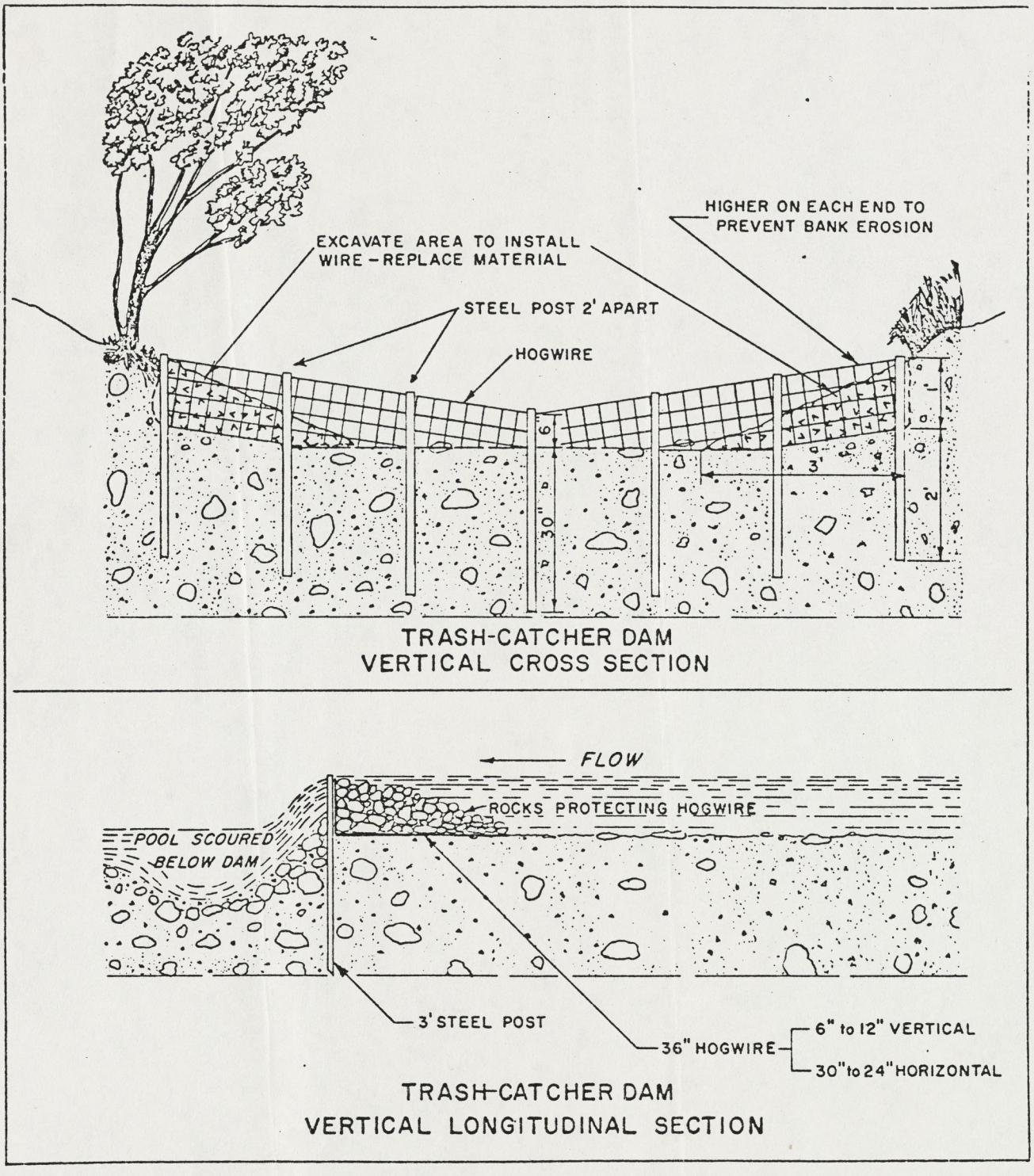

Figure 12.12b.--Trash-catcher dams.

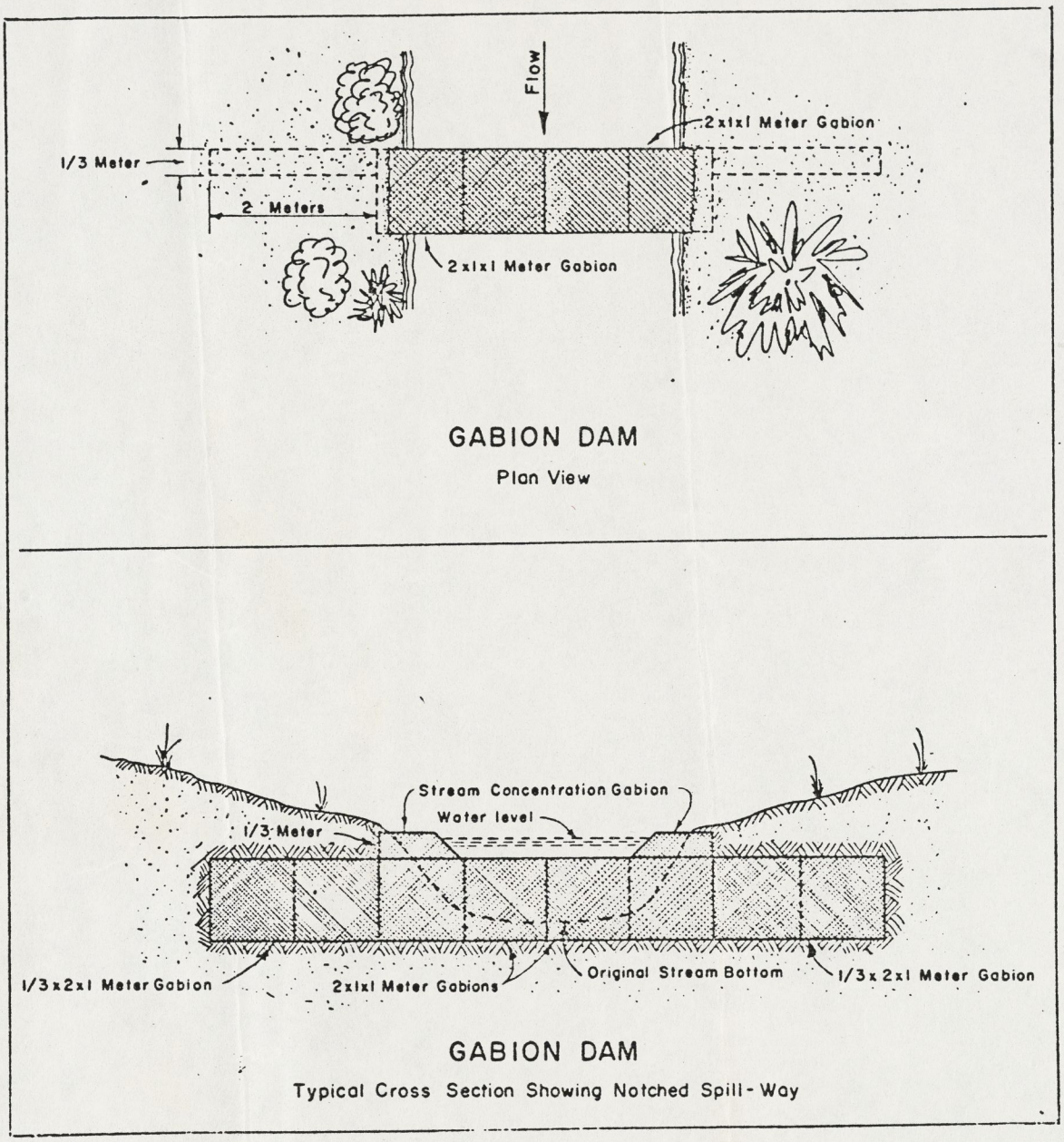

Figure 12.12a-2.--Gabion dams.

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Body Condition, Water Temperature, and Over-winter Survival of Hatchery-reared Trout in Convict Creek, California

NORMAN REIMERS
Bureau of Sport Fisheries and Wildlife, Bishop, California

ABSTRACT

Catchable-sized, hatchery-reared rainbow trout (*Salmo gairdneri*) undergoing survival tests in controlled sections of a mountain stream repeatedly declined in coefficient of condition for several months after being stocked. Examples of the extent of this decline, together with records of stream temperatures and associated mortality are used to demonstrate the relationship among poor body condition, rising temperature, and breakdown of trout vitality during the critical late-winter period. Possible advantages of fall stocking and of breeding some hatchery trout for superior adaptability are discussed.

INTRODUCTION

Convict Creek Experiment Station is a fishery research installation of the Bureau of Sport Fisheries and Wildlife located in the eastern Sierra Nevada Mountains 35 miles north of Bishop, California. Four quarter-mile stream sections have been arranged primarily for the measurement of survival and adaptive capability of catchable-sized trout under controlled natural conditions. Operational features and facilities of the experimental stream have been described by Nielson, Reimers, and Kennedy (1957). Objectives of the studies at Convict Creek are to develop a record of post-hatchery performance as a function of hatchery diet, and to determine the possible importance of hatchery water quality, selective breeding, and other background factors in conditioning trout. Parallel to this interest in the quality of hatchery trout is a continuing interest in the environmental factors that influence their success after stocking.

The purpose of this report is to describe the association of winter trout mortality with progressive weight losses and with the seasonal cycle of stream temperatures. Data are drawn from the findings of regular yearly survival experiments conducted from 1956 to 1961, each of which involved the testing of four or more groups of trout over a term of 9 months or longer. Rainbow trout (*Salmo gairdneri*) grown to catchable size at production hatcheries and rearing stations of the California Department of Fish and Game were used. Several genetic strains and a number of hatchery diets were represented in these stream trials. The present discussion is concerned mostly with generalities which will not likely be altered by variations between strains or diets.

The experimental area of Convict Creek flows through a slight to moderate slope of glacial till and more recent alluvium, overlain in part by meadow, and vegetated mainly with willow, aspen, sagebrush, grasses, and sedges. In these respects it is typical of the more productive sections of many eastern Sierra creeks. As a trout habitat the stream may be divided roughly into four parts riffle area to one part pools and under-bank eddies at flows of 5 to 15 cubic feet per second. Higher flows of the early summer runoff obscure the ratio of riffles to pools, and low winter volume tends to reduce stable shelter. The latest check on standing crops of trout food (1961–62) yielded average values of 1–2 cc of organisms per square foot of stream bottom in most months of the year; this places the stream in Food Grade 2 (Davis, 1938), and classifies it in general terms as average in richness. The climate is dry except in winter, when heavy snows are common. The elevation is 7,200 feet above sea level. Winter effects on the stream at various times from early December to about mid-April include snow and ice cover, extremely low water temperatures, and anchor ice with periodic slush-damming, surges of water and ice, and partial de-watering of short sections.

FACTORS IN SURVIVAL

Summer and fall survival of spring- or summer-stocked, catchable-sized trout is sel-

dom a problem in eastern Sierra streams if there are no unusual health handicaps or losses by predation. The environment in these seasons approaches the ideal in terms of temperature, volume of flow, and food production. Measured rates of survival for 100 days (August–November) have ranged from 70.3 to 97.1 percent, with an average of 87.1 percent for 23 trout groups tested. Nevertheless, the experience in these and earlier studies has been that most hatchery-reared trout lose weight steadily after beginning stream life (Nielson, Reimers, and Kennedy, 1957). Needham and Slater (1945) observed a similar decline in fingerling-sized hatchery rainbow trout during summer and fall.

The catchable-sized hatchery trout are invariably overweight as compared to wild stream fish, and can sustain weight losses up to 25 percent in summer or fall without material effect on survival to November. The first part of this weight loss, on the order of 5 to 10 percent, occurs in the first few weeks and is the predictable result of the change to active stream life. Further depreciation appears to be a consequence of the inability of most domestic-strain hatchery trout to compete or forage adequately in a demanding habitat during the first 4 or 5 months of residence. The invariable reduction of weight and the absence of significant growth in length through the first summer and fall, among groups of trout whose initial densities have ranged from 50 to 250 pounds per acre of stream, indicate that the maintenance of high body condition is not necessarily promoted by making a larger share of stream foods available to each fish during the early months after stocking. Similarly, experimental populations of these trout have failed to recover in average body condition later, even after being thinned by substantial mortality.

Continued weight loss diminishes strength and resistance, so that the arrival of winter brings a double set of stresses to hatchery trout: they are becoming thin and weak, or have become so, depending on when stocked, and the environment is less hospitable in terms of available food and shelter. Stomach examinations indicate that food intake during much of the winter is very low, with some trout not feeding at all. Added to these stresses is the deterrent to body maintenance brought about by changing physiology; for with lowering temperatures the digestive processes are slowed, the production of enzymes is reduced, and, with minimal food intake for whatever reason, metabolic pathways are varied to effect the utilization of body energy stores. The main source of stored energy is fat accumulated in the viscera. In the extremity of prolonged semi-starvation, other fats, and finally muscle tissues, are broken down and oxidized as substitutes for the normal nutriment.

The problem of body maintenance is less acute for stream-adapted wild trout. They enter the winter in normal condition, feed actively to the limit of the available food supply through the coldest weather, and appear to use relatively little of their energy storage. However, winter food intake by wild trout in Convict Creek is often less than half of what may be observed in the summer and fall, despite sample indications of a more abundant food fauna in some winter months. The appraisal of winter food availability in trout streams that are exposed to long, cold winters should be based more upon evidences of the extent of feeding by such adapted trout than upon information from stream-bottom samples. Such samples are often false indicators of an ample food supply which may be accessible only in limited degree due to the winter habits of food organisms, seasonal changes in faunal components, or physical limitations on the movements of trout into some feeding areas.

In cold alpine lakes, the reduction of metabolism to near-basal levels is a successful mechanism for survival of overwintering trout because fat reserves last a long time in a low-temperature environment that requires little activity. Starvation experiments (Reimers, 1957) indicate that healthy hatchery trout kept in standing water can withstand complete lack of food for 6 months or longer with mortality below 10 percent and with energy remaining for possible recovery of survivors, providing temperatures remain low to moderate (below about 45° F.).

In Convict Creek and similar highland

Bob Behnke – I did not take ichthyology in college and decided not complete a course.

POST STOCKING ABUNDANCE OF RAINBOW TROUT IN TWO EAST SLOPE SIERRA TROUT STREAMS

This report was done as an assignment for the course.

Assignment 16

Zoology 543X - Ichthyology

Department of Home Study
Brigham Young University

John M. Deinstadt

September 14, 1974

ABSTRACT

The California Department of Fish and Game has launched a new program utilizing the production of wild trout rather than the hatchery stocking program in some productive streams. Among these streams are two on the east slope of the Sierras -- the lower Owens and East Walker Rivers. Both have self-sustaining brown trout populations. Prior to the discontinuance of the stocking program, the Owens received 1,000 to 2,000 rainbows per mile annually and the East Walker 5,000 to 10,000. When the stocking program was stopped in the Owens, rainbow returns were essentially eliminated in the upper two-thirds of the river. The only rainbows anticipated in the future are from an adjoining stocked area. The halting of stocking in the East Walker has not ended rainbow trout returns. Fish now entering that fishery do not appear to be from a remnant self-sustaining population, but from upstream and downstream recruitment from stocked areas. Management considerations based on optimumizing the harvest of trophy-sized wild brown trout in the East Walker should be altered to allow utilization of the rainbow fishery.

Post Stocking Abundance
of Rainbow trout in two
east Slope Sierra trout
streams

[1977]

INTRODUCTION

The Department of Fish and Game is discontinuing rainbow trout stocking in some of California's more productive streams and relying upon self-sustaining populations of wild trout to support the sport fishery. Two of these streams are the lower Owens River and the East Walker. Both are east slope Sierra Nevada rivers which have self-perpetuating populations of brown trout. Under the stocking program the Owens received 1,000 to 2,000 rainbows per mile and the East Walker 5,000 to 10,000 per mile annually.

The objective of this report is to follow the survival of rainbow trout since the cessation of the stocking program. The section of the lower Owens from which the data for this report was collected is 15.9 miles long. Rainbow plants were discontinued in the upper 7.1 miles of the study section in the fall of 1969. With the 1972 season, stocking in the lower 8.8 miles was also halted. Stocking of rainbows ended at the close of the 1972 season in the East Walker River.

DESCRIPTION OF STUDY AREAS

The table below summarizes some of the physical characteristics of the study streams.

	Lower Owens	East Walker
Headwaters	East slope Sierras between Yosemite and Kings Canyon National Parks	Northeast boundary of Yosemite
Terminus	Owens Lake (dry)	Walker Lake, Nevada
Study sections		
Topograph	Valley (meandering)	Canyon
Elevations (approximate)		
Upstream	4,320'	6,400'
Downstream	4,155'	5,950'
Approx. gradient (ft/mile)	10	50

Flow regulation	Pleasant Valley Dam	Bridgeport Reservoir Dam
Dam function	Dampen peaking flows and power	Irrigation
Mean flow (cfs)	475	139
Usual range (cfs)		
Winter	150-300	5 - 150
Summer	300-650	150 - 275
Maximum water temp. recorded during study		
Upstream	64°F	67°F
Downstream	70°F	71°F
Winter ice	Almost none	Heavy
Cover	Intermittent willow and undercut banks	Willow

No population estimates are yet available for the lower Owens River. However, angler harvest estimates for the 16-mile study section between 1967 and 1970 were 25,000 wild brown trout annually (Deinstadt, 1971). The upper 7 miles is the most productivity having a higher gradient and usually a rubble or gravel bottom interspersed with sand bars on the inside of meanders. While suckers are present and also warmwater game fish in the slower flowing edges and backwater habitats, interspecific competition is assumed to be light in the upper section. The gradient in the lower section decreases and there is a corresponding increase in the abundance of sand and silt in the stream bottom. Speculatively, the trout population decreases and the non-game population increases in this section.

Several of the fishes native to the Lahontan system are present in the 8.4-mile study section of the East Walker. The dominant species is the Tahoe sucker which is estimated to exceed 10,000 per mile in some sections. The next most abundant species is the mountain whitefish at approximately

2,000 fish per mile. Other native species are the mountain sucker, Lahontan redside and tui chub. The Piute sculpin and speckled dace have been recorded above the study area but not yet within it. Rainbow trout, brown trout and carp are the introduced species with the latter appearing to be limited primarily to Murphy Pond.

Both the Owens and East Walker River sections are regulated by dams at their upstream ends (Figures 1 and 4).

METHODS

Owens River

Creel censuses were conducted on the lower Owens River during a 2-year baseline period (1967-68) and then every other year since that time. This report utilizes data from the baseline period plus 1970 and 1972.

Census data was usually collected on 4 week days and 4 weekend days during one month in the spring, summer and fall periods. The river was divided into 6 sections (A - F) between Pleasant Valley Dam and Five Bridges. The sections, with the exception of A and F were set up to correspond with the standard surveyed section lines. The number of river miles within sections varied with the shortest being 1.8 miles and the longest 3.4 miles. Sections A-B-C combined were 7.1 miles in length and sections D-E-F were 8.8 miles. Data presented in this report involved hours of fishing effort for rainbow and brown trout by sections and was collected through angler interviews during a roving survey.

East Walker River

Two survey methods were used on the East Walker River -- creel censuses and electrogishing.

Two-to-four censuses per month were conducted during the 1972 and 1973 periods. The 1974 census has covered the opening weekend (April) and then

5 weekdays and 5 weekend days chosen randomly plus all holiday periods (Memorial Day weekend, July 4th and Labor Day weekend). The river was divided into 6 sections with section 1 the area immediately below Bridgeport Dam and section 6 immediately above the Nevada state line. As with the Owens, the census data for this report involves hours fished and success by species and sections.

The electrofishing survey in 1968 covered 6 short stations spread through the 1974 study area and included only a brief effort to enumerate the ratio and size of hatchery rainbows, browns and wild brown trout. The 1974 electrofishing survey covered five 150-meter sections in which the trout population was estimated plus an additional 1.7 miles of stream from which trout were collected for tagging. The population estimates were made using standard mark and recapture techniques.

RESULTS

Owens River

The creel censuses on the lower Owens River showed that when rainbow trout stocking was discontinued in sections A-B-C in the fall of 1969 few rainbow trout were caught in these sections the following spring (Figure 2). This pattern was repeated again in 1972 following the discontinuance of planting sections D-E-F. Only 2 rainbows were recorded during the creel censuses in the stream above section E. Rainbow trout continued to enter the creel in sections E and F.

Figure 3 presents the rainbow trout harvest pattern through the first year after stocking was halted in the upper section. A comparison of the upper and lower sections shows that the rainbow trout harvest from sections A and B was eliminated in one year. A small number of rainbows were taken in section C. The sections with the stocking program (D-E-F) produced good fishing for rainbows. Brown trout angling generally improved in the upper sections,

but remained lower than expected in sections D-E-F.

East Walker River

The rainbow fishery in the East Walker River declined following the cessation of rainbow trout stocking at the end of the 1972 season but showed an increase by July 1974 (Figure 7). The survival of hatchery trout after the season is shown by the 1968 electrofishing data (Figure 5). The low level of rainbow trout survival through the winter is indicated by Figure 6 when only 18 of 1,023 trout captured were rainbows or less than 2 percent. Catch by section data shows that most rainbows are taken below the dam or above the Nevada state line with only 12 percent in the middle sections (3 and 4). Only one rainbow trout was captured in stations used for population estimates and consequently the February-March standing crop of rainbows was too low to estimate. The brown trout standing crop was 1,043 fish per mile.

DISCUSSION

Owens River

By 1972 the upstream sections in which stocking was discontinued in 1969 were essentially devoid of a rainbow trout fishery. The section E rainbow returns are probably carry-overs drom the previous fall planting program. Rainbows are stocked from the bridge serving as the downstream boundary of section F. Most of the section F rainbow fishery is in the immediate area of this bridge. Consequently these findings indicate that with the exception of the overlap from the planted section adjoining the downstream end of the study area, the maintenance of the lower Owens River rainbow fishery is dependent upon the hatchery program.

East Walker

The continuance of the rainbow trout fishery in the East Walker River indicates some differences in the factors controlling the survival of rainbow trout. Four possible sources of these fish will be considered.

The first is that rainbows have established a self-perpetuating stock in the California portion of the river. The ratio of 18 rainbows to 1,005 browns shows that early season stocks were at a low level. As the expanded catch estimates for the season will probably show that over 1,500 to 2,000 rainbows were kept by anglers, it would be difficult to support such a harvest from the winter stock. Of the 18 rainbows captured, most were in the size range normally attributed to hatchery plants. No yearlings were observed. These factors appear to show that in March there was little evidence of a self-sustaining rainbow population in the stream.

A second possibility is that wild rainbow trout from Nevada are migrating into the California portion of the stream. Nevada, however, has found a pattern of rainbow abundance and survival paralleling that found in California. Nevada plants several thousand rainbow trout annually in the river below the state line. In a March 1973 survey, no rainbow trout were sampled while brown trout were estimated to be 61 fish per mile. The following November rainbow were estimated to number 62 and brown trout 232 fish per mile (Frantz, 1974). These results indicate the probable absence of self-sustaining stocks large enough to account for the California fishery.

A third possible resource is from two small tributary streams below Murphy Pond. Wild, self-sustaining rainbow trout populations are present in each of these streams (Pister - personal communication). The gradient at the confluence of these streams with the river prevents upstream migration of spawning stocks. The recruitment of adult rainbows from these streams is probably minor. The recruitment of smaller trout may eventually contribute to the fishery.

The fourth and most probable source is from migrating hatchery rainbows planted in Bridgeport Reservoir and in the adjacent Nevada portion of the stream. Flows released from Pleasant Valley Dam generally pass through

the hydroelectric generating system. Bridgeport Reservoir Dam releases are not utilized for power generation. While Pleasant Valley Reservoir receives thousands of trout annually, the returns from the Owens show that rainbow either do not enter the outlet structure or do not survive the passage through the turbines. The returns from immediately below the Bridgeport Reservoir Dam indicate at least some fish do survive the passage between the reservoir and the river. Tagged rainbows are known to migrate through the outlet structure at Topaz Reservoir and into the West Walker River (Frantz and Deinstadt - 1969).

The other areas of high returns are in sections 5 and 6 above the Nevada state line. A previous census has shown some migration upstream from Nevada (Frantz - personal communication). Our observations this year strongly suggest that the rainbows in sections 1-2 and 5-6 are different. The fins are more severely eroded from the upstream group. The pattern of body spots and coloration is likewise different. The low returns of rainbows from the middle sections (4-5) also points to an input from the upper and lower areas.

Significance to the Wild Trout Management Program

We have proposed that the trophy trout potential of the East Walker River be utilized by restricting the harvest of age I and II brown trout. Preliminary food habits studies have shown that when brown trout in the East Walker River reach 14 inches, fish are the principal forage. Our recommendation has been a 14-inch size limit, artificial lures only, and 2 trout in possession. As possibly 40 percent of the fishery will be comprised of rainbows and most of these trout are not expected to reach 14 inches, there will be an unnecessary restriction on fish utilization.

To offer an alternative to this problem we are considering separate limits on rainbows and brown trout. While trout species segregation has not been expected of the fisherman, duck recognition, etc. has been a long standing precedent for proper harvest control.

SUMMARY

1. Viable rainbow trout fisheries are not being sustained in the lower Owens and East Walker River fisheries without the stocking program.

2. The progressive disappearance of rainbows from the upstream sections of the Owens shows that only rainbows from the adjoining downstream stocking area can be expected to enter the wild trout management and fishery.

3. The rainbows now entering the East Walker River fishery are apparently migrating downstream from the reservoir and upstream from Nevada.

4. Our earlier assumption that rainbows would disappear from the East Walker as they have from the Owens is incorrect. We did not anticipate the apparent degree of migration present. Management recommendations which will probably stop the harvest of rainbow trout should be altered.

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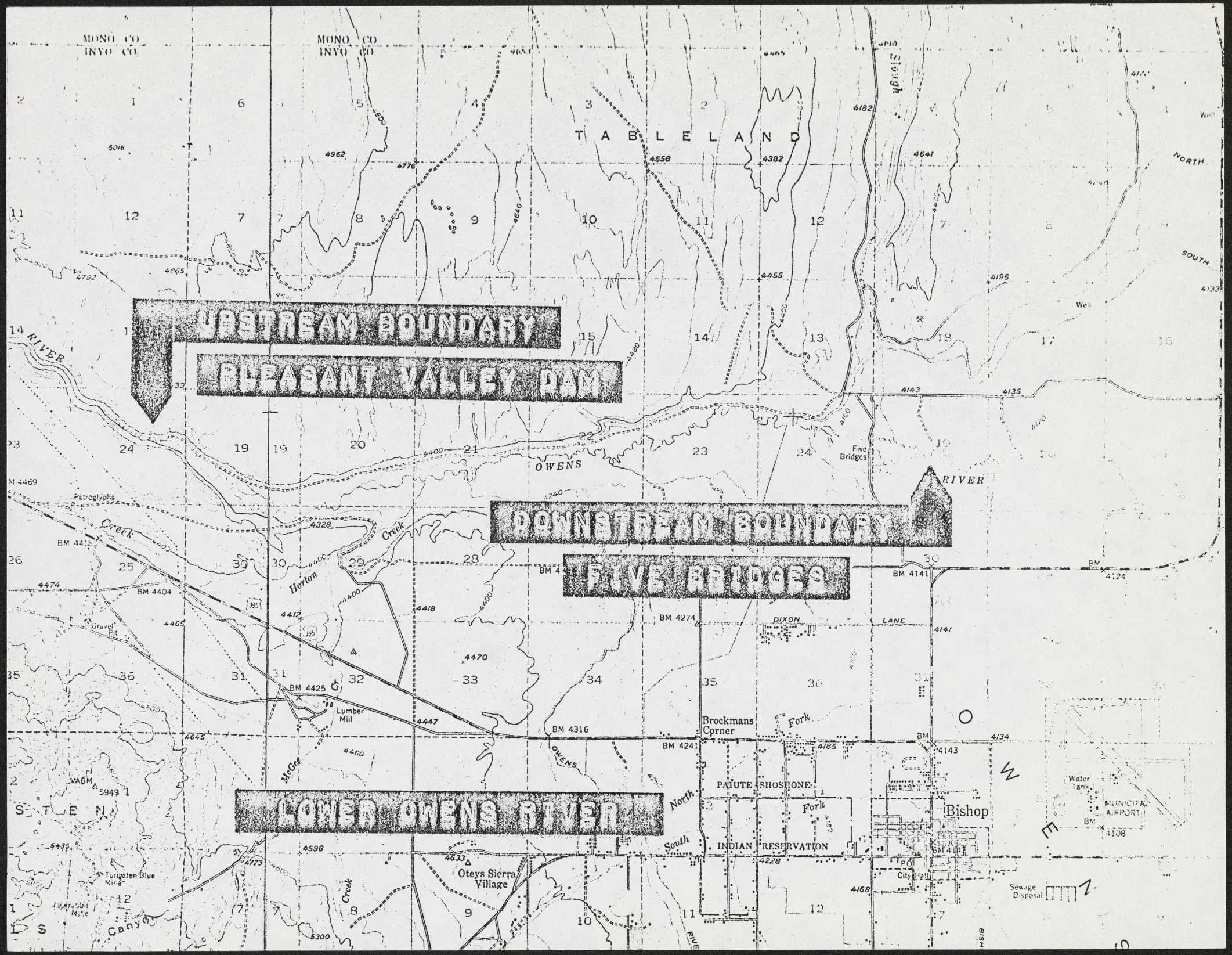
UPSTREAM BOUNDARY
PLEASANT VALLEY DAM
DOWNSTREAM BOUNDARY
FIVE BRIDGES
LOWER OWENS RIVER
MONO CO
INYO CO
TABLELAND
OWENS RIVER
Five Bridges
Petroglyphs
Horton Creek
McGee Creek
Lumber Mill
Gravel Pit
Brockmans Corner
PAIUTE SHOSHONE INDIAN RESERVATION
North Fork
South Fork
Bishop
Water Tank
MUNICIPAL AIRPORT
Sewage Disposal
City Hall
Oteys Sierra Village
Turquoise Blue Mine
Jackrabbit Mine
Canyon
DIXON LANE
BM 4469
BM 4415
BM 4404
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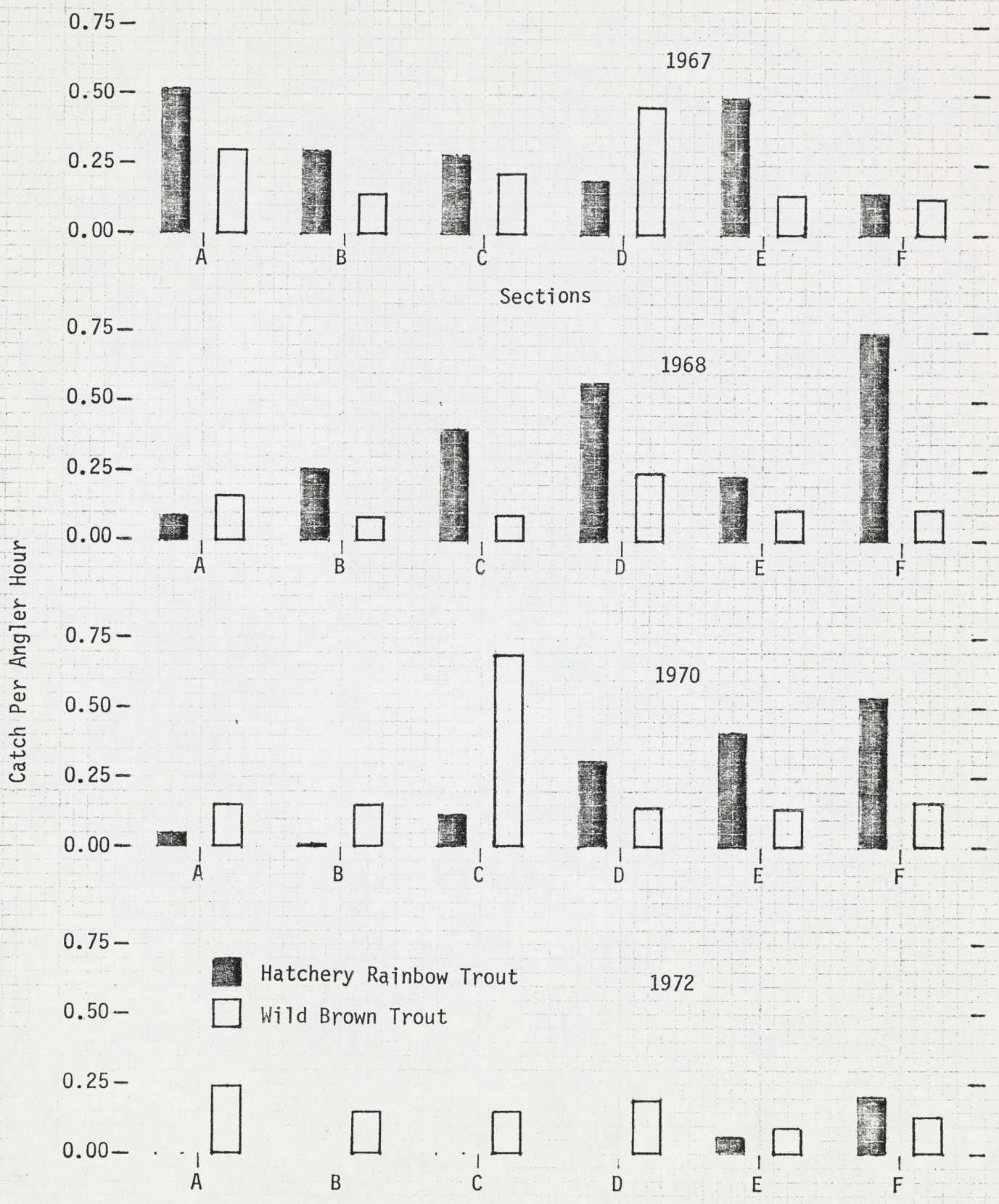


Figure 2. Comparisons of hatchery rainbow trout and wild brown trout harvest rates during the spring in the lower Owens River through 2 years of stocking all sections (1967 and 1968), one year of stocking only sections C, D and E (1970) and one year without stocking (1972).

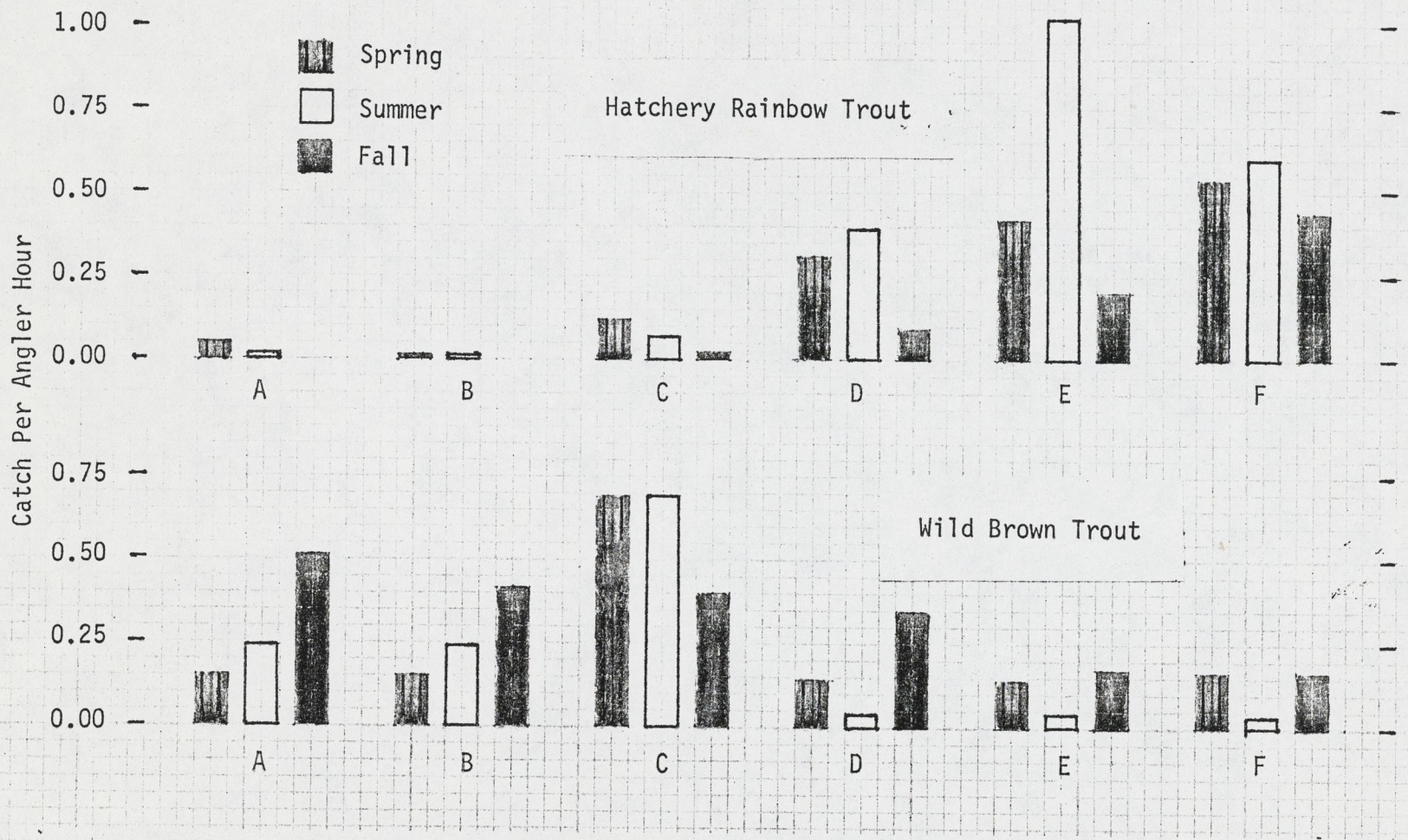
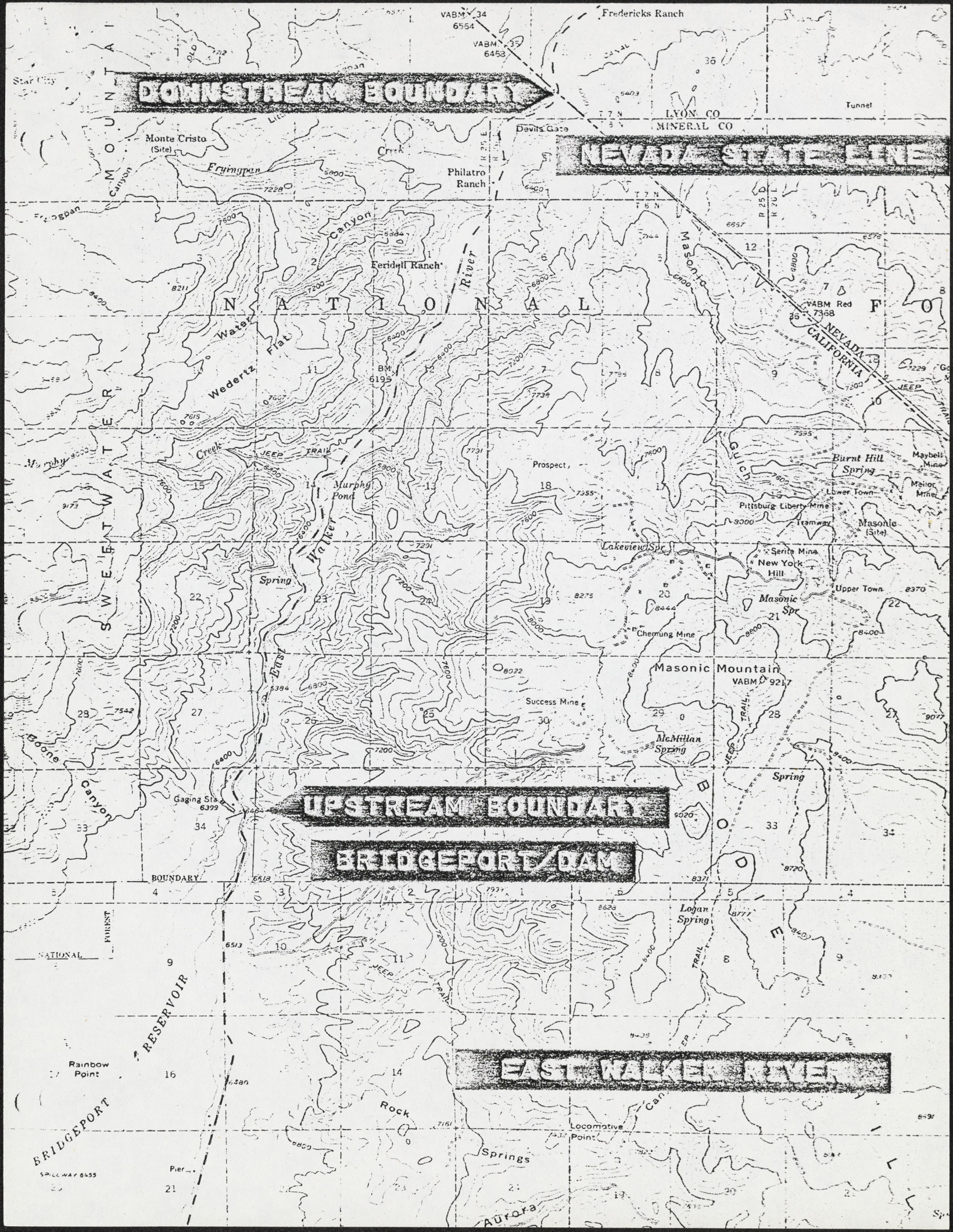


Figure 3. Harvest rates of hatchery rainbow trout and wild brown trout in the lower Owens River during the spring, summer and fall of 1970 when stocking was discontinued in sections A, B and C.


DOWNSTREAM BOUNDARY
NEVADA STATE LINE
UPSTREAM BOUNDARY
BRIDGEPORT DAM
EAST WALKER RIVER
VABM 34
6554
VABM 35
6453
Fredericks Ranch
Tunnel
LYON CO
MINERAL CO
Monte Cristo
(Site)
Eringgan
Canyon
Creek
Philatro
Ranch
Feridell Ranch
Canyon
Water
Flat
Wederz
Creek
JEEP
TRAIL
Murphy
Pond
Walker
River
Spring
East
Boone
Canyon
Gaging Sta
6399
BOUNDARY
6518
NATIONAL
FOREST
RESERVOIR
Rainbow
Point
BRIDGEPORT
SPILLWAY 6455
Pier
Rock
Springs
Aurora
Locomotive
Point
Can
Masonic
Mountain
VABM 9217
Success Mine
McMillan
Spring
Chemung Mine
Lakeview Spr
Masonic
Spr
Serita Mine
New York
Hill
Upper Town
Lower Town
Pittsburg Liberty Mine
Tramway
Masonic
(Site)
Burnt Hill
Spring
Maybell
Mine
Mellor
Mine
Prospect
Gulch
Masonic
VABM Red
7368
NEVADA
CALIFORNIA
Logan
Spring
Spring
BODIE
NATIONAL
FOREST
T 7 N
T 6 N
R 25 E
R 26 E

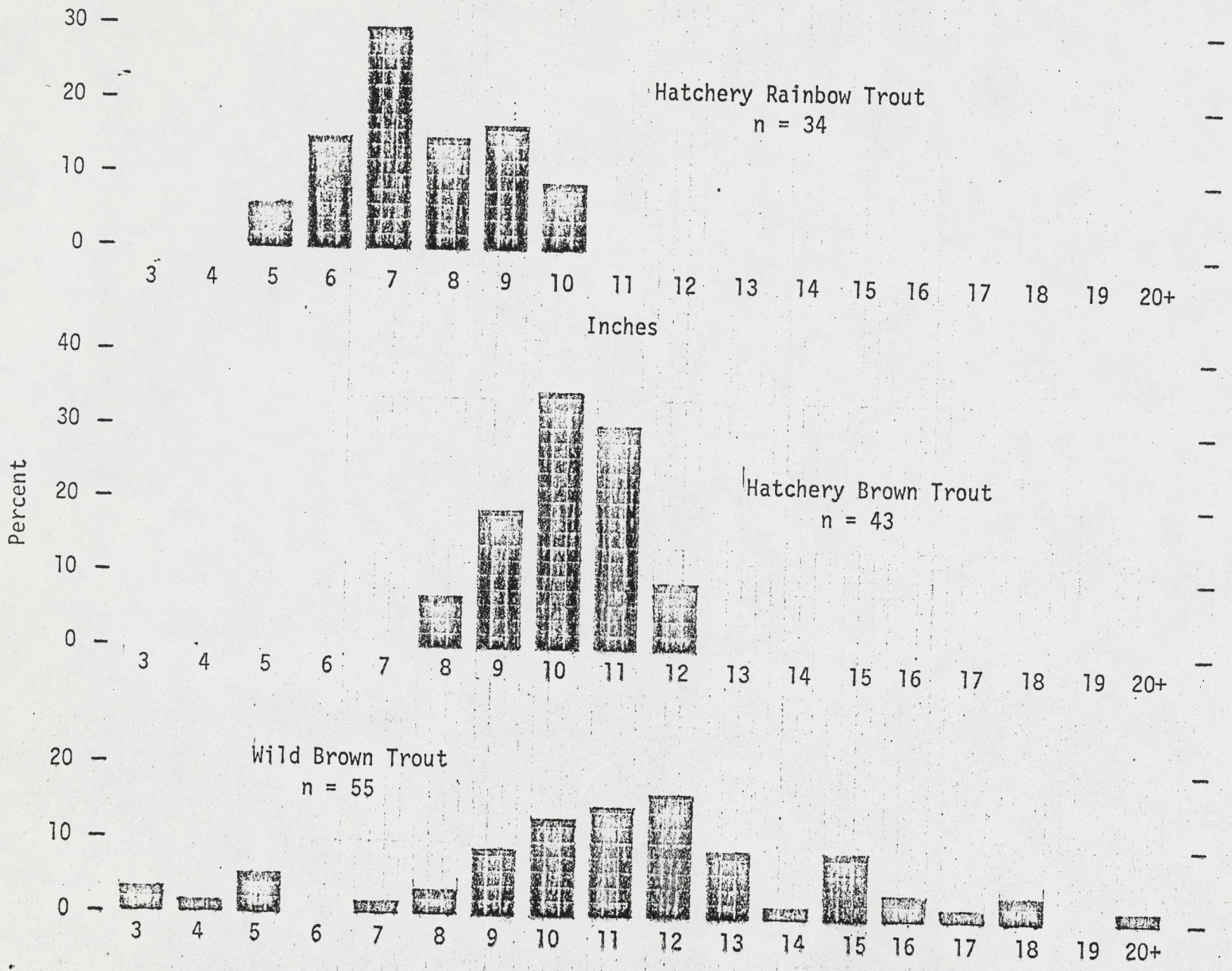


Figure 5. Comparison of the lengths of trout designated as hatchery rainbows, hatchery browns and wild browns in the East Walker River at the end of the 1968 season.

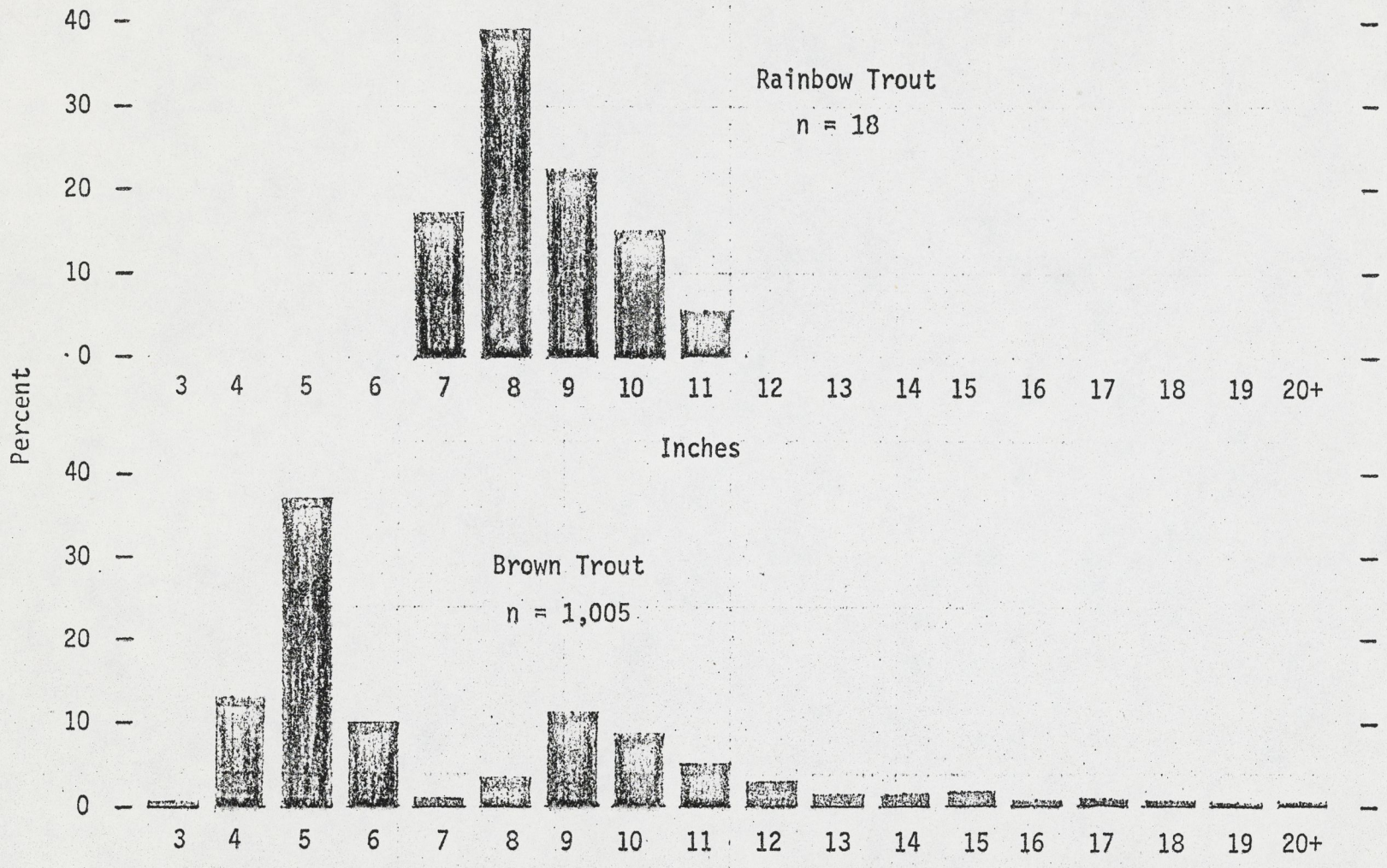


Figure 6. Lengths of rainbow and brown trout in the East Walker River prior to the 1974 season.

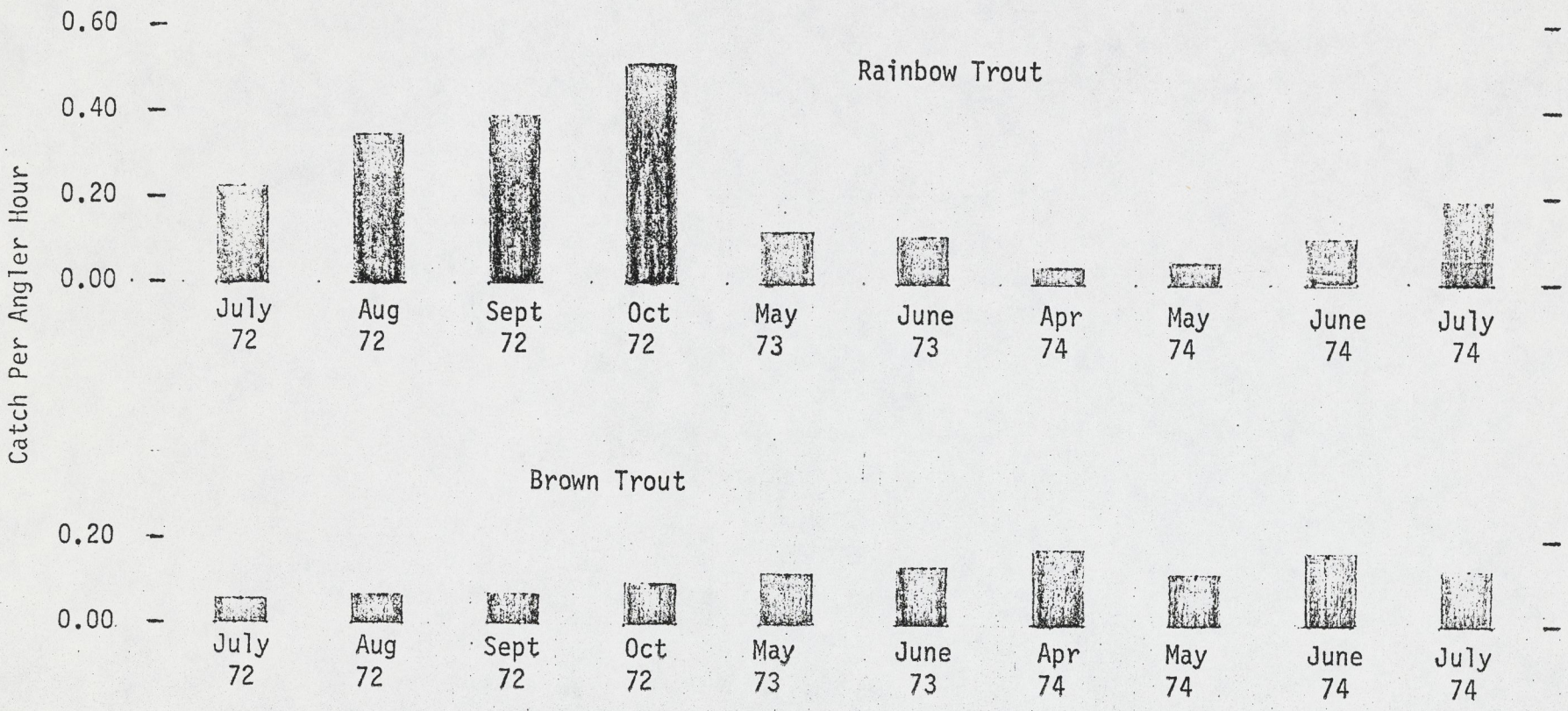


Figure 7. Harvest rates of rainbow and brown trout in the East Walker River with (1972) and without (1973-1974) a rainbow trout stocking program.

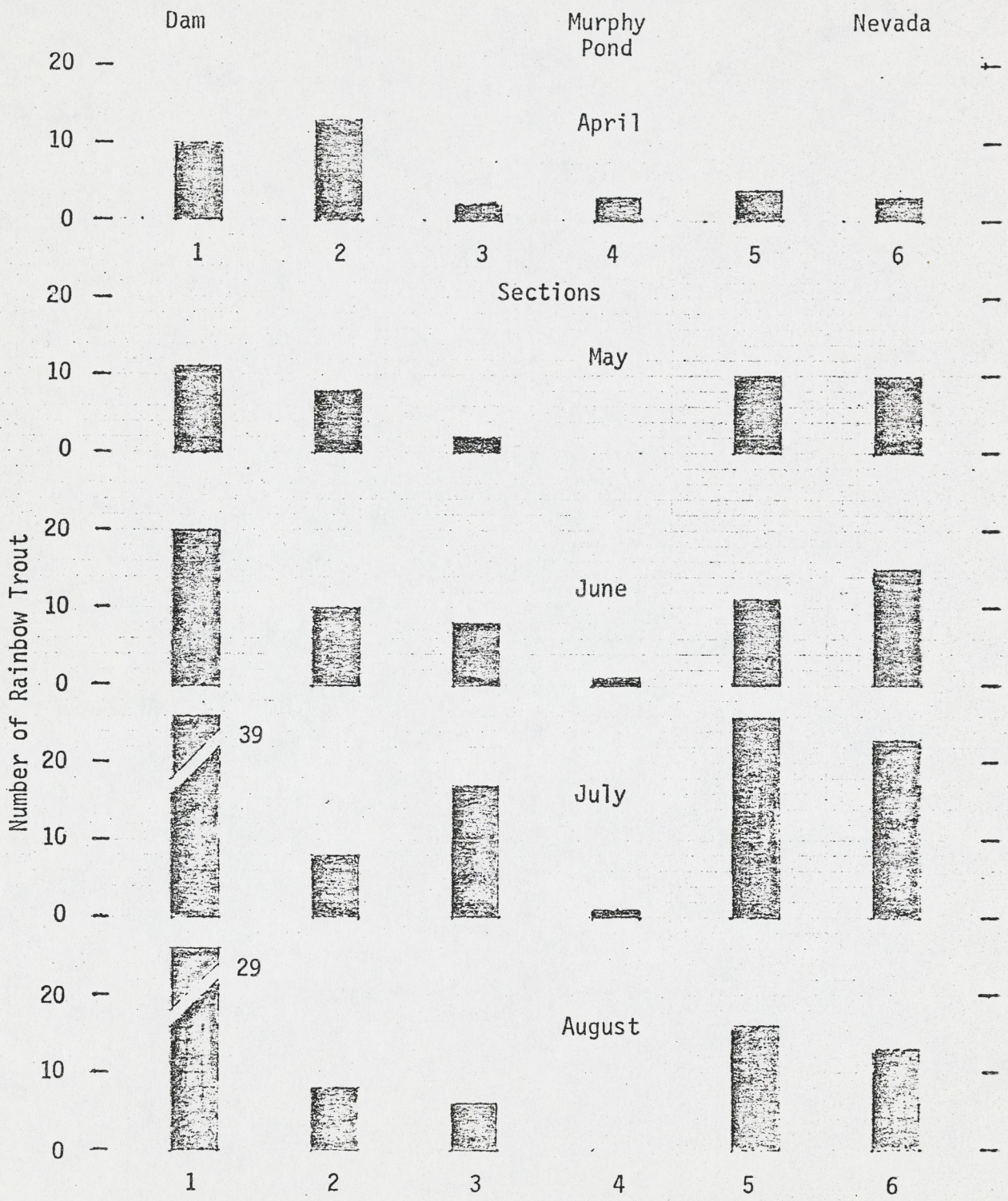


Figure 8. Number of rainbow trout observed during the 1974 creel census in the East Walker River from the area immediately below the dam downstream to the Nevada state line.

Brown Trout Food Habits Study — E. Walker R.

METHODS — ECT.

STOMACHS DISSECTED — CONTENTS SORTED INTO:
- FISH
- INSECTS
- OTHER MATTER

FISH — IDENTIFIED TO GENUS USING VERTEBRA CHARACTERISTICS

INSECTS — NO ATTEMPT TO IDENTIFY

OTHER MATTER — NOTES MADE if CRUSTACEA, ANNELIDA, MOLLUSKA

All LENGTHS ARE IN MILIMETERS
All VOLUMES ARE IN MILILITERS
All DATES ARE MONTH - DAY - YEAR
All STOMACHS EXAMINED WERE BROWN TROUT

ABRIVIATIONS FOR GENERIC NAMES.
- Rich. — RICHARDSONIUS
- Cato. — CATOSTOMUS

FORK-LENGTH DETERMINATION FROM BODY-LENGTH

$\frac{FL}{BL} = C$

CONSTANT VALUES DETERMINED FROM WHOLE PRESERVED SPECIMENS.

- REDSIDE — C = 1.09
- CHUB — C = 1.15
- SUCKER — C = 1.15
- DACE — C = 1.11
- WHITEFISH — C = 1.08

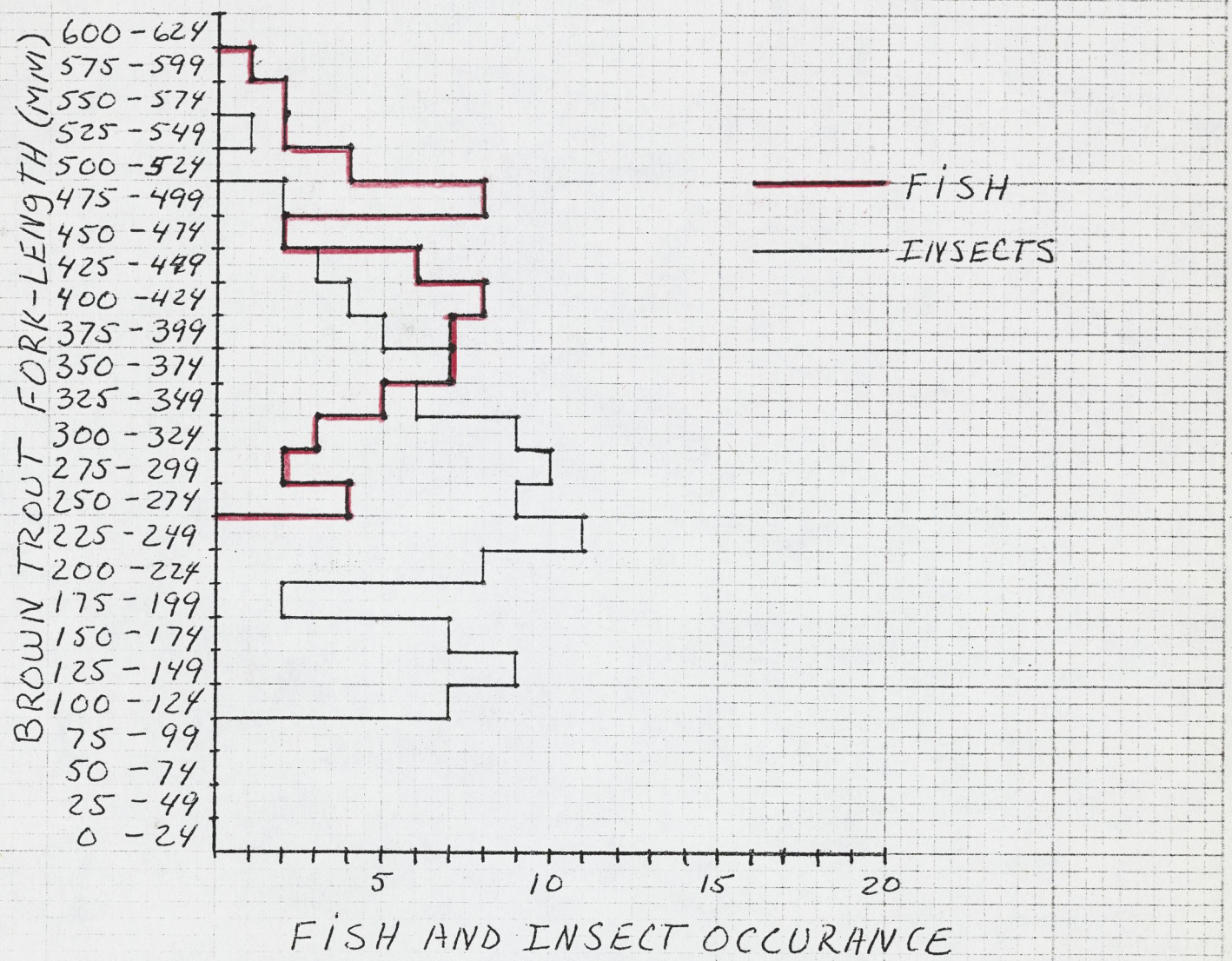
FAST WALKER RIVER	1974	1975	TOTAL
NO. of STOMACHS EXAMINED – TOTAL	128	60	188
" " " CONTAINING FISH	34	30	64
" " " " 1 FISH	21	22	43
" " " " 2 "	7	1	8
" " " " 3 "	3	3	6
" " " " 4 "	2	0	2
" " " " >4 "	1	4	5
" " " " INSECTS	88	20	108
" " " " OTHER MATTER	32	7	39
" " " " FISH AND INSECTS	8	6	14
" " " " " " OTHER	8	2	10
" " " EMPTY	10	14	24
% of STOMACHS CONTAINING FISH	26.6	50.0	34.0
" " " " 1 FISH	16.4	36.6	22.9
" " " " 2 "	5.5	11.7	4.3
" " " " 3 "	2.3	5.0	3.2
" " " " 4 "	1.6	0	1.1
" " " " >4 "	.8	6.7	2.7
" " " " INSECTS	68.8	33.3	57.4
" " " " OTHER MATTER	25.0	11.7	20.7
" " " " FISH AND INSECTS	6.3	10.0	7.4
" " " " " " OTHER	6.3	3.3	5.3
" " " EMPTY	7.8	23.3	12.8

	1974	1975	TOTAL
TOTAL VOLUME of STOMACH CONTENTS	382.54	524.09	906.63
VOLUME of FISH	323.58	507.18	830.76
" " INSECTS	46.2	12.21	58.41
" " OTHER MATTER	12.76	2.7	15.46
TOTAL VOLUME of GILA	205.5	357.05	562.55
" " " RICHARDSONIUS	54.75	76.83	131.58
" " " CATOSTOMUS	52.6	73.8	126.4
% of TOTAL VOLUME - FISH	84.6	96.8	91.6
" " " " - INSECTS	12.1	2.3	6.4
" " " " - OTHER MATTER	3.3	.5	1.7
MEAN VOLUME of STOMACH CONTENTS	3.0	8.7	4.8
" " " ALL FISH FOUND	5.4	6.0	5.7
" " " " INSECTS "	.5	.6	.5
" " " " OTHER MATTER	.4	.4	.4
" " " STOMACH CONTAIN FISH	9.5	16.9	13.0
MEAN VOLUME of ALL GILA	8.6	6.2	6.9
" " " " RICHARDSONIUS	3.7	5.2	4.7
" " " " CATOSTOMUS	5.3	6.7	6.0

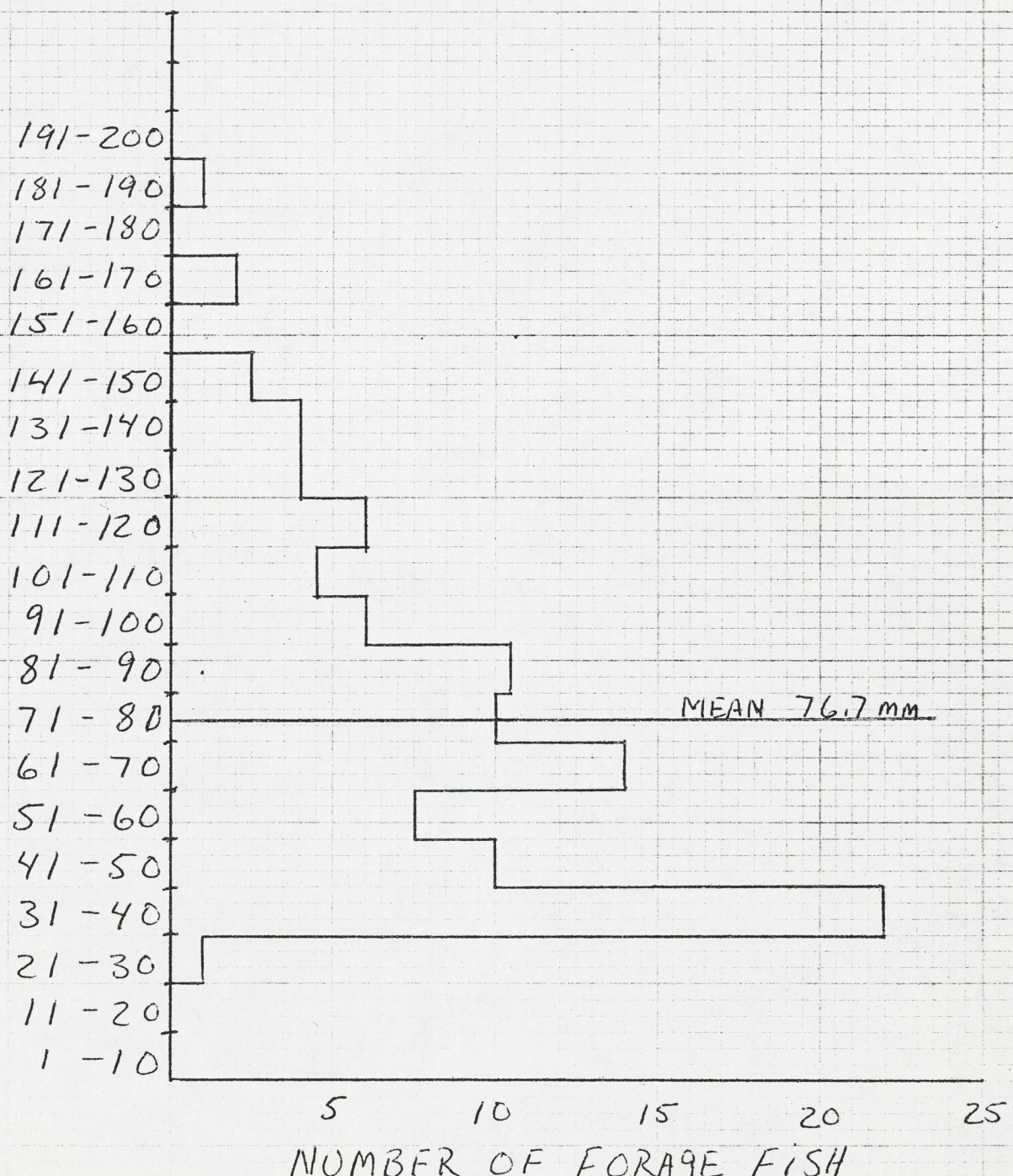
	1974	1975	TOTAL
TOTAL NO. of FISH FOUND	60	85	145
" " " " IDENTIFIED	49	82	131
" " " GILA	24	58	82
" " " RICHARDSONIUS	15	13	28
" " " CATOSTOMUS	10	11	21
" " " UNIDENTIFIED	11	3	14
% of TOTAL NO. of FISH - GILA	40.0	68.2	56.5
" " " " " " - RICHARDSONIUS	25.0	15.3	19.3
" " " " " " - CATOSTOMUS	16.7	12.9	14.5
" " " " " " - UNIDENTIFIED	18.3	3.5	9.7
NO. of FISH MEASUREABLE - GILA	21	50	71
" " " " - RICHARDSONIUS	11	13	24
" " " " - CATOSTOMUS	4	11	15
" " " " - TOTAL	36	74	110
% of FISH MEASUREABLE - GILA	42.9	61.0	54.2
" " " " - RICHARDSONIUS	22.4	15.8	18.3
" " " " - CATOSTOMUS	8.2	13.4	11.4
" " " " - TOTAL	73.5	90.2	83.9

	1974	1975	Total
Range in Fork-Length - Gila	40-168	31-143.7	31-168
" " " " - Richardsonius	33-124	33.8-127.5	33-127.5
" " " " - Catostomus	92-141	28.75-185	28.75-185
Mean Fork-Length - Gila	88.8	70.7	76.0
" " " - Richardsonius	77.9	73.3	75.4
" " " - Catostomius	118.4	69.1	82.2
" " " - Total	88.7	70.9	76.7
Total Fork-Length measurements			
" " " " - Gila	1863.75	3535.2	5398.95
" " " " - Rich.	856.5	952.24	1808.74
" " " " - Cato.	473.5	760.2	1233.7
" " " " - Total	3193.75	5247.64	8441.39
Total No. of Brown Trout By section - 1	24	20	44
" " " " " " " 2	31	25	56
" " " " " " " 3	34	4	38
" " " " " " " 4	5	2	7
" " " " " " " 5	19	7	26
" " " " " " " 6	2	2	4
" " " " "	115	60	175

	1974	1975	Total
MEAN FORK-LENGTH of BROWN TROUT BY SECTION-1	421.8	438.3	429.3
" " " " " " " " -2	217.8	400.9	299.5
" " " " " " " " -3	257.9	406.0	273.5
" " " " " " " " -4	368.8	470.0	397.7
" " " " " " " " -5	308.6	288.1	303.0
" " " " " " " " -6	365.0	372.5	368.8
OVER ALL MEAN FORK-LENGTH	296.4	401.9	332.5
MEAN FORK-LENGTH of BROWN TROUT CONTAINING			
FISH	403.5	395.6	399.8
INSECTS	237.1	369.6	261.6
SUM of BROWN TROUT FORK-LENGTHS BY SECTION 1	10124	8765	18889
" " " " " " " " 2	6751	10024	16775
" " " " " " " " 3	8770	1624	10394
" " " " " " " " 4	1844	940	2784
" " " " " " " " 5	5864	2017	7881
" " " " " " " " 6	730	745	1475
TOTAL	34083	24115	58198
SUM of BROWN TROUT FORK-LENGTH CONTAINING:			
FISH	13719	11867	25586
INSECTS	20865	7392	28257



BROWN TROUT LENGTH FREQUENCY WITH RESPECT TO THE OCCURANCE of FORAGE FISH AND INSECT MATTER IN STOMACH CONTENTS. (1974 AND 1975 COMBINED)



FORAGE FISH LENGTH FREQUENCY (TOTAL)

BN Populations in 3,000 meters of the East Walker River (Bridge downstream to Murphy Pond) in California

Period	Total BN	Size (mm) < 175	175–299	≥ 300
Fall 1974	3,542	2,521	819	202
Spring 1975	2,689	1,862	671	156
Fall 1975	2,840	635	1,938	267

Number	BN / kilometer	BN / mile [1]
Fall 1974	1,181	1,904
Spring 1975	896	1,446
Fall 1975	947	1,527

[1] 3 kilometers = 1.86 miles

BN Population Estimates — E. Walker R. — Fall 1971

Class M. F.	M	U	R	C		D				
12.5	0	0	0	0		0				
37.5	0	0	0	0		0				
62.5	0	0	0	0		0				
87.5	7	6	4	10		15.4	15			
112.5	246	130	118	278		460.6	461			
137.5	859	374	552	926		1442.0	1440			
162.5	417	125	276	401		605.2	605			
187.5	64	25	43	68		100.4	100			
212.5	142	57	103	160		219.2	220			
237.5	192	66	157	223		272.2	272			
262.5	118	27	76	103		159.4	159			
287.5	46	16	32	48		68.3	68			
312.5	34	10	27	37		46.1	46			
337.5	23	13	23	36		35.5	36			
362.5	18	9	13	22		29.6	30			
387.5	18	3	9	12		23.4	23			
412.5	13	2	10	12		15.1	15			
437.5	12	1	10	11		13.1	13			
462.5	6	1	5	6		7.0	7			
487.5	17	2	8	10		21.7	21			
512.5	6	2	7	9		7.5	8			
537.5	1	0	1	1		1.0	1			
562.5	1	0	0	0		1.0	1			
587.5	1	0	0	0		1.0	1			
Σ	2241	876	1504	2373		3512.7	3542	←		

M = 1st Marking run
U = Unmarked - recovery run
R = Marked - recovery run

C = U + R

$$\frac{2241(2373+1)}{1504+1} = 3535.0$$ Overall

FG 419 3-34

BN Population Estimates – E. Walker R. – Spring 1975

Class M.P.	M	u	R	C		$\hat{N}$				
12.5	0	0	0	0		0				
37.5	0	0	0	0		0				
62.5	0	0	0	0		0				
87.5	1	0	0	0		0				
112.5	94	56	43	99		214·				
137.5	538	244	314	558		955·				
162.5	442	156	274	430		693·				
187.5	46	20	28	48		78·				
212.5	111	35	96	131		151·				
237.5	186	49	147	196		248·				
262.5	104	21	77	98		132·				
287.5	54	7	48	55		62·				
312.5	43	5	29	34		50·				
337.5	27	5	24	29		32·				
362.5	17	4	16	20		21·				
387.5	13	4	11	15		17·				
412.5	8	3	7	10		11·				
437.5	7	1	5	6		8·				
462.5	6	1	4	5		7·				
487.5	4	1	3	4		5·				
512.5	3	0	3	3		3·				
537.5	1	0	1	1		1·				
562.5	0	0	0	0		0·				
587.5	1	0	1	1		1·				
Σ.	1,706·	612·	1,131·	1,743·		2,689·	←			

M = Marking run
u = Unmarked – recovery run
R = Marked – recovery run

C = u + R

$$\frac{1,706\,(1,743+1)}{(1,131+1)} = 2,628$$

FG 419 3-54

BN Population Estimates – E. Walker R. – Fall 1975

Class M.P.	M	u	R	C		$\hat{N}$				
12.5	0	0	0	0		0				
37.5	0	0	0	0		0				
62.5	0	0	0	0		0				
87.5	7	0	1	1		7 ·				
112.5	182	72	62	134		390 ·				
137.5	117	39	48	87		210 ·				
162.5	19	9	17	26		28 ·				
187.5	263	68	193	261		355 ·				
212.5	596	137	441	578		781 ·				
237.5	359	93	285	378		476 ·				
262.5	146	34	112	146		190 ·				
287.5	113	19	94	113		136 ·				
312.5	80	18	63	81		102 ·				
337.5	48	10	42	52		59 ·				
362.5	32	4	31	35		36 ·				
387.5	11	1	11	12		12 ·				
412.5	14	4	12	16		18 ·				
437.5	11	1	10	11		12 ·				
462.5	9	0	5	5		9 ·				
487.5	8	0	7	7		8 ·				
512.5	5	1	4	5		6 ·				
537.5	2	0	2	2		2 ·				
562.5	0	0	0	0		0 ·				
587.5	2	0	2	2		2 ·				
612.5	1	0	1	1		1 ·				
Σ	2,025 ·	510 ·	1,413 ·	1,953 ·		2,840 · ←				

FG 419 3-54

3,000 meter section

RT Population Estimates – E. Walker R. – Fall 1974

Class M.P.	M	u	R	C		$\hat{N}$
12.5						
37.5						
62.5						
87.5						
112.5	0	0	0	0		0
137.5	1	0	0	1		1
162.5	0	0	1 [4]			
187.5	0	1	0	1		1
212.5	1	0	1	1		1
237.5	3	1	2	3		4
262.5	3	1	1	2		4
287.5	1	0	0	0		1
312.5	0	0	0	0		0
337.5						
	9	3	5	8		12
362.5						
387.5						
412.5						
437.5				$\frac{9(8+1)}{5+1} = 13.5$		
462.5						
487.5						
512.5						
537.5						
562.5						
587.5						
612.5						

[4] 150 mm on recapture run
148 mm " marking run

FG 419 3-54

3,000 meter section

RT Population Estimates – E. Walker R. – Spring 1975

Class M.P.	M	u	R	C		$\hat{N}$				
12.5										
37.5										
62.5										
87.5										
112.5										
137.5										
162.5	0	0	0	0		0				
187.5	1	0	0	0		1				
212.5	1	0	0	0		1				
237.5	0	0	0	0		0				
262.5	1	1	1	2		2				
287.5	1	0	0	0		1				
312.5	0	0	0	0		0				
337.5										
362.5	4	1	1	2		5				
387.5										
412.5				$\frac{4(2+1)}{1+1} =$		6				
437.5										
462.5										
487.5										
512.5										
537.5										
562.5										
587.5										
612.5										

E

3,000 meter section

RT Population Estimates – E. Walker R. – Fall 1975

Class M.P.	M	u	R	C		$\hat{N}$
87.5						
112.5						
137.5	0	0	0	0		0
162.5	2	1	0	4		5
187.5	2	0	3			
212.5	9	4	4	8		16
237.5	11	1	9	10		12
262.5	11	2	9	11		13
287.5	4	0	4	4		4
312.5	0	0	0	0		0
337.5	1	0	1	1		1
362.5	0	0	0	0		0
387.5						
	40	8	30	38		51
412.5						
437.5						
462.5						
487.5						
512.5						
537.5						
562.5						
587.5						
612.5						

$$\frac{40(38+1)}{30+1} = 50$$

E // Apparent inconsistency – Combine 162.5 and 187.5 groups

FG 419 3-54

$\bar{X}$ Water Temperatures °F EWR 1975

	$\bar{X}$ Hi	Stateline Range	$\bar{X}$ Lo	Range						
January 1975	35.4 (1	44-32 Jan-31	32.1 Jan)	33-32						
February 1975	36.9 (1	49-32 Feb-28	32.7 Feb)	37-32						
March 1975	46.2 (1	53-41 Mar-25	35.5 Mar)	40-32						
April 1975	49.0 (13	52-45 Apr-30	39.9 Apr)	46-35						
May 1975	56.9 (1	62-50 May-31	50.5 May)	55-45						
June 1975	62.4 (1	64-59 Jun-30	55.3 Jun)	57-54						
July 1975	68.5 (1	72-63 Jul-31	61.7 Jul)	66-57						
August 1975	69.2 (1	72-65 Aug-31	62.8 Aug)	65-61						
September 1975	65.5 (1	68-62 Sep-30	57.7 Sep)	62-52						
October 1975	53.9 (1	63-42 Oct-31	45.3 Oct)	55-36						
November 1975	45.1 (1 Nov-14 Nov)		34.8	39-32						

Water Temperatures EWR 75

Date	Stateline Hi temp	Stateline lo temp		Date	Stateline Hi	Stateline Lo
Jan 75				Jan 75		
1	32	32		26	40	32
2	32	32		27	32	32
3	32	32		28	32	32
4	32	32		29	32	32
5	32	32		30	32	32
6	32	32		31	32	32
7	32	32		Feb 75		
8	32	32		1	37	32
9	32	32		2	32	32
10	36	32		3	32	32
11	35	32		4	37	32
12	33	32		5	37	32
13	35	32		6	33	32
14	35	32		7	32	32
15	34	32		8	39	32
16	38	32		9	38	32
17	37	32		10	34	32
18	38	32		11	32	32
19	36	32		12	39	34
20	36	32		13	43	32
21	40	32		14	35	32
22	40	32		15	33	32
23	41	32		16	32	32
24	42	32		17	32	32
25	43	32		18	37	32

Water Temperatures EWR 75

Date	Stateline Hi temp	Stateline Lo temp		Date	Stateline Hi	Stateline Lo
Feb 75				March 75		
20	43	32		17	44	39
21	35	32		18	53	36
22	32	32		19	52	36
23	37	32		20	50	35
24	44	33		21	45	34
25	46	33		22	49	37
26	46	37		23	43	38
27	49	37		24	42	37
28	49	37		25	45	—
March 75				26		
1	50	35		27		
2	48	33		28		
3	49	37		29		
4	48	40		30		
5	41	36		31		
6	49	37		April 75		
7	41	34		1		
8	47	35		2		
9	43	36		3		
10	43	36		4		
11	41	33		5		
12	48	36		6		
13	44	32		7		
14	46	34		8		
15	48	34		9		
16	46	32		10		

Water Temperatures EWR 75

Date	Stateline Hi temp	Stateline lo temp
April 75		
11		
12		
13	51	36
14	47	36
15	45	35
16	45	35
17	49	36
18	50	37
19	45	38
20	49	37
21	50	39
22	50	42
23	52	43
24	52	43
25	47	43
26	48	43
27	52	43
28	51	43
29	51	44
30	49	46
May 75		
1	51	45
2	53	46
3	54	45
4	50	45
5	53	45

Date	Stateline Hi	Stateline Lo
May 75		
6	54	45
7	54	45
8	54	46
9	55	46
10	55	50
11	57	50
12	58	49
13	57	50
14	59	51
15	59	53
16	58	52
17	59	53
18	60	54
19	61	55
20	56	54
21	57	52
22	57	52
23	57	52
24	58	52
25	58	52
26	59	54
27	60	54
28	59	52
29	54	53
30	61	54

Water Temperatures EWR 75

Date	Stateline Hi temp	Stateline lo temp		Date	Stateline Hi	Stateline Lo
May 75				June 75		
21	62	55		26	62	54
June 75						
1	59	54		28	62	55
2	60	54		29	63	55
3	63	54		30	64	55
4	61	55		29	64	55
5	62	56		30	64	57
6	63	56		July 75		
7	63	58		1	65	57
8	63	55		2	66	57
9	62	55		3	67	57
10	63	57		4	66	61
11	63	57		5	68	60
12	61	56		6	68	61
13	64	55		7	67	60
14	64	55		8	67	61
15	63	55		9	68	61
16	63	55		10	65	60
17	62	55		11	67	61
18	61	57		12	68	60
19	62	57		13	69	60
20	62	55		14	67	60
21	62	55		15	63	61
22	64	57		16	69	62
23	63	57		17	70	62
24	61	59		18	69	62
				19	70	63

Water Temperatures EWR 75

Date	Stateline Hi temp	Stateline lo temp		Date	Stateline Hi	Stateline Lo				
July 75				August 75						
20	68	63		14	70	64				
21	69	63		15	70	63				
22	70	63		16	71	64				
23	70	63		17	70	65				
24	71	63		18	67	64				
25	70	63		19	67	62				
26	72	64		20	66	62				
27	71	64		21	65	61				
28	72	65		22	64	61				
29	70	66		23	67	61				
30	72	65		24	69	61				
31	72	64		25	64	62				
August 75										
1	72	64		26	68	61				
2	72	64		27	67	61				
3	71	64		28	69	62				
4	72	64		29	68	61				
5	71	65		30	67	61				
6	70	64		31	67	62				
7	72	63		Sept. 75						
8	71	63		1	68	67				
9	71	64		2	67	61				
10	70	63		3	67	61				
11	70	64		4	66	61				
12	69	64		5	67	61				
13	70	64		6	67	60				
				7	65	60				

Water Temperatures EWR 75

Date	Statelina Hi temp	Statelina lo temp		Date	Statelina Hi	Statelina Lo
Sept 75				Oct 75		
8	64	62		3	63	54
9	65	62		4	63	54
10	64	60		5	63	55
11	64	59		6	59	52
12	64	59		7	57	49
13	64	59		8	58	50
14	64	58		9	55	50
15	65	57		10	57	52
16	65	58		11	57	50
17	65	59		12	53	47
18	67	59		13	55	46
19	67	58		14	55	45
20	67	56		15	55	45
21	66	55		16	55	44
22	66	55		17	53	44
23	67	54		18	53	43
24	68	55		19	53	43
25	67	54		20	54	43
26	66	54		21	52	45
27	65	54		22	50	41
28	64	53		23	48	38
29	63	52		24	47	39
30	62	52		25	50	45
Oct 75						
1	63	52		26	52	39
2	63	54		27	46	36

Water Temperatures EWR 75

Date	Stateline Hi temp	Stateline Lo temp		Date	Stateline Hi	Stateline Lo				
Oct 75										
28	45	37								
29	47	37								
30	42	38								
31	48	36								
Nov 75										
1	48	36								
2	48	36								
3	48	36								
4	49	36								
5	47	36								
6	47	37								
7	52	37								
8	46	32								
9	43	34								
10	41	32								
11	37	32								
12	39	32								
13	42	34								
14	44	35								
15	-	-								

$\bar{x}$ Water Temperatures °F EWR 1974

	Statoline				Dam			
	$\bar{x}$ Hi	Range	$\bar{x}$ Lo	Range	$\bar{x}$ Hi	Range	$\bar{x}$ Lo	Range
April 1974	55.5 (26 Apr - 30 Apr)	57-54	47.4	48-47	47.5 (26 Apr - 30 Apr)	48-47	47.2	48-47
May 1974	59.9 (1 May - 31 May)	64-55	52.6	56-50	53.3 (1 May - 31 May)	59-50	52.4	57-48
June 1974	63.3 (1 Jun - 30 Jun)	64-63	57.0	57-57	59.7 (1 Jun - 17 Jun)	69-55	58.4	64-55
July 1974	68.5 (3 Jul - 31 Jul)	70-66	64.2	66-63	62.8 (8 Jul - 31 Jul)	67-60	62.2	66-60
August 1974	70.2 (10 Aug - 22 Aug)	72-69	64.0	65-63	63.7 (1 Aug - 10 Aug)	64-63	63.5	64-63
September 1974	66.4 (10 Sep - 17 Sep)	68-66	58.6	61-57	63.5 (10 Sep - 30 Sep)	66-60	62.8	66-60
October 1974	—	—	—	—	64.1 (1 Oct - 20 Oct)	65-63	64.0	65-63
November 1974	39.3 (18 Nov - 30 Nov)	45-35	36.7	40-35	—	—	—	—
December 1974	34.9 (1 Dec - 31 Dec)	39-32	33.9	37-32	—	—	—	—

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Water Temperatures FWR OF 1974

Date	Statteline Hi temp	Statteline Lo temp		Dam Hi	Dam Lo					
April 1974										
26	—	47		—	48					
27	55	48		48	47					
28	54	47		47	47					
29	56	47		47	47					
30	57	48		48	47					
May 1974										
1	55	51		52	48					
2	58	50		51	50					
3	55	50		50	50					
4	58	50		50	50					
5	59	50		51	51					
6	59	51		51	51					
7	58	52		52	51					
8	60	52		52	52					
9	61	53		54	52					
10	63	54		55	54					
11	63	55		57	55					
12	63	55		59	56					
13	63	55		59	57					
14	64	55		57	56					
15	62	54		57	57					
16	62	53		57	57					
17	59	53		57	55					
18	55	52		55	53					
19	57	51		53	52					

Water Temperatures EWR

Date	Hi	Lo		Hi	Lo					
May 1974										
20	59	51		52	52					
21	57	51		51	50					
22	57	51		50	50					
23	57	51		50	50					
24	59	52		50	50					
25	61	52		50	50					
26	61	53		50	50					
27	61	54		51	50					
28	62	55		53	51					
29	63	55		56	53					
30	63	55		55	55					
31	63	56		55	55					
June 1974										
1	63	57		55	55					
2	63	57		56	55					
3	64	–		56	56					
4	–	–		57	56					
5	–	–		57	57					
6	–	–		57	57					
7	–	–		58	57					
8				59	58					
9				58	57					
10				57	57					
11				57	57					
12				57	57					

Water Temperatures EWR

Date	Stateline Hi temp	Stateline Lo temp		Dam Hi	Dam Lo					
June 1974										
13				64	59					
14				69	64					
15				66	63					
16				65	63					
17				65	64					
18				-	-					
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
July 1974										
1										
2										
3										
4										
5										
6										
7										

Water Temperatures EWR

Date	Stateline Hi temp	Stateline Lo temp		Dam Hi	Dam Lo					
July 1974										
8	70	66		67	64					
9	70	65		67	66					
10	66	64		66	64					
11	69	64		64	63					
12	68	63		63	62					
13	68	62		61	60					
14	-	-		60	60					
15				60	60					
16				61	60					
17				61	61					
18				61	61					
19				61	61					
20				61	61					
21				63	61					
22				63	62					
23				63	63					
24				63	63					
25				63	63					
26				63	63					
27				63	63					
28				63	63					
29				63	63					
30				64	63					
31				65	63					

Water Temperatures EWR

Date	Stateline Hi temp	Stateline Lo temp		Dam Hi	Dam Lo					
August 70										
1				63	63					
2				63	63					
3				63	63					
4				64	63					
5				64	64					
6				64	64					
7				64	64					
8				64	64					
9				64	64					
10	–	63		64	63					
11	71	64								
12	71	64								
13	70	64								
14	72	64								
15	71	64								
16	70	64								
17	70	64								
18	69	64								
19	70	65								
20	70	64								
21	70	64								
22	69	–								
23										
24										
25										

Water Temperatures EWR

Date	Statelin Hi temp	Statelin Lo temp		Dam Hi	Dam Lo					
August 27										
28										
30										
31										
Sept 74										
2										
3										
4										
5										
6										
7										
8										
9										
10	66	61		63	62					
11	68	61		63	62					
12	66	59		63	63					
13	67	58		63	62					
14	66	57		64	62					
15	64	57		64	63					
16	66	57		63	61					
17	66			61	61					
18				61	60					
19				60	60					

Water Temperatures EWR

Date	Stateline Hi temp	Stateline Lo temp		Dam Hi	Dam Lo					
Sept 74										
20				61	60					
21				62	61					
22				63	62					
23				64	63					
24				65	64					
25				65	65					
26				65	65					
27				66	65					
28				66	66					
29				66	66					
30				66	65					
Oct 74										
1				65	65					
2				65	65					
3				65	65					
4				65	65					
5				65	65					
6				65	65					
7				65	65					
8				65	65					
9				65	64					
10				64	64					
11				64	64					
12				64	64					
13				64	63					
14				63						

Water Temperatures EWR

Date	Stateline Hi temp	Stateline Lo temp		Dam Hi	Dam Lo					
Oct 74										
15				63	63					
16				63	63					
17				63	63					
18				63	63					
19				63	63					
20				63	63					
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
Nov 74										
1										
2										
3										
4										
5										
6										
7										
8										

Water Temperature EWR

Date	Stateline Hi temp	Stateline Lo temp		Dam Hi	Dam Lo					
Nov 7A										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18	45	40								
19	42	38								
20	43	40								
21	40	37								
22	39	37								
23	37	35								
24	39	37								
25	40	37								
26	38	35								
27	39	36								
28	36	35								
29	35	35								
30	36	35								
1	34	34								
2	36	35								
3	37	36								

Water Temperatures EWR

Date	Stateline Hi temp	Stateline Lo temp		Dam Hi	Dam Lo					
Dec 74										
4	39	37								
5	37	36								
6	36	34								
7	36	35								
8	35	33								
9	33	33								
10	33	33								
11	35	35								
12	39	36								
13	36	34								
14	34	34								
15	39	36								
16	39	36								
17	37	35								
18	35	33								
19	33	33								
20	34	33								
21	36	34								
22	34	33								
23	33	33								
24	33	33								
25	33	33								
26	33	33								
27	33	33								
28	33	33								
29	33	33								
30	33	33								
31	33	33								

Water Temperatures EWR

Date	Stateline Hi temp	Stateline lo temp		Dam Hi	Dam Lo					
Dec 74										
29	32	32								
30	32	32								
31	32	32								
Jan 75										

1-19-75

Bob

I would remove the 14-inch limit as not likely to be of much influence on the fish population in Walker River. The 2-fish bag limit might help spread the catch & therefore be of some value.

A good study would be to run the program with a 2-fish bag limit and no bait fishing for several years followed by the same bag limit with no terminal tackle restriction. I think removal of the catchables will offer the most benefit to the resident population and that other restrictions probably are not very valuable. I don't think bait fishing should be prohibited unless some biological benefit accrues

Statutory Reference

(c) Motor vehicles are prohibited.

112. Fountain Lake State Fishing Area - Pueblo County

(a) Public use may be limited to 50 people.

(b) Ice fishing is prohibited.

(c) Boating is prohibited.

(d) Motor vehicles are prohibited except on designated roads.

(e) Overnight camping is prohibited.

(f) Fires are prohibited.

(g) All swimming is prohibited.

113. Fourteen (14) Severance Hunting Area - Weld County

(a) Hunting is prohibited except when each hunter is properly registered at the check-in point.

(b) Waterfowl hunting is permitted only on Mondays, Wednesdays, and Saturdays of the regular migratory waterfowl season.

114. Frank Easement - Weld County

(a) Public use may be limited to 200 people.

(b) Overnight camping is prohibited.

115. Freeman Lake - Moffat County

(a) Fishing is prohibited in the inlet area and upstream one-fourth ($\frac{1}{4}$) mile from January 1 through July 31 each year.

116. Frenchman Creek Wildlife Area - Phillips County

(a) Public use may be limited to 40 people.

It is my guess that without sickies the use will drop off appreciably, with or without bait fishing, to a reasonable level.

I do not consider a fish kept CPUE of about .2 as bad. This means that the CPUE of competent fishermen probably exceeds 3 and may well be from 5 to 10.

I hope John is able to prove the presence and extent of benefit of removal of sickies on the resident fish.

The questionaire may not mean much since it is only reflecting opinions of those contacted fishing on the stream - presumably they wouldn't be there unless they liked the idea.

WDK

Statutory Reference

(a) Boating is prohibited from the second Tuesday of October through the last day of the regular migratory waterfowl season, except as posted.

104. Escalante State Wildlife Area - Mesa, Delta and Montrose Counties

(a) Public use may be limited to 200 people.

105. Evergreen Lake - Jefferson County

(a) Fishing in the lake is prohibited except by means of artificial flies and artificial lures only.

106. Fairview Reservoir - Montrose County

(a) Boating is prohibited.

107. Fish Creek Wildlife Area - Dolores County

(a) Public use may be limited to 50 people.

(b) Overnight camping is prohibited.

108. Flagler Reservoir - Kit Carson County

(a) Public use may be limited to 300 people.

(b) Boating is prohibited from the second Tuesday of October through the last day of the regular migratory waterfowl season.

109. Fortification Lake - Moffat County

(a) (See Ralph White Reservoir)

110. Fort Lyon State Wildlife Area - Bent County

(a) (See John Martin State Fishing Area)

111. Foster Lease - Washington County

(a) Public use may be limited to 25 people.

(b) Overnight camping is prohibited.

OFFICE MEMO

STD. FORM 100 (REV. 11-69)

To: Bob Rehnke

Date: 1/8/76

From: John Dunstadt

Phone:

Subject: E. Walker River data

I hope this is what you desired. I have asked our main office to send you a copy of our last D.I. progress report. It will have a more detailed statement of project objectives, etc.

STATE OF CALIFORNIA

STATE OF CALIFORNIA—RESOURCES AGENCY [redacted] Governor

DEPARTMENT OF FISH AND GAME
987 Jedsmith Drive, Sacramento, Ca. 95819
(916) 445-0866

January 8, 1976

Dr. Robert Behnke
1134 Buena Vista
Reno, California 89503

Dear Dr. Behnke:

The East Walker River from Bridgeport Reservoir to the Nevada state line is presently being managed by the California Department of Fish and Game as an experimental wild brown trout fishery. Under this management program, the stream no longer receives direct stocking of hatchery reared catchable-size rainbow trout. While rainbow trout are present, the management concept is to rely on the natural production of wild brown trout to sustain a sport fishery.

The attached table shows that anglers fished an estimated 14,447 hours on the stream during the 1974 season and caught 2,573 brown trout .

A questionnaire utilized during the 1975 season is attached. The results of question 7 (would you return to fish here again this year if you had the opportunity?) asked anglers who completed their day's fishing indicate most had a satisfactory angling experience.

John M. Deinstadt

John M. Deinstadt
Associate Fishery Biologist

JMD:gmr

Attachments (2)

cc: Ted C. Frantz

TABLE 1.

EAST WALKER RIVER CREEL CENSUS

1974 EXPANDED DATA

STRATUM	ANGLER HOURS	BN KEPT	CATCH PER HOUR	BN RELEASED	CATCH PER HOUR	BN KEPT & REL.	CATCH PER HOUR
OPENING WEEKEND	1,904	433	0.23	63	0.03	496	0.26
APRIL-MAY WEEKDAYS	1,598	192	0.12	58	0.04	250	0.16
MAY WEEKEND DAYS	632	91	0.14	38	0.06	129	0.21
MEMORIAL DAY WEEKEND	360	68	0.19	49	0.14	117	0.33
JUNE WEEKDAYS	1,289	364	0.28	216	0.17	580	0.45
JUNE WEEKEND DAYS	716	148	0.21	46	0.06	194	0.27
JULY WEEKDAYS	1,376	229	0.17	62	0.04	291	0.21
JULY WEEKEND DAYS	410	59	0.14	11	0.03	70	0.17
INDEPENDENCE DAY	211	29	0.14	11	0.05	40	0.19
AUGUST WEEKDAYS	1,940	203	0.10	75	0.04	278	0.14
AUGUST WEEKEND DAYS	1,185	142	0.12	35	0.03	177	0.15
LABOR DAY WEEKEND	316	36	0.11	4	0.01	40	0.13
SEPTEMBER WEEKDAYS	1,022	252	0.25	4	0.00	256	0.25
SEPTEMBER WEEKEND DAYS	472	139	0.29	0	0.00	139	0.29
OCTOBER WEEKDAYS	547	84	0.15	0	0.00	84	0.15
OCTOBER WEEKEND DAYS	469	104	0.22	2	0.00	106	0.22
TOTAL MEANS	14,447	2,573	0.18	674	0.05	3,247	0.22

EAST WALKER RIVER ANGLER QUESTIONNAIRE - 1975

1. Have you fished the East Walker River before this season?

2. Did you know special angling regulations were in effect before you chose to come to the stream?

3. Did you know the hatchery stocking program had been discontinued?

4. Would you have chosen to fish another water if you had known the stream was not stocked?

5. Are you fishing here primarily for the opportunity to catch trophy-sized trout?

6. Would you prefer a return to the 10 fish limit without a gear restriction?

7. Would you return to fish here again this year if you had the opportunity?

Summary of Angler Questionnaires
1975 E. Walker R.

#7 answered only for anglers w/ complete angler days
* = no opinion

DATE	1			2			3			4			5			6			7			# ANGLERS RESPONDING	# REPEATS	Σ
—	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	—	—	—
4-26-75	60	28		78	10		42	46		6	80	2	54	34		19	67	2	30	1		88	0	88
4-27-75	27	26		39	14		18	35		8	43	2	27	26		8	38	7	18	3		53	26	79
4-28-75	19	11		20	10		11	19		0	30		18	12		1	24	5	6	0		30	13	43
Σ	106	65		137	34		71	100		14	153	4	99	72		28	129	14	54	4		171	39	210
5-3-75	15	7		12	10		5	17		2	20		13	9		4	17	1	3	0		22	3	25
5-5-75	5	5		9	1		2	8		1	9		3	7		0	10		5	0		10	0	10
5-6-75	8	8		9	7		5	11		1	13	2	7	9		4	12		6	0		16	2	18
5-9-75	7	4		7	4		4	7		1	10		7	4		0	10	1	7	0		11	1	12
5-12-75	4	4		6	2		4	4		1	7		3	5		1	5	2	3	2		8	3	11
5-14-75	5	6		5	6		6	5		0	11		7	4		2	6	3	3	1		11	3	14
5-15-75	10	4		11	3		10	4		0	14		7	7		4	9	1	9	0		14	4	18
5-17-75	12	11		13	10		6	17		2	21		11	12		7	15	1	15	2		23	2	25
5-18-75	7	8		4	11		4	11		2	13		8	7		4	9	2	7	2		15	3	18
5-19-75	1	6		3	4		2	5		0	7		4	3		1	6		2	1		7	5	12
5-21-75	4	4		7	1		5	3		0	8		5	3		3	5		7	0		8	3	11
5-22-75	8	0		4	4		6	2		0	8		4	4		4	2	2	3	0		8	7	15
5-23-75	11	14		11	14		7	18		1	24		4	20	@1	7	15	@3	14	0		25	4	29
5-24-75	30	37		24	43		21	46		15	52		19	48		26	32	9	10	10		67	9	76
5-25-75	12	25		12	25		7	30		8	28	1	8	29		15	19	3	10	2		37	17	54
5-26-75	6	3		5	4		5	4		0	9		4	5		1	8		5	0		9	11	20
5-27-75	5	5		5	5		4	6		0	10		6	4		2	8		3	1		10	5	15
5-28-75	3	2		3	2		1	4		0	5		3	2		1	4		5	0		5	4	9
5-31-75	8	8		10	6		2	14		1	15		7	9		4	12		8	3		16	7	23
Σ	161	161		160	162		106	216		35	284	13	130	191	1	90	204	26	125	24		322	93	415

@ = omission of information assumed no preference
b = 2 no opinion; 1 omission, " "

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Summary of Angler Questionnaires
1975 E. Walker R.

#7 answered only for anglers w/complete angler days
* = no opinion

DATE	1			2			3			4			5			6			7			# ANGLERS RESPONDING	# REPEATS	Σ
—	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	—	—	—
6-3-75	3	7		4	6		1	9		2	8		6	4		1	9		6	0		10	3	13
6-8-75	12	8		13	7		8	12		0	20		11	9		3	17		18	0		20	0	20
6-19-75	7	22		8	21		3	26		8	21		10	19		13	15	1	7	9		29	0	29
6-22-75	26	22		23	25		14	34		15	33		26	22		16	25	7	14	3		48	5	53
6-23-75	8	13		13	8		7	14		2	19		12	9		4	16	1	8	0	1	21	8	29
6-24-75	9	7		8	8		6	10		1	15		5	11		3	13		7	0		16	9	25
6-28-75	7	10		8	9		6	11		2	15		8	9		5	12		15	0		17	5	22
Σ	72	89		77	84		45	116		30	131		78	83		45	107	9	75	12	1	161	30	191
7-2-75	8	17		17	8		14	11		3	22		19	6		3	22		15	2		25	2	27
7-4-75	18	28		18	28		7	39		9	37		17	29		20	26		17	13		46	2	48
7-5-75	9	34		26	17		19	24		0	43		21	22		7	36		26	0		43	16	59
7-6-75	7	13		8	12		5	12		0	20		11	9		8	12		9	5		20	8	28
7-12-75	14	22		17	19		13	23		4	32		27	9		15	21		23	1		36	6	42
7-13-75	6	1		7	0		2	5		0	7		6	1		1	6		3	0		7	14	21
7-17-75	12	11		13	10		12	11		2	21		12	11		1	22		14	3		23	10	33
7-26-75	12	12		10	14		6	18		0	24		14	10		8	16		14	2		24	5	29
7-28-75	5	11		14	2		5	11		0	16		11	5		2	14		8	2		16	1	17
7-30-75	10	22		21	11		6	26		1	31		11	21		8	23	1	12	9		32	1	33
Σ	101	171		151	121		92	180		19	253		149	123		73	196	1	141	37		272	65	337
8-1-75	4	3		4	3		3	4		0	7		6	1		2	5		7	0		7	6	13
8-2-75	3	18		5	16		0	21		2	19		11	10		6	15		12	5		21	5	26
8-7-75	11	14		11	14		3	22		0	25		14	11		3	22		20	3		25	7	32
8-8-75	4	15		7	12		3	16		0	19		4	15		4	15		9	6		19	1	20

Summary of Angler Questionnaires
1975 E. Walker R.

#7 answered only for anglers w/ complete angler days
* = no opinion

DATE	1			2			3			4			5			6			7			# ANGLERS RESPONDING	# REPEATS	Σ
	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*			
E-10-75	5	7		9	3		1	11		1	11		5	7		3	8	1	5	4		12	2	14
E-12-75	6	16		14	8		8	14		0	22		12	10		1	21		14	2		22	3	25
E-14-75	13	13		13	13		4	22		2	24		3	23		12	14		11	10		26	4	30
E-17-75	3	25		20	8		9	19		5	23		9	19		3	25		14	5		28	8	36
E-22-75	4	15		13	6		8	11		2	17		8	11		4	15		11	6		19	1	20
E-24-75	3	9		6	6		0	12		4	8		1	11		4	8		7	4		12	4	16
E-26-75	12	7		12	7		2	17		0	19		5	14		3	16		17	0		19	1	20
E-30-75	15	19		16	18		15	19		5	29		17	17		7	27		16	7		34	7	41
E-31-75	10	19		18	11		6	23		3	26		10	19		3	26		13	10		29	10	39
Σ	93	160		148	125		62	211		24	249		105	168		56	217		158	62		273	59	332
9-1-75	9	27		25	11		5	31		0	36		11	25		11	25		16	12		36	10	46
9-2-75	1	6		4	3		1	6		0	7		1	6		2	5		5	0		7	4	11
9-6-75	5	13		12	6		4	14		3	15		12	6		4	14		5	9		15	4	22
9-13-75	4	12		10	6		4	12		6	10		6	10		10	6		7	2		16	1	17
9-19-75	4	4		0	8		0	8		0	8		6	2		0	8		1	2		8	1	9
9-22-75	10	1		7	4		5	6		3	8		4	7		0	10	1	9	0		11	2	13
9-24-75	3	7		2	8		7	3		2	8		2	8		2	8		3	3	1	10	4	14
9-25-75	7	4		6	3		3	8		4	6	1	7	4		4	6	1	9	0		11	6	17
9-28-75	4	2		2	4		1	5		1	5		4	2		2	4		2	0		6	7	13
Σ	47	76		70	53		30	93		19	103	1	53	70		35	86	2	59	28	1	123	39	162
10-6-75	5	5		8	2		5	5		1	9		5	5		3	7		7	2		10	1	11
10-7-75	2	1		2	1		0	3		1	2		0	3		0	3		1	2		3	7	10
10-11-75	9	10		13	6		4	15		1	18		8	11		5	14		14	3		19	4	23

Summary of Angler Questionnaires
1975 E. Walker R.

#7 answered only for anglers w/ complete angler days
* = no opinion

DATE	1			2			3			4			5			6			7			# ANGLERS RESPONDING	# REPEATS	Σ
	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*	yes	no	*			
10-19-75	6	5		7	4		3	8		1	10		9	2		2	9		6	0		11	5	16
10-20-75	0	8		6	2		1	7		0	8		2	6		3	5		5	3		8	3	11
10-21-75	2	4		4	2		1	5		1	5		3	3		1	5		6	0		6	4	10
10-23-75	1	2		3	0		1	2		0	3		0	3		1	2		3	0		3	3	6
Σ	25	35		43	17		15	45		5	55		27	33		15	45		42	10		60	27	87
Σ 1975	605	777		786	596		421	961		146	1,228	8	641	740	1	342	986	54	654	177	2	1,382	352	1734
%	43.78	56.22	0	56.87	43.13	0	30.46	69.54	0	10.56	88.86	0.58	46.38	53.55	0.07	24.75	71.35	3.91	78.51	21.25	0.24			

FG 419 3-54

OFFICE MEMO

STD. FORM 100 (REV. 11-69)

To: Bob Behnke
1134 Buena Vista
Reno, Nevada

Date: 1/9/76

From: John Dunstadt

Phone:

Subject: Job Performance Report

I had not yet seen the typed copy of this report when you called yesterday. I've made some corrections and tried to add notes to statements or data that may be confusing to you.

Also enclosed are the past rainbow trout population estimates

STATE OF CALIFORNIA

Corrected copy — 1/9/76
(with comments)

JOB PERFORMANCE REPORT

State: California

Cooperators: None

Project No.: F-10-R-21 Project Title: Salmonid Stream Study

Job No.: 5 (Study VI) Job Title: East Walker River Wild Trout Research

Period Covered: July 1, 1974 - June 30, 1975

I. Summary: Population estimates were conducted in sections of the East Walker River, Mono County, California. Brown trout were estimated to number 653/km (1,053/mile) in the spring and ~~1,186~~ 1,181/km (1,904/mile) in the fall. Suckers were the most abundant fish observed in the stream, comprising 82.8% of the population in a 300-m (0.2-mile) section. Brown trout comprised 6.0% of the total population.

A creel census of 69 days in a 188-day season was implemented. Anglers expended an estimated 14,447 hours of effort to catch 5,529 fish. A total of 2,573 brown trout was harvested and 674 released. Food habit studies showed forage fish were present in 60.0% of the stomachs from brown trout > 350 mm (13.8 inches). To meet the project's objectives of providing a trophy brown trout fishery, a 14-inch minimum size regulation was proposed.

II. Background: A 13.8 km (8½-mile) section of the East Walker River from Bridgeport Reservoir downstream to the Nevada state line has been recognized as area which might be managed exclusively for wild trout. This section of stream has, until 1973, been stocked with approximately 20,000 catchable-sized rainbow trout annually. Preliminary population

only stocked a portion of the stream

estimates have shown that the stream currently supports a limited number of wild brown trout, with a few of these fish attaining a size of 0.9 to 2.3 kg (2 to 5 lb). The native fish species of the drainage (the Tahoe sucker, mountain sucker, Lahontan redside, tui chub, and mountain whitefish) comprise the majority of the fish biomass in the stream.

The problems facing the management of this section of river as a wild brown trout fishery center principally around the presence of the non-game fish population. Experience on other waters in the area has shown that the trophy fish are undoubtedly a product of nongame fish forage. As the trophy brown trout fishery is the basis for the acclaim the river receives, simple chemical treatment to reduce competition is not a ready answer. Unless, however, the total number of brown trout can be increased or otherwise manipulated through regulations, etc., the catch per unit of effort will be too low to produce an attractive fishery.

III. Objectives:

General Objective - To determine the potential of the East Walker River as a wild trout stream.

Specific Objectives -

1. To increase the present trophy brown trout potential of the stream.
2. To maintain an attractive catch per angler hour as a wild brown trout fishery.
3. To determine the contribution and importance of nongame fish as forage for brown trout reaching trophy size.

IV. Procedures: Semiannual fish population surveys involving mark and recapture population estimates will identify changes in abundance, age, and size structure of brown and rainbow trout populations; examine trout reproductive success and recruitment; and measure the response of the fishery to special angling regulations.

A creel survey (stratified random sampling with optimum allocation) will estimate use and angler harvest. Angler questionnaires to be used in conjunction with the creel census will measure expectation and success in relation to the actual angling experience.

Questionnaire you received only supplemental one of 2 other questionnaires used is attached

Brown trout will be tagged to determine angling mortality and migration patterns.

Scales collected during population and creel surveys will be read to permit data analysis by age classes.

Brown trout stomach contents will be analyzed to determine the species and size of forage fish consumed.

Other physical parameters needed to define brown trout survival will be measured.

V. Findings: A preliminary mark and recapture survey, based on 750 m (0.5 mile) of stream, was conducted in March 1974 to estimate the trout population and determine the relative abundance of nongame fish. Brown trout were estimated to number 653/km (1,053/mile) with 447/km (722/mile) $<$ 200 mm (7.8 inches) and 205/km (331/mile) $>$ 200 mm. A 300-m (0.2-mile) section of stream was estimated to contain 212 brown trout, 2 rainbow

trout, 270 mountain whitefish, 2,809 Tahoe suckers, 100 mountain suckers, 96+ Lahontan redsides, and 26+ tui chubs. The fall 1974 population survey was conducted in 3,000 consecutive meters of stream (1.9 miles) and limited only to brown trout. The brown trout population was estimated to be ~~1,186~~ 1,181/km (1,904/mile) with 307 brown trout/km (495 trout/mile) > 200 mm (7.8 inches) (Figure 1).

A creel census of 69 days in a 188-day season (April 27 - October 31) was implemented on the 8½-mile section of the East Walker River between Bridgeport Reservoir and the Nevada state line to establish use and angler success under the existing 10-trout limit. Anglers expended an estimated 14,447 hours of effort to catch 5,529 fish, of which 3,247 (58.7%) were brown trout, 2,197 (39.7%) were rainbow trout, and 85 (1.5%) were whitefish. Of the total brown trout landed, ~~2,537~~ 2,573 were kept and 674 released (Table 1). Anglers fishing in the 1.9-mile section, through which population estimates are conducted, expended an estimated 4,291 hours of effort to catch 1,451 fish. The overall catch per angler hour for brown trout in the test section was 0.25 compared to 0.22 for the total 8½-mile study area (Table 2). Anglers released 17.1% of the brown trout landed in the test section and 19.9% within the total study area. Brown trout in the creel averaged 277 mm (10.9 inches) FL in the study area and 262 mm (10.3 inches) in the test section (Figures 2 and 3). Complete angler-day data were analyzed to determine potential harvest reduction by changes in the limit. A change from 10 to 5 trout would potentially reduce the brown trout harvest by 25%, while a reduction to 2 trout would accomplish approximately a 59% reduction (Table 3).

Angler questionnaires designed to determine expectations and success in relation to fishing the East Walker River were distributed and are being analyzed by F-6-C.

Not get analyzed

Prior to the 1974 season, 386 wild brown trout were captured by electrofishing and tagged with $5 reward tags. During the 1974 season, 113 tags (29.3%) were returned. Of the 80 tag returns from which migration can be determined, 72.5% showed no appreciable migration, 7.5% moved upstream, and 20.0% moved downstream.

You have more recent results

Scale readings and grouping of population and harvest data into age groups have not been completed.

The stomach contents of 128 brown trout were analyzed. A total of 60 forage fish was found in 34 stomachs. Tui chubs comprised 40.0% of the forage fish observed, Lahontan redsides 25.0%, suckers (Tahoe and mountain combined) 16.7%, and 18.3% were unidentified. No forage fish were observed in brown trout < 250 mm (9.8 inches). Forage fish were present in 27.3% of the brown trout between 250 and 349 mm (9.8 and 13.7 inches) and 60.0% of the brown trout > 350 mm (13.8 inches).

More recent data sent yesterday

Based on the estimate showing a limited population of trout > 200 mm (7.8 inches) at the start of the season, a projected total season angling effort of 10,000 to 15,000 hours, and the preliminary food habits study results indicating brown trout usually reach about 350 mm (13.8 inches) before utilizing forage fish extensively, a 14-inch minimum size restriction was recommended. It was further recommended that the limit be reduced to 2 trout and, in anticipation of increased catch and release angling,

only artificial lures and flies be permitted. These experimental regulations were accepted by the California Fish and Game Commission effective with the 1975 season.

VI. Recommendations: Semiannual fish population estimates should be continued to evaluate changes in brown trout populations. The creel census should be continued to determine trends in the fishery under the experimental regulations. Brown trout > 350 mm (13.8 inches) should be tagged within the 3,000-m (1.86-mile) test section to determine angling mortality and migration patterns. The 1974 data should be organized into year classes. Stream widths should be determined and length-weight data analyzed to provide standing crop estimates. Questionnaires should continue to be distributed to evaluate changes in angler satisfaction. The project's objectives, based on the 1974 data, should be more precisely defined.

VII. Prepared by John M. Deinstadt, Associate Fishery Biologist.

We are attempting to increase the catch per angler hour through more catch-and-release angling. We recognize that survival to 14 inches before harvest severely limits yield, but may increase the trophy aspects of the resource. We consider our present program as strictly an experimental effort and anticipate a possible return to less restrictive regulations

EWR 75

Summary of Estimated Hours Field by Section

Expanded

Section	Date	I (1)	II (2)	III (3)	IV (4)	V (5)	VI (6)	Total	Est Hrs by Sect.	(4)-(5)
I (Comm.)		126.60	297.50	278.80	58.49	102.36	36.86	906.01	905.60	-0.4
II (Inst. Nav.)	Weekdays	119.70	427.93	220.06	84.89	90.57	17.04	960.19	959.37	-0.7
III (Nav. Aids)		63.96	221.39	107.59	75.23	41.95	20.06	530.18	530.48	0.3
IV (Aviation)	Weekdays	67.42	189.77	150.13	70.65	53.42	32.50	563.89	563.58	-0.3
I (June-July)	Weekdays	1158.64	1226.30	875.42	181.89	243.06	141.04	3836.35	3836.94	0.59
II (June-July)	Weekends	395.72	374.42	380.90	140.52	69.25	75.22	1436.03	1437.42	1.39
III (July 4th)	Weekend	64.35	99.82	67.91	65.17	10.55	2.73	310.53	310.47	-0.0
III (August)	Weekdays	352.92	434.07	188.94	193.98	63.90	21.30	1255.11	1255.44	0.3
V (August)	Weekends	123.18	77.90	92.70	7.36	17.30	36.36	354.80	354.90	0.1
X (Labor)	Day Weekend	67.93	49.08	55.81	4.11	13.16	10.11	200.20	200.37	0.17
I (Sept-Oct)	Weekdays	544.28	235.90	234.65	0	17.16	0	1031.89	1030.26	-1.63
II (Sept-Oct)	Weekends	328.36	224.35	171.30	38.46	83.39	65.76	911.64	911.20	-0.4
Totals		3412.48	3968.23	2,624.21	920.75	812.07	458.98	12296.72	12296.05	0.67
%		27.75	31.46	22.97	7.49	6.60	3.73	100.00%		

Completing effort charged
to 12,296 hours in
1975.

S.B. 10-21-75

Total tagged 435
" returns 141
Tagged between dam & bridge = 24 (in Mar 1974)
Tagged between bridge & Murphy Pond = 402 (365 in Feb & Mar 1974)
Tagged below ~~Plymouth~~ Ft. Wm Ker Catch = 9 (47 in Mar in 1975)

Month	#	% of season catch	% of total catch
April 74	10	8.85	7.09
May	42	37.17	29.79
June	20	17.70	14.18
July	17	15.04	12.06
August	9	7.96	6.38
September	8	7.08	5.67
October	7	6.19	4.96
November	0	0	0
Unknown	0	0	0
∑ 1974	113	99.99	80.13
April 75	10	35.71	7.09
May	6	21.43	4.26
June	6	21.43	4.26
July	6	21.43	4.26
August	0	0	0
September	0	0	0
October	0	0	0
∑ 75 to date	28	100.00	19.87

∑ 74' & 75' to date 141

(# tagged BN = 135) ∴ Total harvest to date is 329