

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

FISHING SUCCESS ON
CALIFORNIA WILD TROUT WATERS IN 1990-91:
REPORTS FROM ANGLER BOX SURVEYS

by

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ABSTRACT

Survey data voluntarily reported by anglers fishing on 31 wild trout waters in California during the 1990 and 1991 seasons are summarized on two page reports. Summaries include catch rates, numbers and lengths of trout caught, trout/angler day, and lengths of trout that anglers reported keeping or releasing, if applicable. Management implications of these data are also briefly discussed.

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Jack Clausen	Inyo National Forest	Hot Creek
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Harold Werner	Sequoia-Kings Canyon National Park	Bear Creek
		Deep Creek
		Bear Creek
		Deep Creek
		Piru Creek
		Eleanor Lake
		Kern River, Sequoia National Park
		Marble Fork Kaweah River
		South Fork Kings River

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INTRODUCTION

The California Department of Fish and Game (Department) has historically relied largely upon fish population and angling surveys to select and manage California's quality wild trout waters. Since 1971, the number of waters designated for wild trout management has increased to over 50; as a result, it has become increasingly difficult to fund and conduct the needed surveys. In 1985, the Department began to recruit volunteers to assist in conducting fish population surveys. The program proved to be successful and has been used annually since that time.

To supplement angler surveys, a second experimental program, involving the use of mail-in angler-survey questionnaires, was also conducted in 1985. This program was limited to Hot Creek (Mono County) and was conducted in cooperation with the U.S. Forest Service. During their regular patrols of the area, personnel from the Mammoth Ranger District placed questionnaires on the windshields of vehicles belonging to anglers fishing the stream. This program also proved to be successful and has been conducted annually since 1985. However, the subsequent use of windshield questionnaires on three other waters was largely unsuccessful, because of distribution problems or low return rates.

The use of voluntarily completed and returned angler surveys on wild trout waters in California, with the exception of Hot Creek, was not tried again until 1989. That year, three angler survey boxes were installed at the primary trailheads leading into Bear Creek, a canyon stream in southern California. The project worked, and, in 1990, angler survey boxes were tried on 26 waters statewide. In 1991, an additional five waters were surveyed.

This report presents a two-page summary of results from each of the 31 waters surveyed in 1990-91, and was compiled for both Department biologists and anglers interested in wild trout waters. A second report is being prepared which will cover results statewide, rather than on individual waters, and will also present 1990-91 angler satisfaction data.

METHODS

Survey data were obtained at the end of a day's fishing by using questionnaires supplied through self-serve angler survey boxes. Data requested included date, number of hours fished, gear type used (i.e. bait, lure, fly), species and estimated lengths of trout kept or released, and ratings of personal satisfaction with the overall angling experience for the day, the number of trout caught, and the size of the trout caught (Figure 1). On some streams, anglers were asked to indicate the reach of water fished, or to record information only for a given reach. On lakes, the angling method used (i.e. shore, boat, or float tube) was requested.

Rubicon River Angler Survey

The Department of Fish and Game is conducting an evaluation of the wild trout fishery of the Rubicon River. We request your help in this evaluation by providing the following information in this survey. Please use this form for one day's fishing on the Rubicon River by one angler only.

Date fished _____ Number of hours fished _____
Check one gear used primarily: bait _____ lure _____ fly _____
Number of brown trout caught _____ kept _____ released _____
Number of rainbow trout caught _____ kept _____ released _____

SIZE OF FISH
Enter number of each species caught by sizes

	Brown Trout		Rainbow Trout	
	Kept	Released	Kept	Released
Less than 6"	_____	_____	_____	_____
6" - 7.9"	_____	_____	_____	_____
8" - 9.9"	_____	_____	_____	_____
10" - 11.9"	_____	_____	_____	_____
12" - 13.9"	_____	_____	_____	_____
14" and greater	_____	_____	_____	_____

Please indicate your satisfaction with the following statements regarding this fishery by circling the number which most closely reflects your feelings.

	Not satisfied		Satisfied	
1. Overall angling experience this day	-2	-1	0	+1 +2
2. Size of trout	-2	-1	0	+1 +2
3. Number of trout	-2	-1	0	+1 +2

If you wish to provide additional comments please use the reverse side of this form.

Thank you for your cooperation

FIGURE 1. Typical angler box survey form.

The boxes used to distribute and collect survey forms were made of either 1/4- or 1/2-inch steel and mounted on a 4 X 4-inch steel post placed in concrete to reduce vandalism. The boxes were divided into an upper compartment containing forms and pencils and a lower compartment, into which the completed forms were deposited through a wide slot in the side of the box (Figure 2). The upper compartment was covered by a hinged overhanging lid. Access to the lower compartment was through a recessed, hinged floor secured by a padlock. Nuts, securing a U-bolt holding the box on the steel post, were inside the lower compartment. A sign on the front of the box requested anglers to fill out a form and place it into the box through the slot. The boxes were generally located at the access points to a stream or lake (i.e. trailheads, parking lots, boat ramps). One to three boxes were used per water depending upon the number of major access points. Boxes were maintained by volunteers from angler groups, personnel from other State or Federal agencies working in cooperation with the Department, or Department employees.



FIGURE 2. Angler survey box showing the instruction sign and top compartment.

Data from the questionnaires were entered and compiled using dBase IV. Incomplete or bogus forms were identified and separated at the time of entry. Bar graphs present in this report were created with Harvard Graphics version 2.3.

NORTHERN CALIFORNIA WATERS

The large streams originating in the volcanic area between Mt. Shasta and Mt. Lassen support most of the best stream fishing for trophy-size rainbow trout in California. Angling data on three of these waters, Fall River, lower Hat Creek, and the McCloud River, were collected with survey boxes in 1990-91 (Figure 3). Two other northern California waters surveyed in 1990-91 offer exceptional angling. Stone Lagoon, on the coast above Eureka, provides one of the best opportunities for anglers in California to catch coastal cutthroat trout. Manzanita Lake, in Lassen Volcanic National Park, offers outstanding trophy rainbow and brown trout fishing. Two smaller northern California streams included in the survey, Squaw Valley Creek and the Middle Fork Stony Creek, produce mostly small- to medium-size trout.



FIGURE 3. Locations of waters surveyed in northern California.

Access to the waters surveyed in northern California is varied. Squaw Valley Creek, the lower McCloud River, and the Middle Fork Stony Creek are largely trailside waters. Lower Hat Creek, accessible from several parking areas, is considered a roadside water. Fall River is, for the public, a navigable river accessible by boat (Figure 4). Anglers can drive to the shores of Stone Lagoon and Manzanita Lake (Figure 5).



FIGURE 4. Meandering upper reach of Fall River.



FIGURE 5. Manzanita Lake looking toward Lassen Peak.

Fall River

Fall River is one of California's largest spring streams and, along with Hat Creek, one of its two best trophy rainbow trout fisheries. Harvest in the upstream reaches is currently regulated by a 14-inch maximum size limit. The entire river has a two-trout limit. As the property along Fall River is privately owned, a boat is necessary for most anglers to access the river. For several years, the Island Road Bridge site, owned by California Trout, has been the only free launch site available on the river. Parking spaces at Island Road Bridge are limited and users may not use gasoline powered engines. A second public boat launching site downstream at Glenburn was reopened to the public in 1991. An angler survey box was installed at the Island Road Bridge site in 1990 and the Glenburn site in 1991.

Results. Catch rates for anglers launching from the Island Road Bridge site were similar and not exceptionally high in 1990 and 1991 (Table 1). Few trout (<1%) were kept by anglers in 1990-91 (Figures 6 and 7). Rainbow trout ≥ 14 inches made up 22% of the catch in 1990 and 43% in 1991 (Figure 8). Over 90% of the anglers reporting at the Island Road Bridge site in 1990-91 caught one or more trout. About 75% caught 1 to 10 trout, 15% caught 11 to 20 trout, and 2% caught >20 trout (Figure 9). Only 15 anglers filled out forms at the Glenburn site. In contrast to the upstream area where most anglers fished with flies, lure fishing accounted for the majority of the effort by anglers launching at Glenburn. The average catch rate downstream (0.33 trout/hour) was low. About half the rainbow trout caught in the downstream area were kept.

TABLE 1. Angling Success at Fall River in 1990 and 1991.

	<u>Island Road</u>		<u>Glenburn</u>	<u>Combined</u>
	<u>1990</u>	<u>1991</u>	<u>1991</u>	<u>1991</u>
Surveys received	136	87	15	102
Hours fished	788.50	548.50	58.00	606.50
Rainbow trout kept	5	6	10	16
Rainbow trout released	728	481	9	490
Total rainbow trout	733	487	19	506
Brown trout kept	0	0	0	0
Brown trout released	4	0	0	0
Total brown trout	4	0	0	0
Overall catch/hour	0.93	0.89	0.33	0.83
Mean trout/angler	5.4	5.6	1.3	5.0

Management Implications. The 1990-91 data indicate that the Fall River fishery is attracting two different types of anglers, a strongly catch-and-release oriented fly fisher upstream and a more harvest oriented lure angler downstream. With over 40% of the reported upstream catch exceeding the maximum size limit in 1991, the regulation is viewed as an effective means of helping preserve and enhance a highly prized trophy fishing opportunity. Very few streams in California sustain a significant population of 16- to 20-inch rainbow trout.

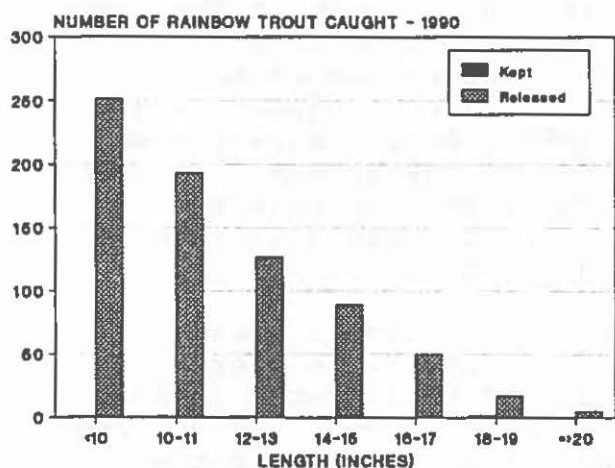


FIGURE 6. Number and lengths of rainbow trout kept or released by anglers participating in the Island Road Bridge site survey on Fall River in 1990.

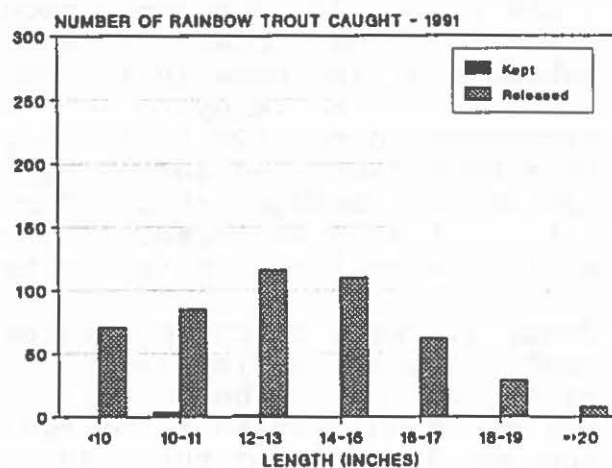


FIGURE 7. Number and lengths of rainbow trout kept or released by anglers participating in the Island Road Bridge site survey on Fall River in 1991.

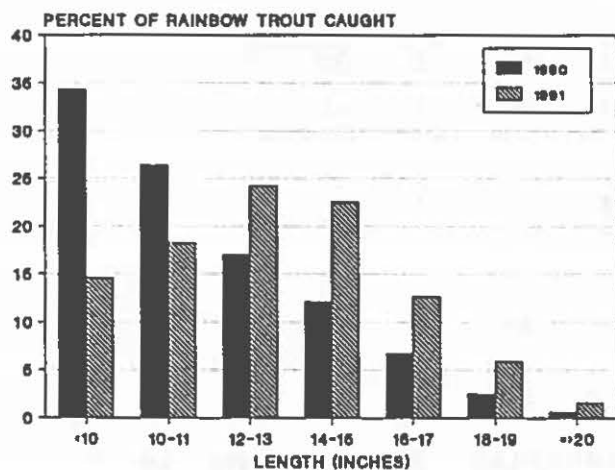


FIGURE 8. Comparison of the lengths of rainbow trout caught by anglers launching from the Island Road Bridge site on Fall River in 1990 and 1991.

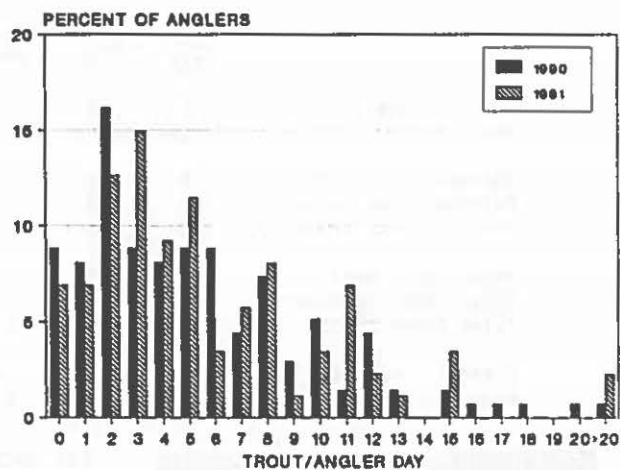


FIGURE 9. Percent of anglers reporting catches of zero to >20 trout per day at the Island Road Bridge site on Fall River in 1990 and 1991.

Lower Hat Creek

Hat Creek is probably the best known wild trout stream in northern California. Through most of the 1980's, the stream supported an abundant population of 12- to 16-inch rainbow trout and lesser numbers of large brown trout. A survey in 1991 showed a sharp decline in rainbow trout populations throughout the upper reaches of the stream. This decline is attributed to a substantial increase in sedimentation. Studies contracted through U.C. Berkeley to identify the source of sediments and recommend corrective action began in 1991. Angler survey boxes have been installed in the upper reaches of the stream near the Highway 299 bridge, at the Carbon Bridge site, and near the Hat Creek #2 Powerhouse. The stream currently has a 18-inch minimum size limit and a two-trout bag limit.

Results. Mean catch/hour rates for the three sample areas combined were similar in 1990 and 1991 (Table 2). Anglers participating in the survey released all of their catch in 1990 and reported keeping 14 of 690 trout caught in 1991. Brown trout accounted for 8% of the 1990 catch and 11% of the 1991 catch (Figures 10 and 11). The overall size structure of the rainbow trout population was similar in 1990 and 1991 (Figure 12). The greatest differences in the size of rainbow trout caught were a decrease in the percentage of fish <6 inches and an increase in the catch of 12- to 13-inch fish. Eighty-one percent of the anglers reporting in 1990 and 77% in 1991 caught one or more trout/day (Figure 13). In 1990, 12% of the successful anglers reported catching ≥ 10 trout/day. In 1991, this figure increased to 14%.

TABLE 2. Angling Success in Three Reaches of Hat Creek in 1990 and 1991.

	Highway 299		Carbon Bridge		Powerhouse #2		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	74	45	63	53	105	101	242	199
Hours fished	236.00	146.75	215.50	200.50	406.00	342.25	857.50	689.50
Rainbow trout kept	0	2	0	2	0	6	0	10
Rainbow trout released	186	90	201	108	470	403	857	601
Total rainbow trout	186	92	201	110	470	409	857	611
Brown trout kept	0	2	0	2	0	0	0	4
Brown trout released	28	17	23	30	22	28	73	75
Total brown trout	28	19	23	32	22	28	73	79
Overall catch/hour	0.91	0.76	1.04	0.71	1.21	1.28	1.08	1.00
Mean trout/angler	2.9	2.5	3.6	2.7	4.7	4.3	3.8	3.5

Management Implications. In most fisheries, 8- to 9- and 10- to 11-inch trout are substantially more abundant than 12- to 13-inch trout. The numbers and lengths of rainbow trout caught in 1991 parallel those observed in population surveys and indicate a decline in natural reproduction. The fishery, to remain healthy, will need a sharp increase in rainbow trout recruitment by 1992 or 1993.

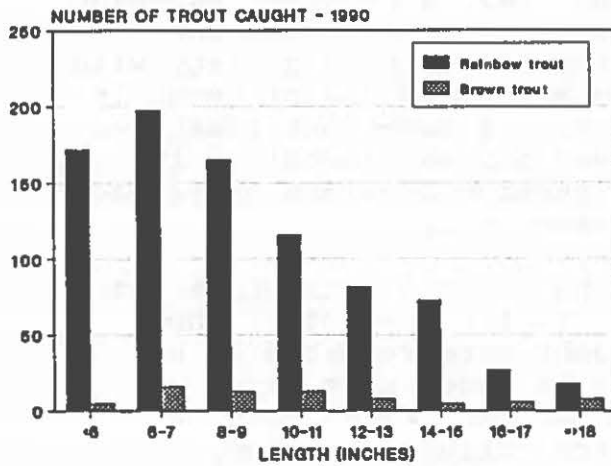


FIGURE 10. Number and lengths of rainbow and brown trout anglers reported catching at Hat Creek in 1990.

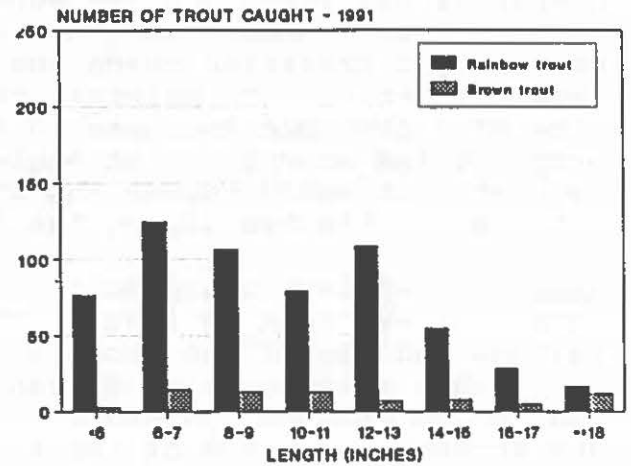


FIGURE 11. Number and lengths of rainbow and brown trout anglers reported catching at Hat Creek in 1991.

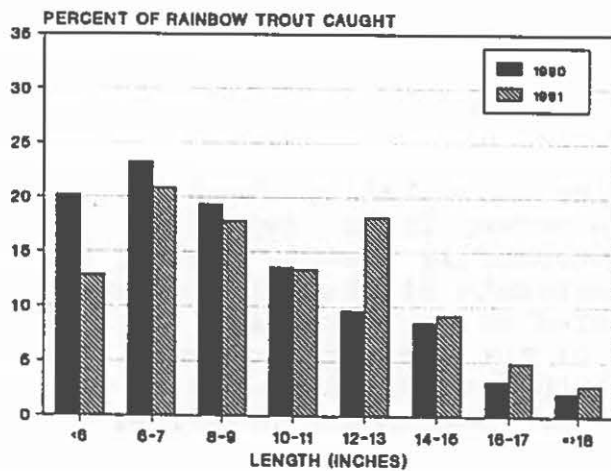


FIGURE 12. Comparison of the lengths of rainbow trout anglers reported catching at Hat Creek in 1990 and 1991.

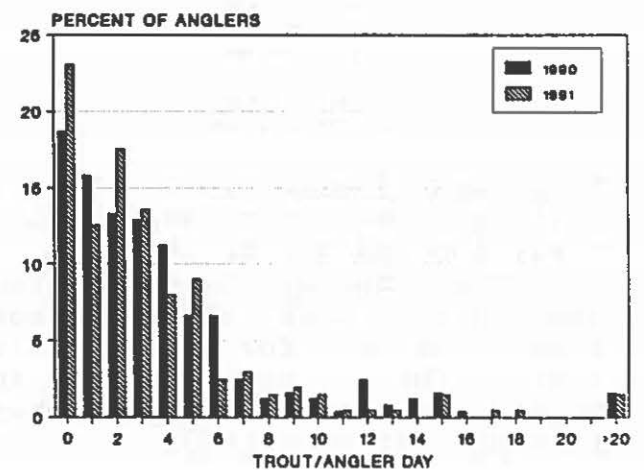


FIGURE 13. Percent of anglers reporting catches of zero to >20 trout per day at Hat Creek in 1990 and 1991.

Squaw Valley Creek

The lowermost reach of Squaw Valley Creek, a well-known tributary to the McCloud River, has long been closed to the public. An adjoining reach flowing through U.S. Forest Service (USFS) land has been open, but due to a lack of trail access has had comparatively light angling use. About 1989, a proposal was made to construct a trail along the USFS portion of the creek and manage that trailside reach and an upstream reach as quality wild trout fisheries. To maintain the size and abundance of trout in view of a probable increase in angler use, a two-trout limit was proposed and accepted. An angler survey box was installed in 1990 at what would become the primary parking area and trailhead. Data were collected during the 1990 season only.

Results. Anglers averaged 1.85 trout/hour and 6.1 trout/day at Squaw Valley Creek in 1990 (Table 3). Twelve percent of the rainbow and 51% of the brown trout caught were reported to be ≥ 10 inches (Figure 14). Eleven out of 14 trout kept were ≥ 10 inches (Figures 15 and 16). Three anglers with ≥ 20 trout/day accounted for 43% of the total catch during the survey (Figure 17). If the reports from these three anglers are not included in the survey, the average catch was 1.30 trout/hour and 3.9 trout/day.

Table 3. Angling Success on Squaw Valley Creek in 1990.

Surveys received	30
Hours fished	98.50
Rainbow trout kept	11
Rainbow trout released	134
Total rainbow trout	145
Brown trout kept	3
Brown trout released	34
Total brown trout	37
Overall catch/hour	1.85
Mean trout/angler	6.1

Management Implications. Some long-time Squaw Valley Creek anglers, based on comments included on survey forms, felt the newly imposed two-trout limit was unnecessarily restrictive. Angler box surveys do not provide an estimate of the total catch and, in this case, should be supplemented by other surveys to assess the need for and effectiveness of the present two-trout limit. The angler survey did indicate the stream may carry a higher number of trout ≥ 8 inches than was documented in earlier fish population surveys.

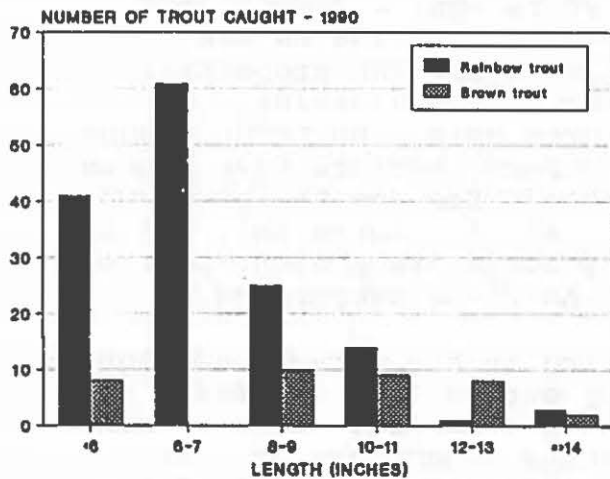


FIGURE 14. Number and lengths of rainbow and brown trout anglers reported catching at Squaw Valley Creek in 1990.

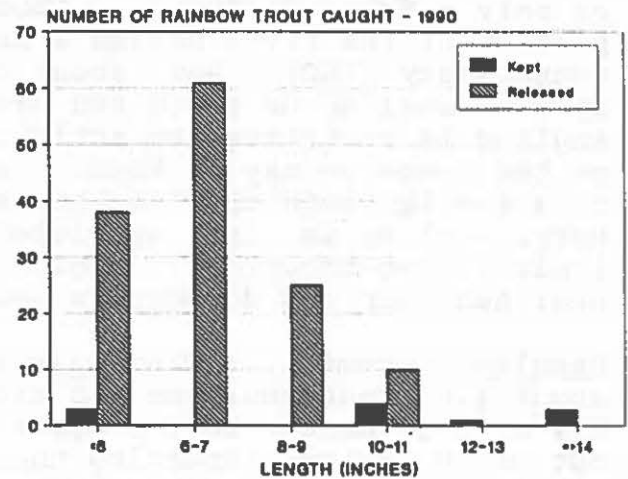


FIGURE 15. Number and lengths of rainbow and brown trout anglers reported keeping or releasing at Squaw Valley Creek in 1990.

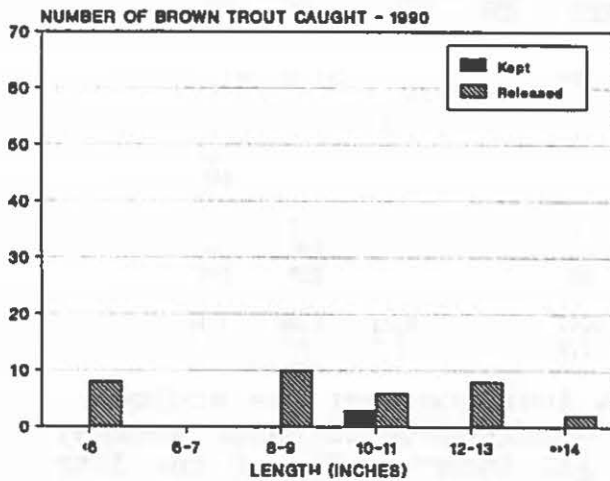


FIGURE 16. Number and lengths of brown trout anglers reported keeping or releasing at Squaw Valley Creek in 1990.

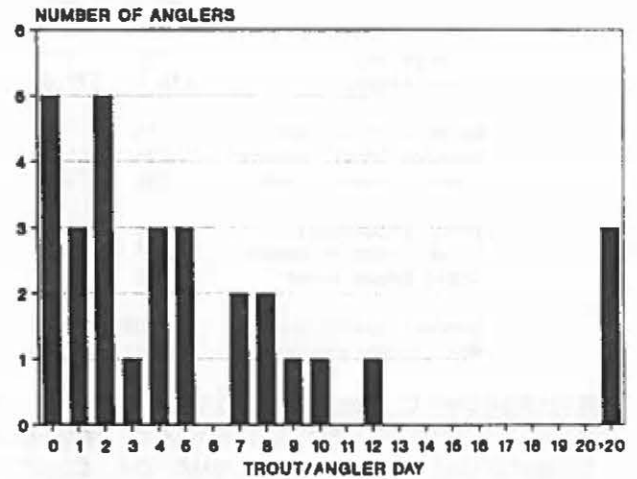


FIGURE 17. Number of anglers reporting catches of zero to >20 trout per day at Squaw Valley Creek in 1990.

McCloud River

The McCloud River fishery is sustained primarily by resident populations of rainbow and brown trout and, in the fall, a spawning run of brown trout from Shasta Lake. Through much of its history, the lower river has been privately owned and fished by only a few individuals. About 15 years ago, a significant portion of the river became a preserve owned by The Nature Conservancy (TNC). Now, about one mile of the TNC property is open to angling on a limited basis--about 10 anglers/day. Angling is restricted to artificial lures only. No trout caught on the preserve may be kept. Just upstream, anglers have access to a 4-mile reach of river between McCloud Dam and the preserve. Here, angling is also restricted to artificial lures only and the limit is two-trout/day. Angler survey boxes are present upstream near Ash Camp and downstream near the Ah-Di-Na Campground.

Results. Overall, anglers participating in the surveys averaged about 1.5 trout/hour and 6.5 trout/day during 1990-91 (Table 4). Fly anglers accounted for about 90% of the angling effort. Nine out of 10 anglers reporting their results caught one or more trout/day. Twenty-one percent of the 1990 catch and 29% of the 1991 catch were comprised of trout ≥ 12 inches (Figures 18 through 21). Rainbow trout made up about 60% of the total catch and 65% of the catch ≥ 12 inches. Anglers kept only 28 out of 897 trout caught in 1990 and 24 out of 745 trout caught in 1991. Few of the trophy-size trout reported in the catch were kept (Figures 22 and 23).

TABLE 4. Angling Success on the McCloud River in 1990 and 1991.

	Fly		Lure		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	108	117	11	15	-0-	3	119	135
Hours fished	438.5	577.00	43.00	70.00	-	11.00	481.50	658.00
Rainbow trout kept	18	18	1	0	-	0	19	18
Rainbow trout released	521	413	24	11	-	3	545	427
Total rainbow trout	539	431	25	11	-	3	564	445
Brown trout kept	6	6	3	0	-	0	9	6
Brown trout released	265	267	59	22	-	5	324	294
Total brown trout	271	273	62	22	-	5	333	300
Overall catch/hour	1.85	1.22	2.02	0.47	-	0.73	1.86	1.13
Mean trout/angler	7.5	6.0	7.9	2.2	-	2.7	7.5	5.5

Management Implications. The results indicate that the McCloud River continued to offer anglers the opportunity to catch several trout/day with one out of four being ≥ 12 inches. Though the data are combined and represent both the upstream two-trout limit area and downstream catch-and-release only area, the low keep rate suggests angling has a very limited impact on trout populations.

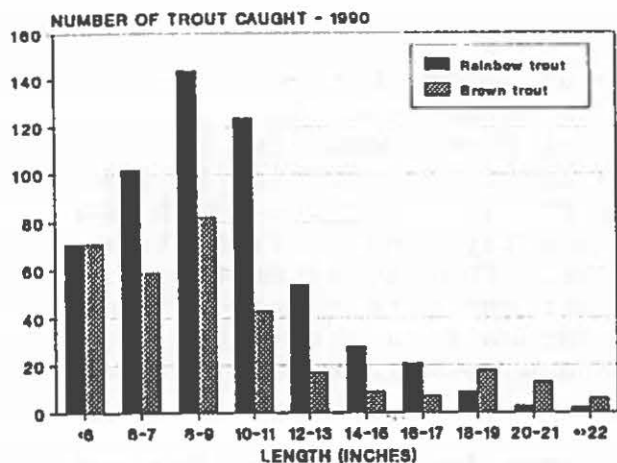


FIGURE 18. Number and lengths of rainbow and brown trout anglers reported catching at McCloud River in 1990.

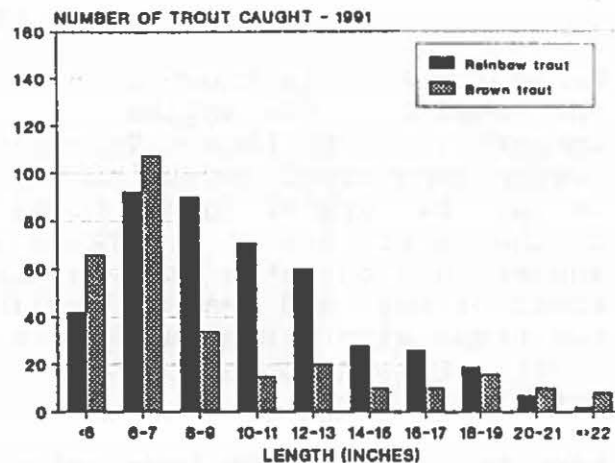


FIGURE 19. Number and lengths of rainbow trout and brown trout anglers reported catching at the McCloud River in 1991.

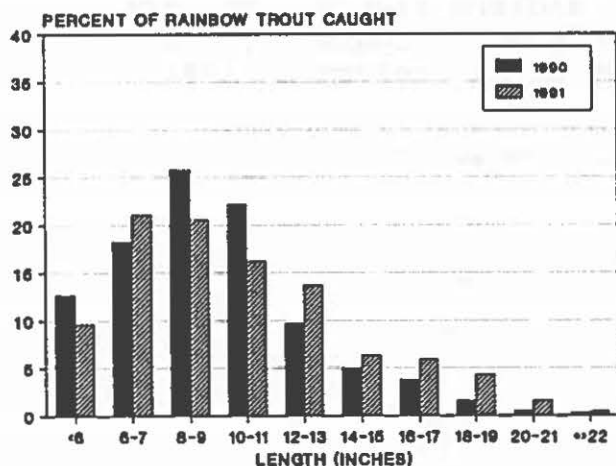


FIGURE 20. Comparison of the lengths of rainbow trout anglers reported catching at the McCloud River in 1990 and 1991.

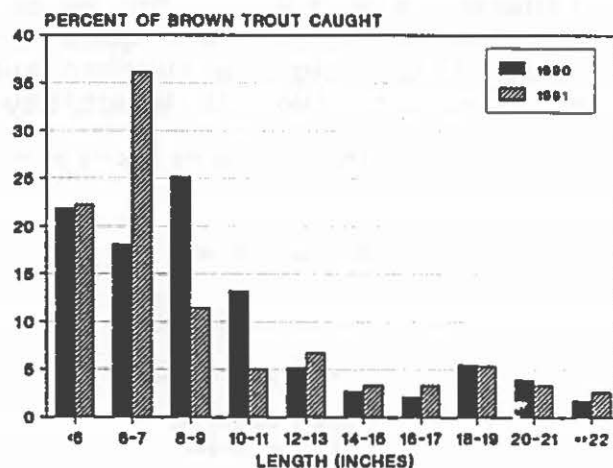


FIGURE 21. Comparison of the lengths of brown trout anglers reported catching at the McCloud River in 1990 and 1991.

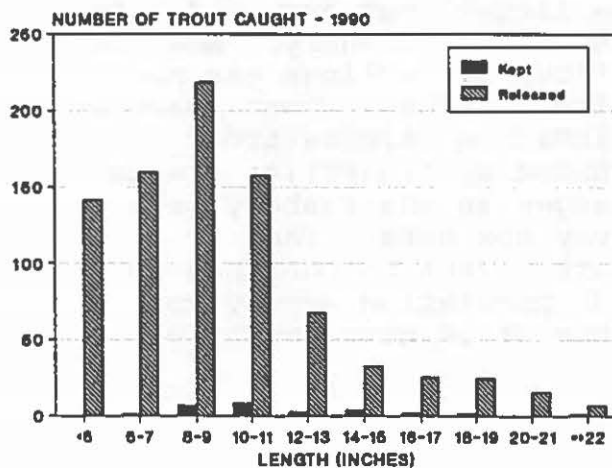


FIGURE 22. Number and lengths of trout anglers reported keeping or releasing at the McCloud River in 1990.

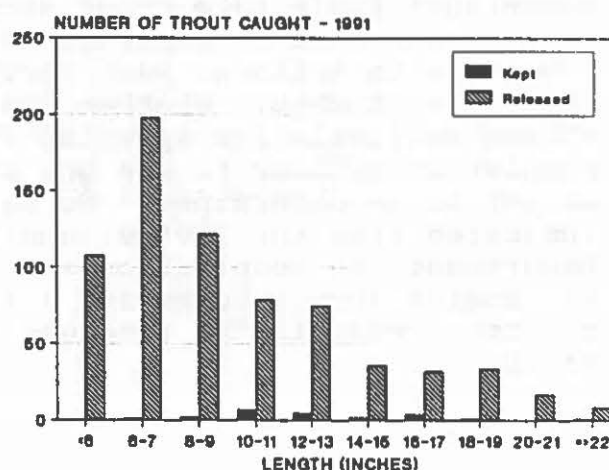


FIGURE 23. Number and lengths of trout anglers reported keeping or releasing at the McCloud River in 1991.

Manzanita Lake

Manzanita Lake is known as a trophy trout water that is challenging to the angler. In 1990, the Department, in cooperation with Lassen Volcanic National Park, conducted a season-long creel census survey at the lake. In addition to the census, two angler survey boxes were installed near the south end of the lake: one at a parking lot frequently used by float-tube anglers and one at a boat-launching site. Shortly after the start of the 1990 season, angling regulations were changed from two trout with a maximum length of 10 inches to a zero-trout limit. Fishing under both regulations was restricted to artificial lures.

Results. Mean catch/hour rates were almost identical in 1990 and 1991 (Table 5). Rainbow trout were the mainstay of the fishery accounting for 85% to 90% of the catch (Figures 24 and 25). Almost 75% of the catch in 1990 consisted of trout ≥ 16 inches. In 1991, this figure decreased to about 60%. The numbers of both rainbow and brown trout < 10 inches in the catch increased in 1991 (Figures 26 and 27). The majority of anglers fishing the lake reported catching fewer than three trout/day (Figure 28). Only 6 out of 124 anglers in 1990 and 2 out of 57 anglers in 1991 reported catching > 10 trout/day.

Table 5. Angling Success at Manzanita Lake in 1990 and 1991.

	<u>1990</u>	<u>1991</u>
Surveys received	124	57
Hours fished	471.25	260.50
Rainbow trout released	312	163
Brown trout released	36	28
Overall catch/hour	0.74	0.73
Mean trout/angler	2.8	3.4

Management Implications. The data collected in 1990 and 1991 show that the lake offers truly exceptional trophy trout angling opportunities. The fishery's future, however, is uncertain. Until recently, fingerlings were stocked to supplement the naturally reproduced rainbow trout population. Studies have shown that Eagle Lake trout stocked as fingerlings survived 5 to 6 years and were an important component of the fishery. Now, in adherence to National Park Service policy, fingerlings can no longer be stocked. Whether the recruitment from a short reach of stream available for spawning will maintain a rainbow trout population similar to the one supplemented by fingerling plants is yet to be determined. No major changes in the fishery were indicated from the 1990-91 angler survey box data. The Department, in cooperation with the Park, plans to continue to use angler survey boxes and a fall fish population survey to monitor trends in the size and abundance of rainbow and brown trout.

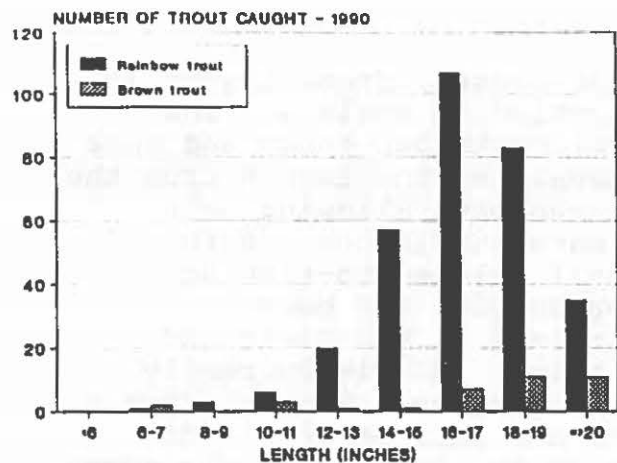


FIGURE 24. Number and lengths of rainbow and brown trout anglers reported catching at Manzanita Lake in 1990.

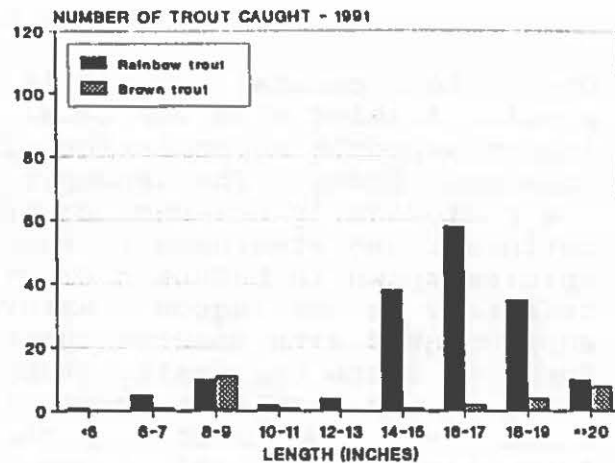


FIGURE 25. Number and lengths of rainbow and brown trout anglers reported catching at Manzanita Lake in 1991.

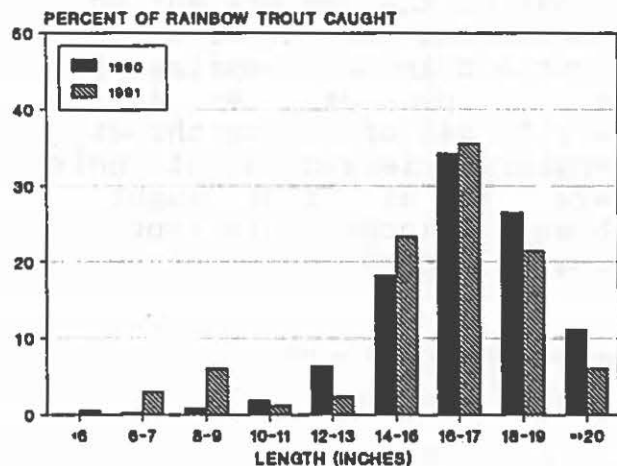


FIGURE 26. Comparison of the lengths of rainbow trout anglers reported catching at Manzanita Lake in 1990 and 1991.

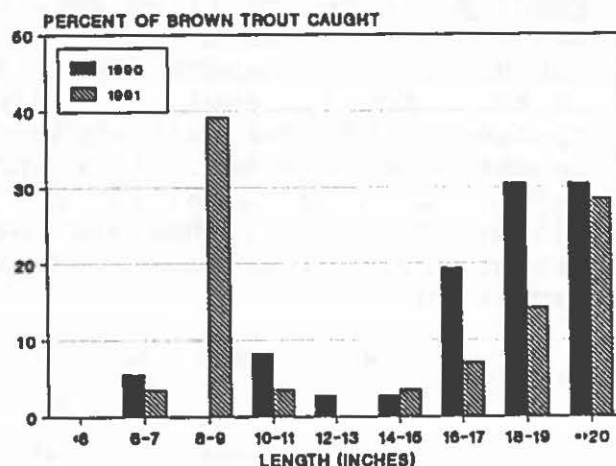


FIGURE 27. Comparison of the lengths of brown trout anglers reported catching at Manzanita Lake in 1990 and 1991.

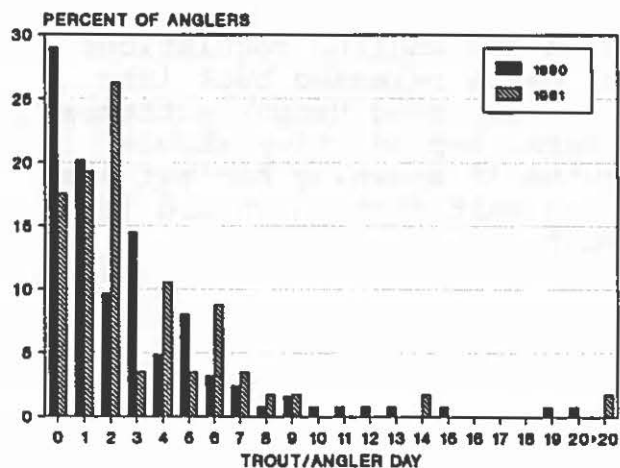


FIGURE 28. Percent of anglers reporting catches of zero to >20 trout per day at Manzanita Lake in 1990 and 1991.

Stone Lagoon

One of four coastal lagoons in Humboldt County, Stone Lagoon is a popular fishing site for local and vacationing anglers. The lagoon supports a population of coastal cutthroat trout and some steelhead trout. The sandspit that separates the lagoon from the sea periodically breaches during high run-off, allowing both cutthroat and steelhead to enter or leave the lagoon. Both species spawn in McDonald Creek, a small, closed-to-fishing tributary to the lagoon. Natural reproduction has been supplemented with coastal cutthroats raised at Mad River and Humboldt State University (HSU) hatcheries. HSU is currently studying the cutthroat population in the lagoon. The California State Parks Department owns the lagoon and surrounding lands. There are now two angler survey boxes at the lagoon, at the north and south boat ramps. Angling regulations changed in 1992 from a five trout limit, no size or gear restrictions, to a two-trout limit, 16-inch minimum size, barbless artificial lures only regulation.

Results. Lures or flies were used by 59% of the anglers during all or part of their fishing day and accounted for 65% of the cutthroat trout caught (Table 6). Trout >12 inches comprised 56% of the catch for anglers fishing only with lures or flies, as opposed to 50% for bait anglers. Overall, 54% of the cutthroat caught were released. Lure and fly anglers released 63% of their catch, compared to 38% for bait anglers. For all trout caught, 28% of those <10 inches and 55% of those ≥ 10 inches were kept (Figure 29). Just under 50% of the anglers caught <3 trout per day (Figure 30).

Table 6. Success of Bait, Lure, and Fly Anglers at Stone Lagoon in 1991.

	<u>Bait</u>	<u>Lure</u>	<u>Fly</u>	<u>Multiple</u>	<u>Combined</u>
Surveys received	47	55	2	10	114
Hours fished	167	210.25	4	28	409.25
Cutthroat trout kept	98	104	2	3	207
Cutthroat trout released	60	176	1	5	242
Total cutthroat trout	158	280	3	8	449
Overall catch/hour	0.95	1.33	0.75	0.29	1.10
Mean trout/angler	3.4	5.1	1.5	0.8	3.9

Management Implications. The change in the angling regulations should result in more cutthroat trout being released back into the fishery. Angling opportunities for catching trophy cutthroat trout should increase. Increased natural reproduction should result from protection of smaller adults if spawning habitat does not become a limiting factor. Removing bait fishing should lower the hooking mortality of released trout.

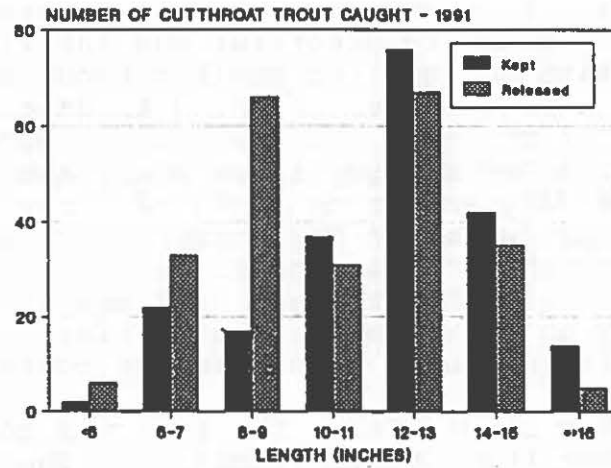


FIGURE 29. Number and lengths of coastal cutthroat anglers reported keeping or releasing at Stone Lagoon in 1991.

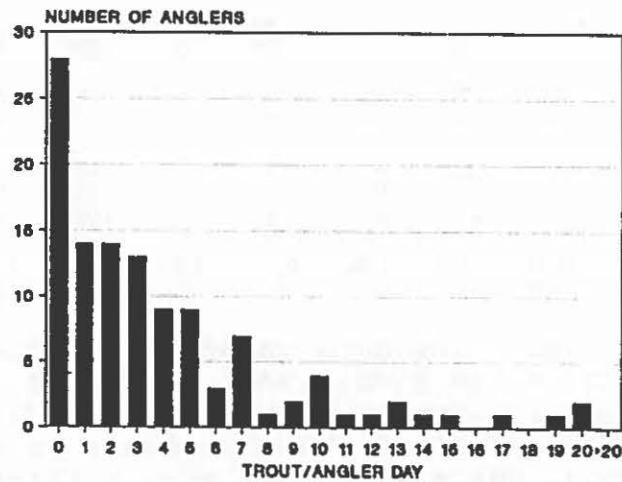


FIGURE 30. Number of anglers reporting catches of zero to 20 trout per day at Stone Lagoon in 1991.

Middle Fork Stony Creek

Flowing out of the rugged mountains of the Mendocino National Forest, Middle Fork Stony Creek provides anglers with a unique wild trout fishery. Few streams maintain cold, year-round flows and healthy resident trout populations in the central coastal range of California. Although not a trophy fishery, the rainbow trout found in the stream are plentiful and the fishing can be characterized as "fast-action" for smaller trout during much of the year. Anglers have reported catching trout on dry flies during every month of the year. Access to the water is by an unimproved trail from Red Bridge, immediately above the confluence of the Middle and South forks of Stony Creek. An angler survey box was installed just upstream from the trailhead and is maintained by the Colusa Chapter of Trout Unlimited. Current regulations allow for a year-round season, with a two-trout limit and an 8-inch maximum size limit. Gear is restricted to artificial lures with barbless hooks only.

Results. Fly anglers spent 77% of the reported hours and caught 93% of the trout over the 2 years (Table 7). The overall catch rates in 1990 and 1991, 2.28 and 1.60 fish/hour, were two of the higher catch rates observed statewide from angler survey boxes. Much of the difference in catch rate between the years may have been caused by an experienced local angler fishing less often on the stream in 1991 than in 1990. Overall, only 2.5% of the trout reported caught were kept in the 2 years (Figures 31 and 32). For the combined 1990 and 1991 catches, 95% of the trout were <12 inches long (Figure 33).

Table 7. Success of Lure and Fly Anglers on the Middle Fork Stony Creek in 1990 and 1991.

	Lure		Fly		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	13	11	55	66	3	1	71	78
Hours fished	37.20	44.5	142.75	214.25	21	3	200.95	261.75
Rainbow trout kept	5	6	4	6	1	0	10	12
Rainbow trout released	27	25	421	383	1	0	449	408
Total rainbow trout	32	31	425	389	2	0	459	420
Overall catch/hour	0.86	0.70	2.98	1.82	0.10	0.00	2.28	1.60
Mean trout/angler	2.5	2.8	7.7	5.9	0.7	0.0	6.5	5.4

Management Implications. The data gathered to date suggest that the trout population in the Middle Fork Stony Creek remains healthy overall. Population levels have reportedly dropped near Red Bridge, where much of the fishing pressure is concentrated. Farther up the canyon, where access is more difficult, anglers and Department personnel have found good numbers of trout. Continued monitoring will be needed to properly follow the fishery trends.

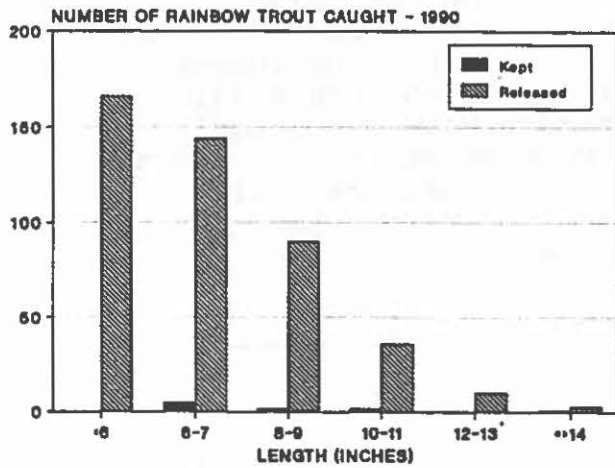


FIGURE 31. Number and lengths of rainbow trout anglers reported keeping or releasing at the Middle Fork Stony Creek in 1990.

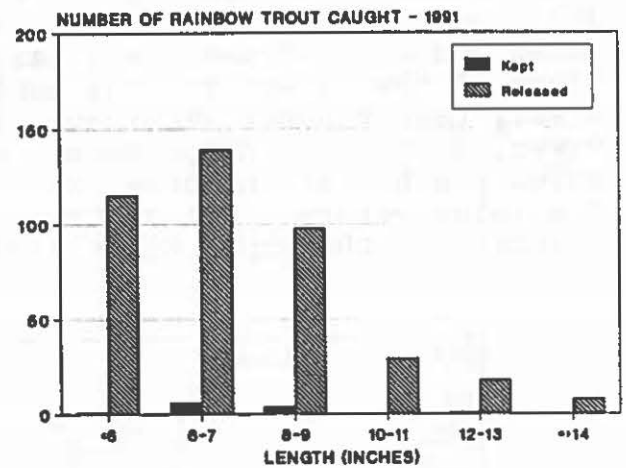


FIGURE 32. Number and lengths of rainbow trout anglers reported keeping or releasing at the Middle Fork Stony Creek in 1991.

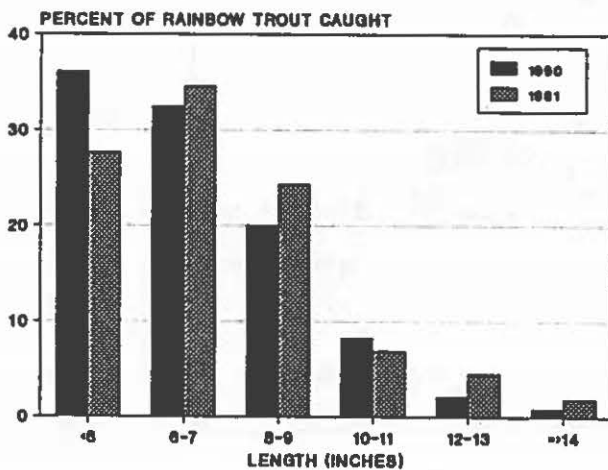


FIGURE 33. Comparison of the lengths of rainbow trout anglers reported catching on the Middle Fork Stony Creek in 1990 and 1991.

WEST SLOPE SIERRA NEVADA WATERS

The west slope of the Sierra Nevada extends over 300 miles from the Feather River drainage in the north to the Kern River drainage in the south (Figure 34). The 11 waters surveyed, two lakes and nine streams, are scattered through nine drainages. Eight of the 11 waters, the Rubicon River, North Fork Stanislaus River, Lake Eleanor, Tuolumne River, Middle Fork San Joaquin River, South Fork Kings River, Marble Fork Kaweah River, and the three reaches of the upper Kern River, are considered walk-in or trailside waters. Yellow Creek (Figure 35), Milton Lake and the majority of the upper Kings River are roadside waters.

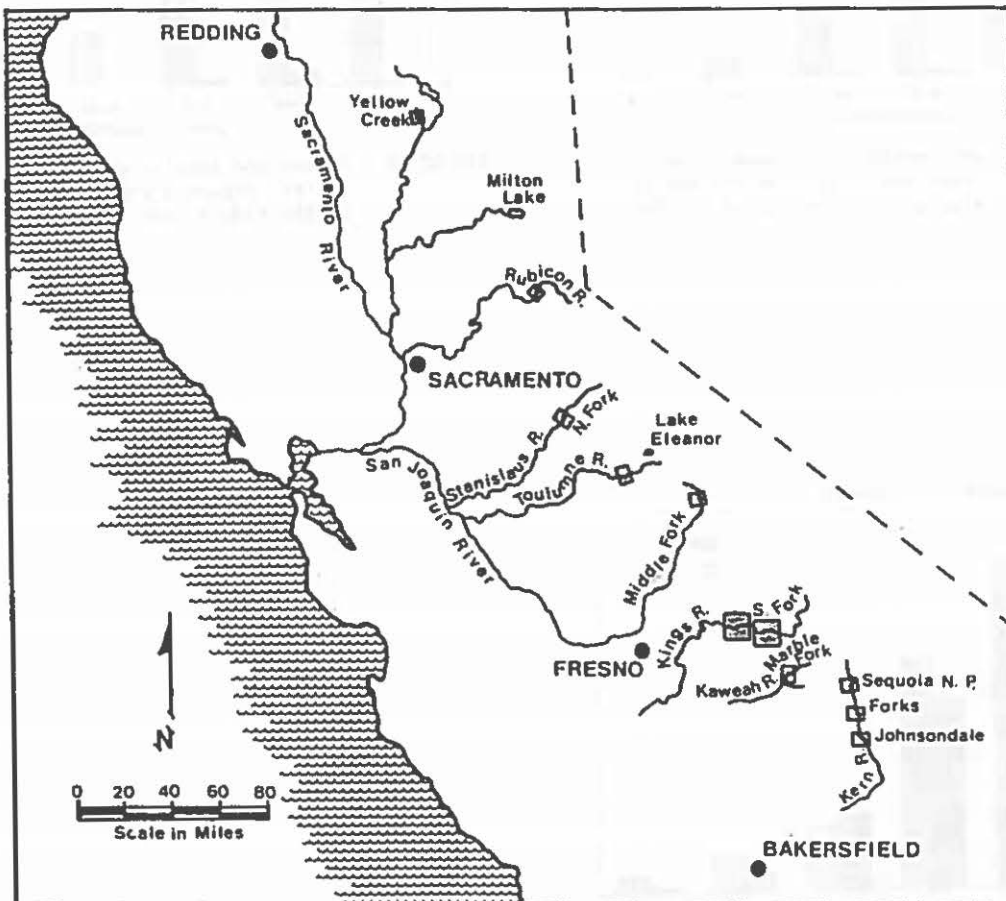


FIGURE 34. Locations of waters surveyed on the west slope of the Sierra Nevada.

Most west-slope waters offer both rainbow and brown trout angling. The upper Kern River (Figure 36) is home to a native subspecies of rainbow trout, the Kern River rainbow trout. With the exception of three trophy-trout waters, Milton Lake, Lake Eleanor, and the upper Kings River, the west slope fisheries generally provide angling for small- to medium-size trout.



FIGURE 35. Meadow section of Yellow Creek in Humboldt Valley.

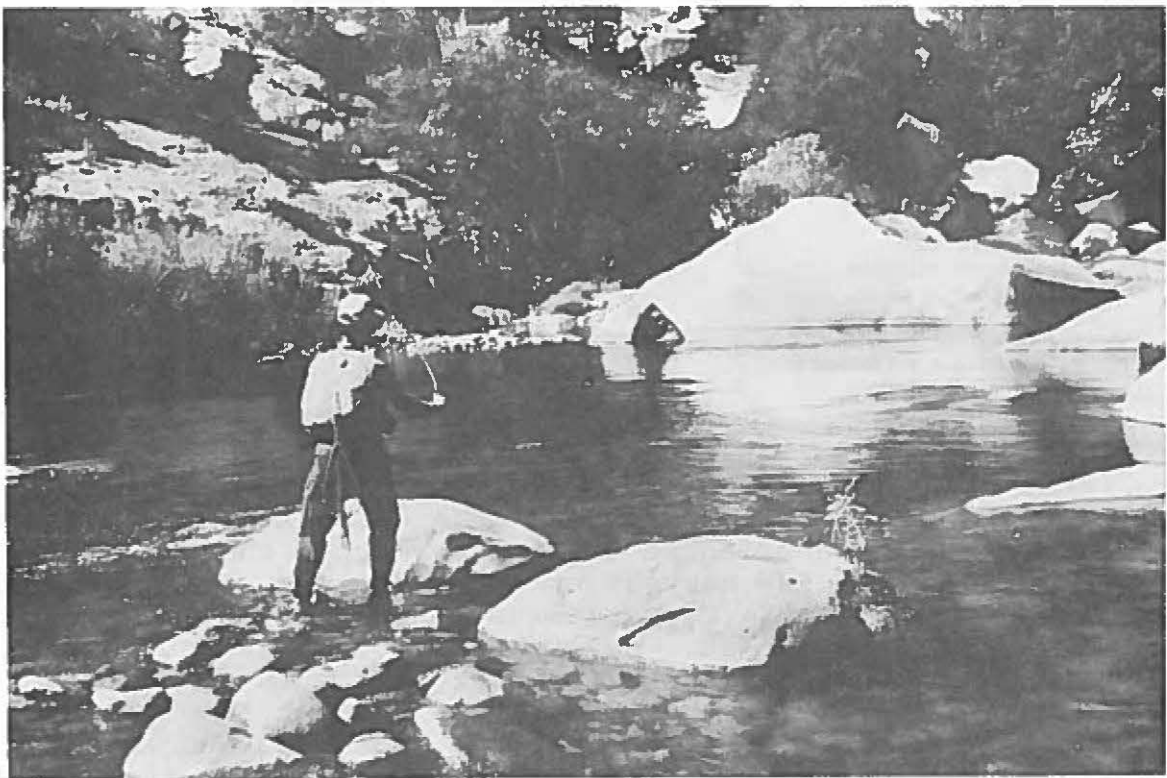


FIGURE 36. Experimental angling regulation section of the Kern River above the Johnsondale Bridge.

Yellow Creek

Yellow Creek, in its Humbug Valley reach, is a meandering meadow stream with excellent year-round flows maintained by what is known as "Big Springs". The meadow has been severely overgrazed and the stream channel has eroded down to a level detrimental to the meadow and optimum trout production. To protect the stream-banks from continued overgrazing, California Trout, Inc., sponsored and, with the help of volunteers, constructed a split-rail fence through most of the meadow. In 1990, angling regulations on Yellow Creek were changed from a 16-inch minimum to a 10-inch maximum size limit. The new regulation was intended to allow some harvest and still maintain an attractive fishery for catch-and-release anglers. Survey boxes were installed in 1990 at a public campground operated by the Pacific Gas and Electric Company.

Results. Fly angling accounted for about 94% of the fishing effort in 1990-91 and most of the catch (Table 8). Only three of 268 trout reported in 1990 and none of the trout reported in 1991 were kept. The overall catch rate was lower in 1991. Eleven percent of the 1990 and 32% of the 1991 catch was ≥ 10 inches (Figures 37 and 38). However, only two of 328 trout recorded during the surveys was ≥ 16 inches (Figure 39). Two of 73 anglers in 1990 and one of 24 anglers in 1991 reported catching >10 trout/day (Figure 40). In 1991, survey forms were unavailable to anglers during most of the season.

TABLE 8. Success of Fly and Lure Anglers on Yellow Creek in 1990 and 1991.

	Fly		Lure		Combined	
	1990	1991	1990	1991	1990	1991
Surveys received	69	21	4	3	73	24
Hours fished	229.25	76.50	12.00	6.00	241.25	82.50
Brown trout kept	1	0	1	0	2	0
Brown trout released	221	48	9	3	230	51
Total brown trout	222	48	10	3	232	51
Brook trout kept	1	0	0	0	1	0
Brook trout released	27	4	0	0	27	4
Total brook trout	28	4	0	0	28	4
Rainbow trout kept	0	0	0	0	0	0
Rainbow trout released	7	0	1	1	8	1
Total rainbow trout	7	0	1	1	8	1
Overall catch/hour	1.12	0.68	0.92	0.67	1.11	0.68
Mean trout/angler	3.7	2.5	2.8	1.3	3.7	2.3

Management Implications. The effort to accommodate both harvest- and catch-and-release-oriented anglers through a change in size limit did not work. Few harvest-oriented anglers were apparently attracted to the stream. Campers, who could keep one or two trout to eat, did not do so. Nevertheless, the change from a 16-inch minimum to a 10-inch maximum size limit is considered appropriate. It protects the larger fish present (a desire of most of the stream's current anglers) yet does not suggest the stream supports a significant population of 14- to 16-inch trout.

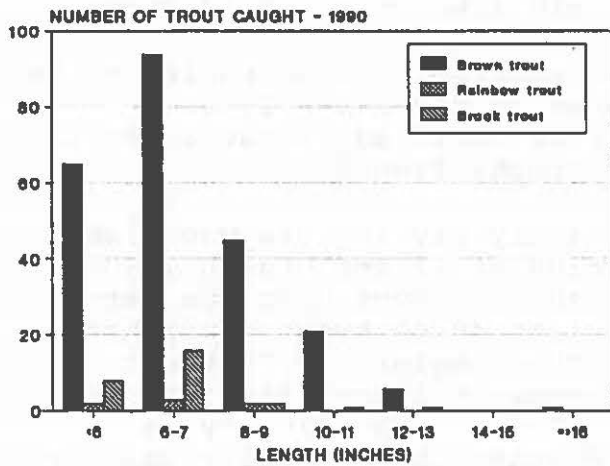


FIGURE 37. Number and lengths of brown, rainbow, and brook trout anglers reported catching at Yellow Creek in 1990.

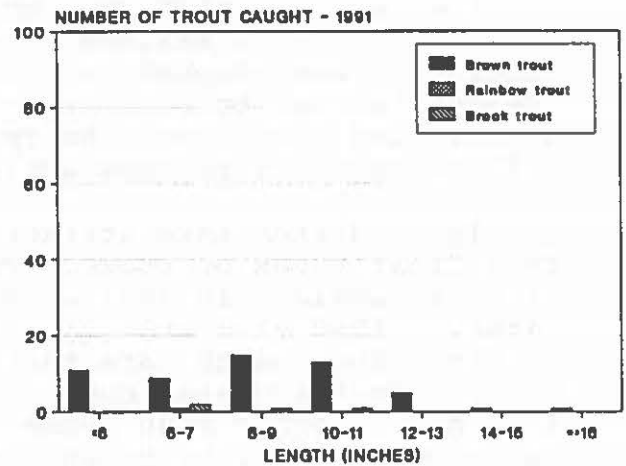


FIGURE 38. Number and lengths of brown, rainbow, and brook trout anglers reported catching at Yellow Creek in 1991.

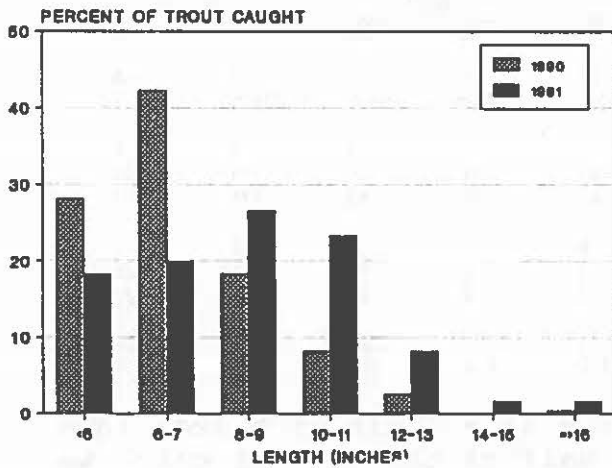


FIGURE 39. Comparison of the lengths of trout anglers reported catching at Yellow Creek in 1990 and 1991.

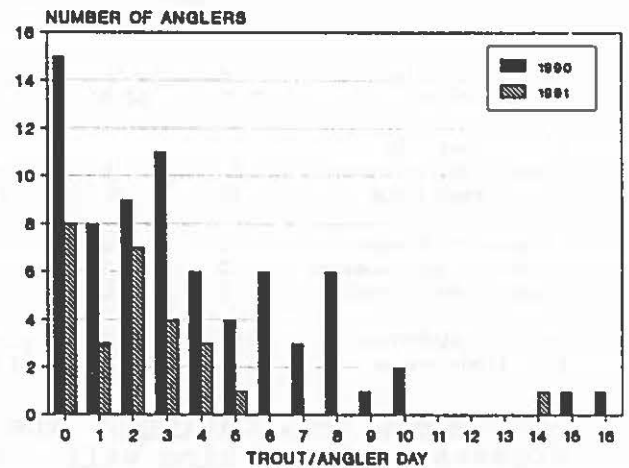


FIGURE 40. Number of anglers reporting catches of zero to 16 trout per day at Yellow Creek in 1990 and 1991.

Milton Lake

Milton Lake is a small reservoir managed to maintain an abundant population of trophy-size trout. This lake was one of the first trout waters in California and the only lake in the Wild Trout Program to have a maximum size limit (12 inches). This regulation was adopted in 1984. The reservoir is scheduled to be drained in 1993 to allow work required on the dam. It is anticipated that, once the reservoir is refilled, about 3 years will be required to reestablish the trophy fishery.

Results. Milton Lake attracted primarily fly anglers who fished from float tubes or boats. Thirty-nine of 41 anglers in 1990 and 41 of 48 anglers in 1991 were fly fishers. Averaging the catch rates in 1990-91 (Table 9), boat anglers (0.89 trout/hour) had a little higher catch rate than float tube anglers (0.76 trout/hour). Boat anglers, due to their somewhat longer fishing days, also had a higher mean number of trout/day. The fishery is sustained largely by brown trout. Whether the generally smaller rainbow trout caught were resident fish or downstream migrants from Jackson Meadows Reservoir or the stream section between the reservoirs is unknown (Figures 41 and 42). Fifty-four percent of the trout caught in 1990 and 50% of trout caught in 1991 were reported to be ≥ 12 inches (Figure 43). Eleven of 351 trout were kept--all reported to be in the 10.0 to 11.9 inch size class. Ten percent of the anglers in both seasons caught >10 trout/day (Figure 44).

Table 9. Success of Shore, Float Tube, and Boat Anglers at Milton Lake in 1990 and 1991.

	Shore		Tube		Boat		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	6	14	21	20	14	14	41	48
Hours fished	24.5	60.00	99.00	90.50	82.00	96.5	205.5	247.00
Brown trout kept	1	2	1	0	3	2	5	4
Brown trout released	24	18	76	61	71	60	171	139
Total brown trout	25	20	77	61	74	62	176	143
Rainbow trout kept	0	0	1	0	0	1	1	1
Rainbow trout released	0	4	2	3	2	19	4	26
Total rainbow trout	0	4	3	3	2	20	5	27
Overall catch/hour	1.02	0.40	0.81	0.71	0.93	0.85	0.88	0.69
Mean trout/angler	4.2	1.7	3.8	3.2	5.4	5.9	4.4	3.5

Management Implications. The maximum size limit at Milton Lake appears to be working well. About half of the 1990-91 catch was protected by the regulation. Anglers appear to be keeping a few trout just under the maximum size.

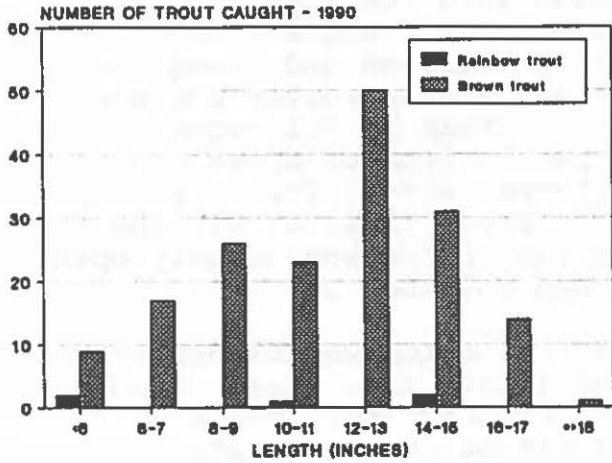


FIGURE 41. Number and lengths of rainbow and brown trout anglers reported catching at Milton Lake in 1990.

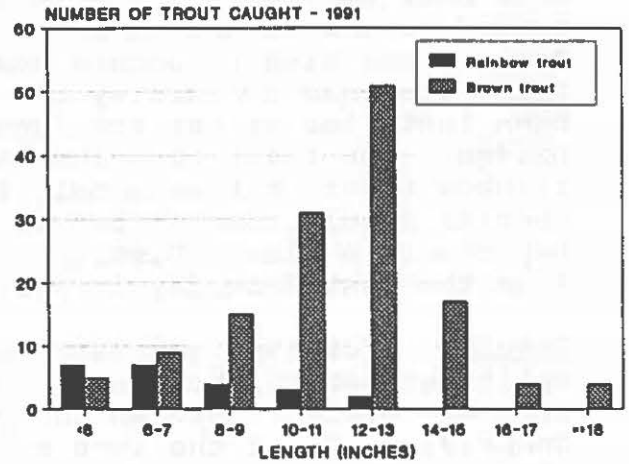


FIGURE 42. Number and lengths of rainbow and brown trout anglers reported catching at Milton Lake in 1991.

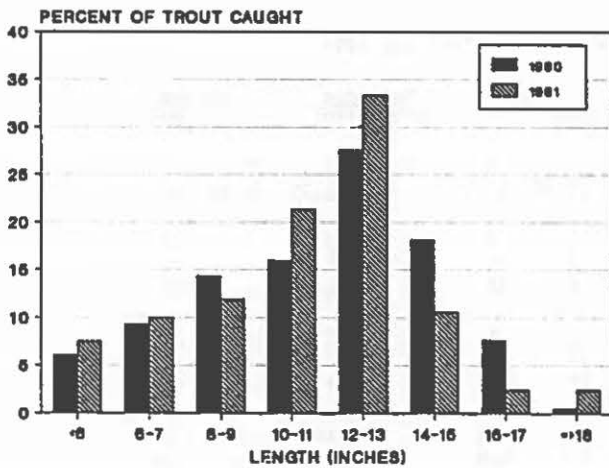


FIGURE 43. Comparison of the lengths of trout anglers reported catching at Milton Lake in 1990 and 1991.

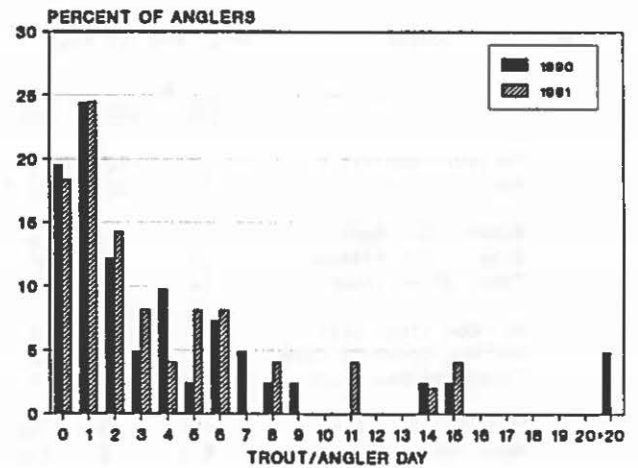


FIGURE 44. Percent of anglers reporting catches of zero to >20 trout per day at Milton Lake in 1990 and 1991.

Rubicon River

The Rubicon River has been designated as a Wild Trout Stream from its confluence with the Middle Fork American River upstream to Hell Hole Reservoir. The lack of roads into the area and the rugged nature of the river valley tend to keep angler use low. Most of the fishing occurs near Ellicotts Bridge and along the trail upstream to Parsley Bar. A single angler survey box has been installed at the trailhead just upstream of Ellicotts Bridge. The river contains healthy populations of brown and rainbow trout, but seemingly few of trophy size. There are no special regulations on the water. The river falls within the Department's Sierra District, so the fishing season is only open from the last Saturday in April through November 15.

Results. For 1990 and 1991 combined, the catch was almost evenly split between rainbow and brown trout (Table 10). Size structure also was similar between the years, with trout <12 inches comprising 95% of the 1990 catch and 93% of the 1991 catch (Figures 45, 46, and 47). Angler reports by gear used were evenly distributed amongst bait, lure, and fly categories in 1990. The number of reports from fly anglers remained essentially the same in 1991, while bait and lure fishing increased significantly (Table 10). There was also a relatively large number of multiple gear users in 1991. The catch rate for lure fishermen was nearly double that of the next highest category in both years. Anglers kept 49% of the ≥8-inch trout and 5% of the <8-inch trout caught in 1990-1991 (Figures 48 and 49). Six of the 72 anglers fishing in 1990-1991 caught >10 trout/day (Figure 50).

Table 10. Success by Bait, Lure, and Fly Anglers at Rubicon River in 1990 and 1991.

	Bait		Lure		Fly		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	7	12	8	17	8	9	-0-	11	23	49
Hours fished	34.5	55.25	23.2	63.5	27.25	30.5	-	36.75	84.95	186
Brown trout kept	3	5	5	7	1	0	-	1	9	13
Brown trout released	9	1	24	65	7	18	-	5	40	89
Total brown trout	12	6	29	72	8	18	-	6	49	102
Rainbow trout kept	12	9	4	11	0	3	-	1	16	24
Rainbow trout released	11	7	13	47	17	15	-	0	41	69
Total rainbow trout	23	16	17	58	17	18	-	1	57	93
Overall catch/hour	1.01	0.40	1.98	2.05	0.92	1.18	-	0.19	1.25	1.05
Mean trout/angler	5.0	1.8	5.8	7.6	3.1	4.0	-	0.6	4.6	4.0

Management Implications. The data indicate that anglers are keeping the majority of trout >10 inches. This will deplete the number of larger trout and suggests the need for a maximum size limit. A ban on bait fishing would then be appropriate to ensure better survival in released fish. The increased number of surveys received in 1991 was probably due to irregular survey box maintenance in 1990 and does not reflect increased angler use of the area. Further monitoring will be necessary to determine fish population and angler usage trends for the river.

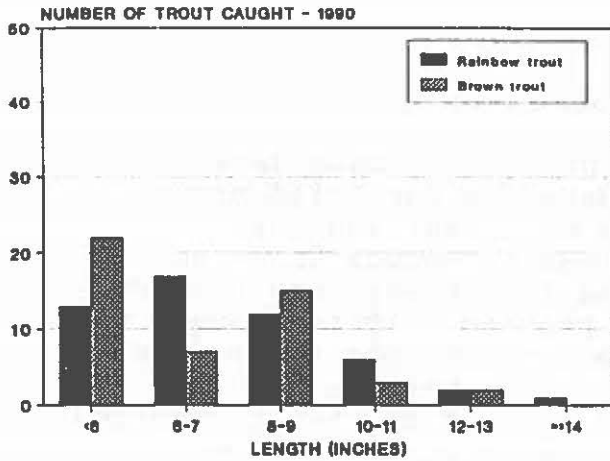


FIGURE 45. Number and lengths of rainbow and brown trout anglers reporting catching at the Rubicon River in 1990.

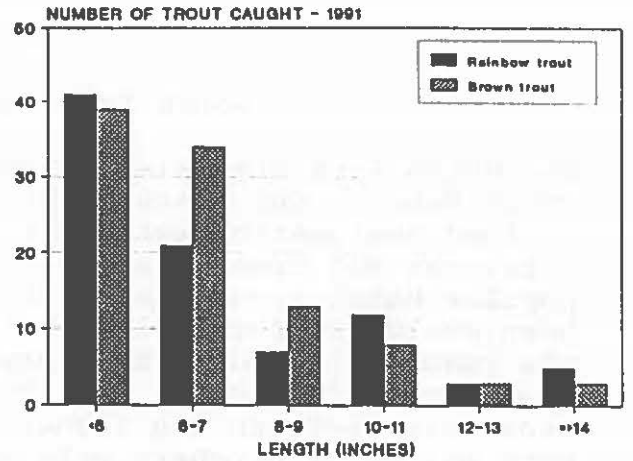


FIGURE 46. Number and lengths of rainbow and brown trout anglers reported catching on the Rubicon River in 1991.

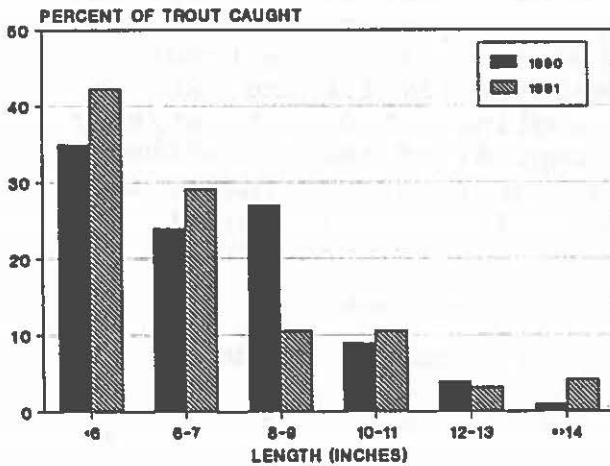


FIGURE 47. Comparison of the lengths of trout anglers reported catching on the Rubicon River in 1990 and 1991.

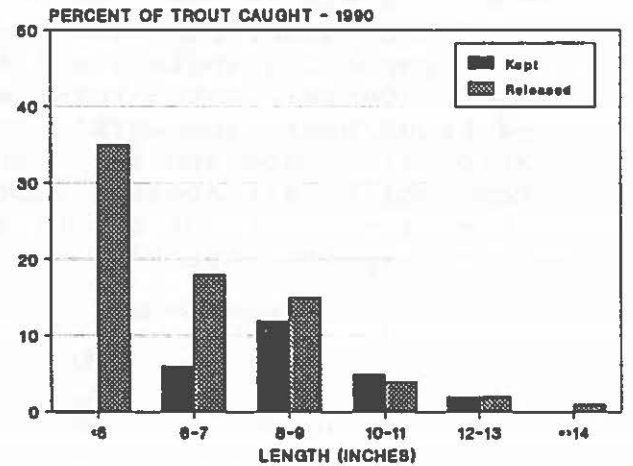


FIGURE 48. Number and lengths of trout anglers reported keeping or releasing at the Rubicon River in 1990.

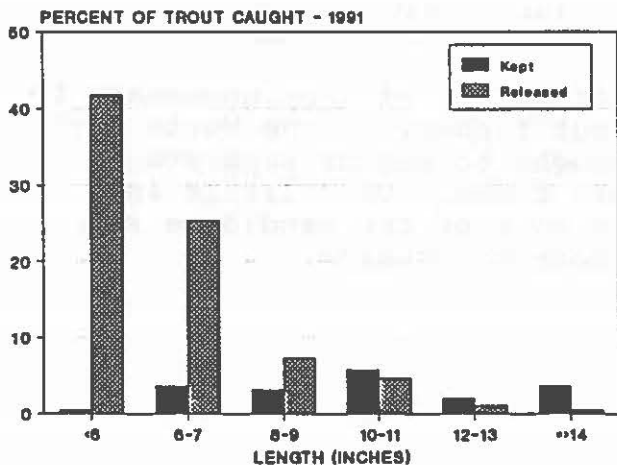


FIGURE 49. Number and lengths of trout anglers reported keeping or releasing at the Rubicon River in 1991.

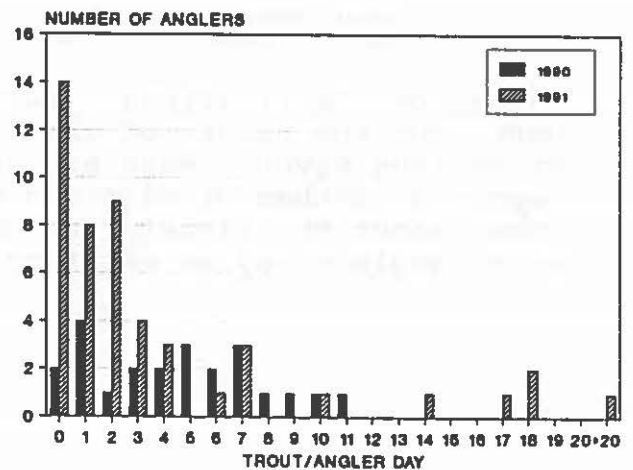


FIGURE 50. Percent of anglers reporting catches of zero to >20 trout per day on the Rubicon River in 1990 and 1991.

North Fork Stanislaus River

The North Fork Stanislaus River is currently a candidate Wild Trout Water. One reach under consideration for "wild trout stream" designation extends from the northeast boundary of Calaveras Big Trees State Park upstream to Boards Crossing. A popular hatchery-stocked fishing area in the Park has not yet been evaluated for inclusion in the program. It is thought that the reach affected by hatchery rainbow trout does not extend upstream as far as the Park boundary, but there is no clear separation between the fisheries and some of the trout reported here may be of hatchery origin. An angler survey box was installed at the riverside parking lot in the Park in 1991. At present, there are no special fishing regulations on the reach.

Results. Trout size was generally very small, 67% of the fish caught in 1991 were <8 inches long (Figure 51). Only 3% of the trout were ≥ 12 inches. Rainbow and brown trout made up 81% and 19% of the catch, respectively. Fly fishing gear was used by 46% of the reporting anglers and accounted for 66% of the trout caught. Overall catch rates were best for fly fishing, at 1.64 trout/hour, and worst for bait angling, at 0.65 trout/hour (Table 11). Lure and fly fishermen kept 6% of their combined catch, while bait anglers kept 52% of their catch. The majority of the ≥ 10 -inch trout caught were kept (Figure 52). Eight anglers reported catching ≥ 10 trout per day (Figure 53).

Table 11. Success of Bait, Lure, and Fly Anglers on the North Fork.

	<u>Bait</u>	<u>Lure</u>	<u>Fly</u>	<u>Multiple</u>	<u>Combined</u>
Surveys received	31	7	37	5	80
Hours fished	95	16.5	119.5	16	247
Rainbow trout kept	30	1	11	4	46
Rainbow trout released	23	17	147	6	193
Total rainbow trout	53	18	158	10	239
Brown trout kept	2	0	2	2	6
Brown trout released	7	7	36	1	51
Total brown trout	9	7	38	3	57
Overall catch/hour	0.65	1.52	1.64	0.81	1.20
Mean trout/angler	2.0	3.6	5.3	2.6	3.7

Management Implications. Further monitoring will be necessary to determine the nature of the wild trout fishery in the North Fork Stanislaus River. Ways are being sought to better separate reported catches of wild and hatchery trout. Very little is known about the fishery in the upper half of the candidate reach, which anglers may be entering from Boards Crossing.

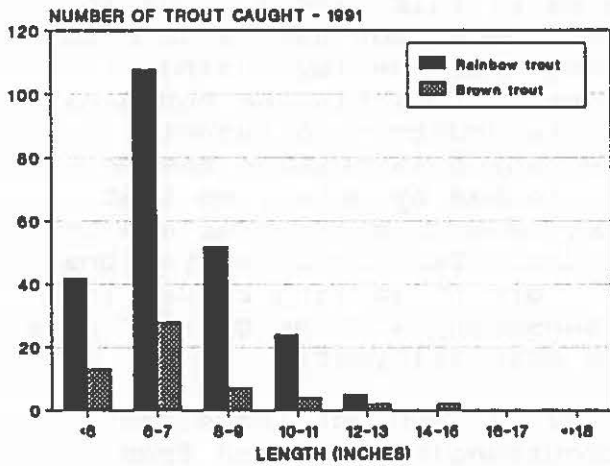


FIGURE 51. Number and lengths of rainbow and brown trout anglers reported catching at the North Fork Stanislaus River in 1991.

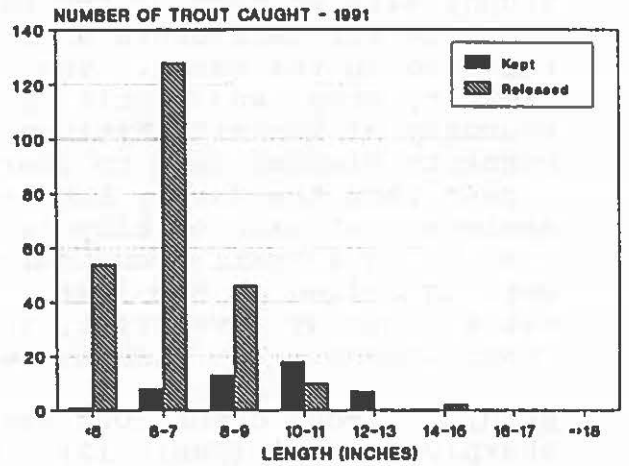


FIGURE 52. Number and lengths of trout anglers reported keeping or releasing on the North Fork Stanislaus River in 1991.

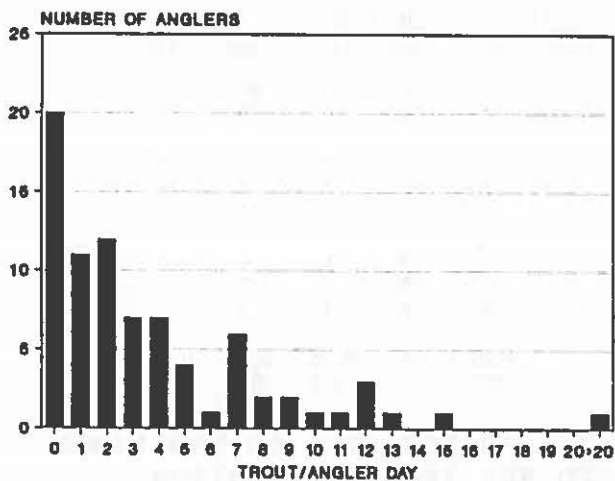


FIGURE 53. Number of anglers reporting catches of zero to >20 trout per day at the North Fork Stanislaus River in 1991.

Eleanor Lake

Angler surveys indicate that Lake Eleanor receives relatively light angling pressure but can produce fair to good fishing for rainbow trout from 12 inches to over 24 inches in length. The trophy size of many of the rainbows makes this lake a valuable resource for California anglers. Kokanee salmon have also been reported in the catch. The lake, formed by the impounding of Eleanor, Frog, and Kibbie Creeks, lies just within the northwest boundary of Yosemite National Park. An underground tunnel connects Eleanor Lake to Cherry Lake, which is outside the Park. Access from the Cherry Lake road is blocked by gates, so that anglers must walk or bicycle the last several miles over a dirt road or on a trail from Cherry Lake dam. Two angler survey boxes were installed at the lake in 1990. Current angling regulations set a limit of five trout, 10 in possession, with no gear or size restrictions. The fishing season is open all year.

Results. Mean catch/hour was very low in 1990 but increased sharply in 1991 (Table 12). Mean trout/angler improved from 0.4 in 1990 to 2.9 in 1991. In 1991, 74% of the trout reported were >12 inches long, with 34% over 16 inches in length (Figure 54). Three trout were reported to have been >24 inches long. Bait, lures, flies, and multiple gear types accounted for 33%, 43%, 22%, and 2%, respectively, of the trout caught in 1991. Only one angler reported fly fishing in 1991, but that angler caught 10 trout in eight hours. Eighteen of 25 anglers in 1990 reported a zero catch (Figure 55).

Table 12. Success of Bait, Lure, and Fly Anglers at Lake Eleanor in 1990 and 1991.

	Bait		Lure		Fly		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	9	4	7	10	1	1	8	1	25	16
Hours fished	37	18	31	31	2	8	36.25	4	106.25	61
Rainbow trout kept	4	8	1	5	0	3	0	0	5	16
Rainbow trout released	1	7	5	11	0	7	0	1	6	26
Total rainbow trout	5	15	6	16	0	10	0	1	11	42
Other trout kept	0	0	0	0	0	0	0	0	0	0
Other trout released	0	0	0	4	0	0	0	0	0	4
Total other trout	0	0	0	4	0	0	0	0	0	4
Overall catch/hour	0.14	0.83	0.19	0.65	0	1.25	0	0.25	0.10	0.75
Mean trout/angler	0.6	3.8	0.9	2.0	0	10.0	0	1.0	0.4	2.9

Management Implications. There is not enough data on the trout population in Eleanor Lake to discern any trends. Angling success was significantly greater in 1991 than in 1990, but the reasons for the difference are not apparent. Anecdotal evidence suggests that the fishery may have declined over the years. The National Park Service and the Department are concerned about losing the quality angling at the lake but do not have sufficient data to justify more restrictive regulations at this time.

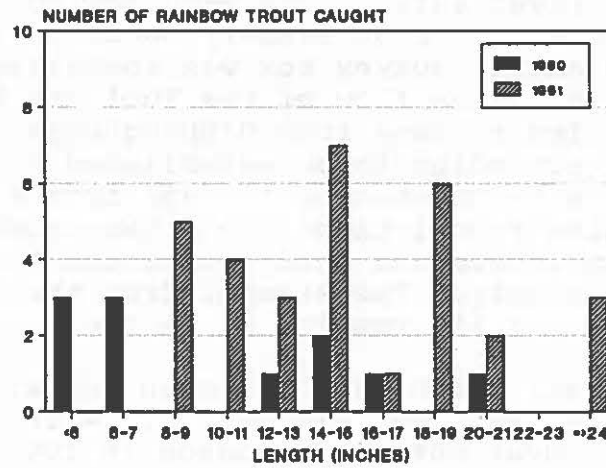


FIGURE 54. Comparison of the lengths of rainbow trout anglers reported catching at Lake Eleanor in 1990 and 1991.

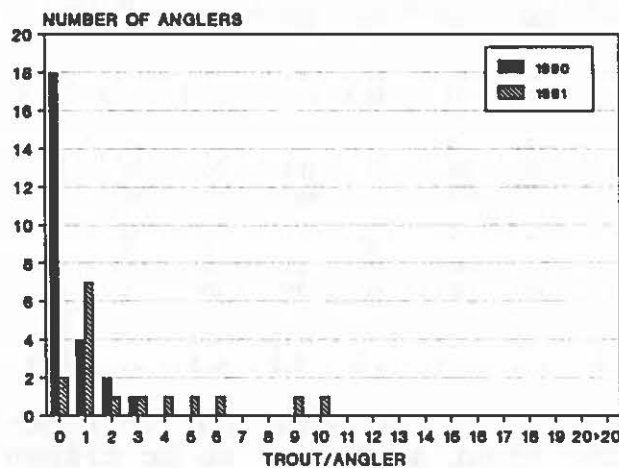


FIGURE 55. Number of anglers reporting catches of zero to 10 trout per day at Lake Eleanor in 1990 and 1991.

Tuolumne River

The Tuolumne River, from Early Intake to Hetch Hetchy Reservoir, contains healthy populations of wild rainbow and brown trout. The beauty of the river valley, the easy hiking trail (from Early Intake), and the quality trout fishery combine for excellent angling days. An angler survey box was installed just above Early Intake in 1990. The flow of the Tuolumne River in this reach is a controlled release from O'Shaughnessy Dam and it varies seasonally according to an established agreement. Angling regulations for the reach changed in 1992 from a five trout limit with no gear or size restrictions, to a two-trout limit, with a minimum size of 12 inches and gear restricted to artificial lures with barbless hooks only. The season, from the last Saturday in April through November 15, remains as before.

Results. The overall catch rate and mean number of trout/angler were similar in 1990 and 1991 (Table 13). Rainbow trout averaged 78% of the catch. Over 80% of the catch in 1990-91 was comprised of trout ≤ 9 inches in length (Figures 56, 57, and 58). Less than 5% of the rainbow and about 15% of the brown trout were ≥ 12 inches in length. Anglers kept a higher percentage of brown trout than rainbow trout (Figures 59 and 60). Over the 2 years, bait anglers kept 23% of the trout they caught. Anglers using other gear types kept 11% of their catch. Seventy-seven out of 122 anglers responding in 1990-91 caught five or less trout/day (Figure 61).

Table 13. Success of Bait, Lure, and Fly Anglers on Tuolumne River in 1990 and 1991.

	Bait		Lure		Fly		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	11	15	20	10	40	13	7	6	78	44
Hours fished	47	60.5	97	38.5	159	60.5	27.5	29.5	330.5	189
Rainbow trout kept	8	7	8	4	16	3	1	10	33	24
Rainbow trout released	11	70	92	7	189	76	23	13	315	166
Total rainbow trout	19	77	100	11	205	79	24	23	348	190
Brown trout kept	8	7	8	6	2	1	0	1	18	15
Brown trout released	1	21	22	18	23	9	5	8	51	56
Total brown trout	9	28	30	24	25	10	5	9	69	71
Overall catch/hour	0.60	1.74	1.34	0.91	1.45	1.47	1.05	1.08	1.26	1.38
Mean trout/angler	2.5	7.0	6.5	3.5	5.8	6.8	4.1	5.3	5.3	5.9

Management Implications. The size and limit restrictions will likely increase the trout available to be fished over. Larger trout may result from reduced harvest of smaller sizes. Survival of released trout may increase due to the removal of bait fishing and decreased hooking mortality after release. Anglers (including bait users) released at least three out of four trout.

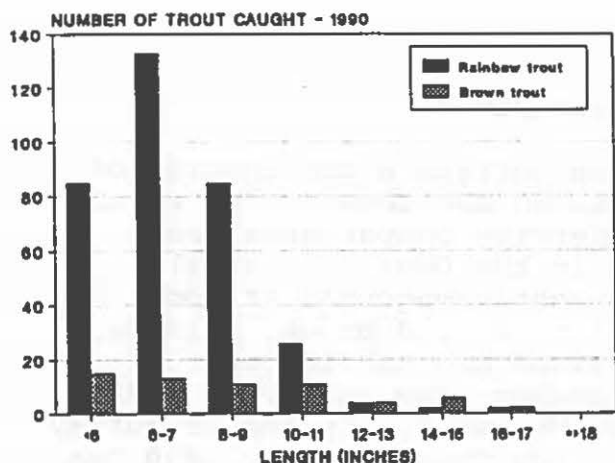


FIGURE 56. Number and lengths of rainbow and brown trout anglers reported catching at the Tuolumne River in 1990.

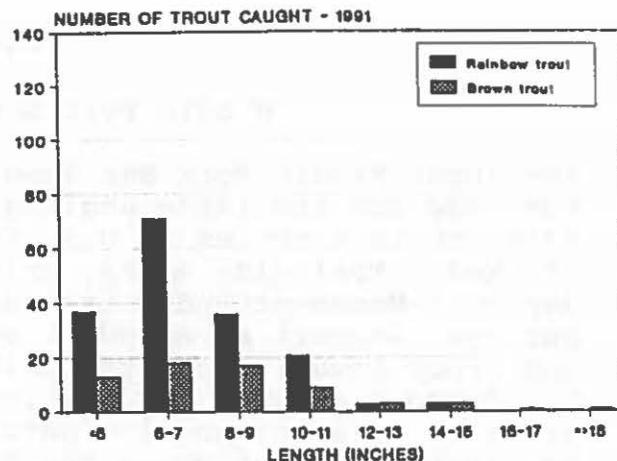


FIGURE 57. Number and lengths of rainbow and brown trout anglers reported catching at the Tuolumne River in 1991.

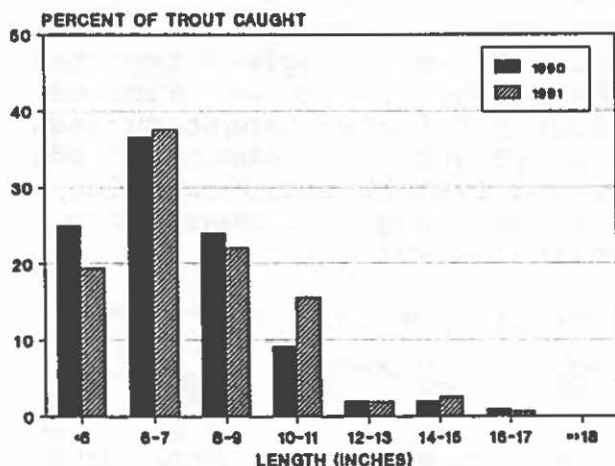


FIGURE 58. Comparison of the lengths of trout anglers reported catching in the Tuolumne River in 1990 and 1991.

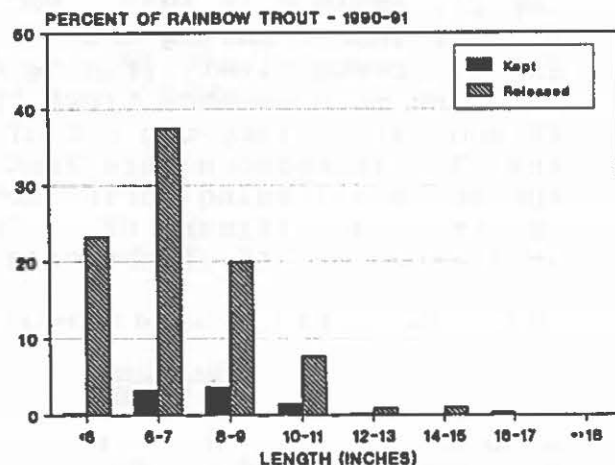


FIGURE 59. Percent by length of the rainbow trout anglers reported keeping or releasing at the Tuolumne River in 1990 and 1991.

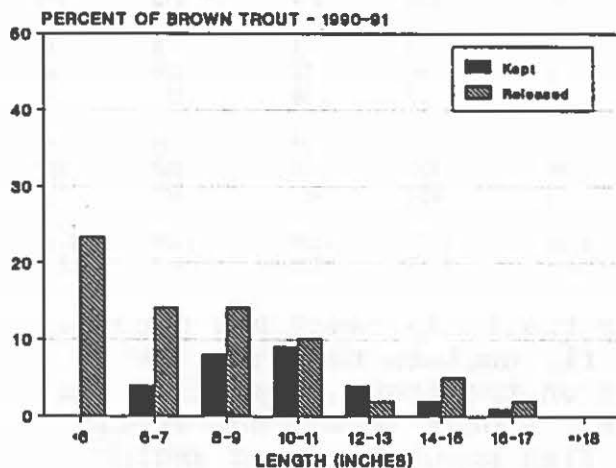


FIGURE 60. Percent by length of the brown trout anglers reported keeping or releasing at the Tuolumne River in 1990 and 1991.

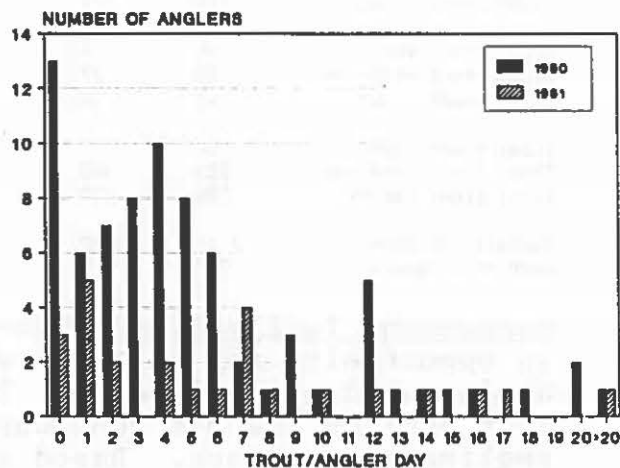


FIGURE 61. Percent of the anglers reporting catches of zero to >20 trout per day on the Tuolumne River in 1990 and 1991.

Middle Fork San Joaquin River

The upper Middle Fork San Joaquin River offers a combination of roadside and trailside angling. Roadside sections of the river adjacent to a series of U.S. Forest Service campgrounds are stocked. Trailside areas, primarily in the Devil's Postpile National Monument and above the uppermost campground at Soda Springs, support an abundant population of wild brown, rainbow, and brook trout. Both trailside sections are candidates for "wild trout stream" designation. A season-long survey in 1988 provided baseline angling data in the Monument. An angler survey box installed just above the Soda Springs Campground in 1990 has provided baseline data on the upper trailside reach of stream.

Results. The upper trailside reach of stream is currently used by bait, lure, and fly anglers (Table 14). Catch rates ranged from 1.92 trout/hour for lure anglers in 1991 to 3.72 trout/hour for fly anglers in 1990. Percentages of trout caught <8, 8-11, and ≥12 inches during the two seasons combined averaged 64, 33, and 3%, respectively (Figure 62). Surprisingly, anglers reported catching more rainbow trout than brown trout ≥12 inches (Figures 63 and 64). Sixty-one out of 299 trout ≥10 inches caught during the 1990-91 seasons were kept (Figures 65 and 66). About 10% of the anglers fishing during both 1990 and 1991 reported catching >20 trout/day (Figure 67). The trout they caught accounted for an average of 36% of the total catch in 1990-91.

TABLE 14. Success of Bait, Lure, and Fly Anglers on the Middle Fork San Joaquin River in 1990 and 1991.

	Bait anglers		Lure anglers		Fly anglers		Total	
	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	37	39	6	11	58	43	101	93
Hours fished	113.00	124.25	12.50	35.50	174.50	121.25	300.00	281.00
Rainbow trout kept	25	29	6	3	13	6	44	38
Rainbow trout released	96	53	10	16	181	81	287	150
Total rainbow trout	121	82	16	19	194	87	331	188
Brown trout kept	28	19	0	1	13	12	41	32
Brown trout released	93	102	20	67	356	297	469	466
Total brown trout	121	121	20	68	369	309	510	498
Brook trout kept	4	9	2	4	2	3	8	16
Brook trout released	39	27	2	2	85	32	126	61
Total brook trout	43	36	4	6	87	35	134	77
Total trout kept	57	57	8	8	28	21	93	86
Total trout released	228	182	32	85	622	410	882	677
Total trout caught	285	239	40	93	650	431	975	763
Overall catch/hour	2.52	1.92	3.20	2.62	3.72	3.55	3.25	2.72
Mean trout/angler	7.7	6.1	6.7	8.5	11.2	10.0	9.7	8.2

Management Implications. The upper trailside reach now provides an opportunity for bait, lure, and fly anglers to enjoy fast-action wild trout fishing. Impacts on the trout population from bait angling are not considered great enough to warrant special angling regulations. Based on the fish population and angler surveys, both the Monument and upper trailside reaches of the river qualify for wild trout designation.

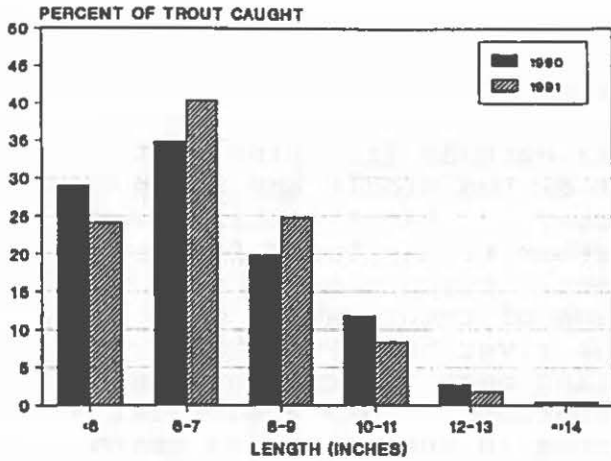


FIGURE 62. Comparison of the lengths of trout anglers reported catching on the Middle Fork San Joaquin River in 1990 and 1991.

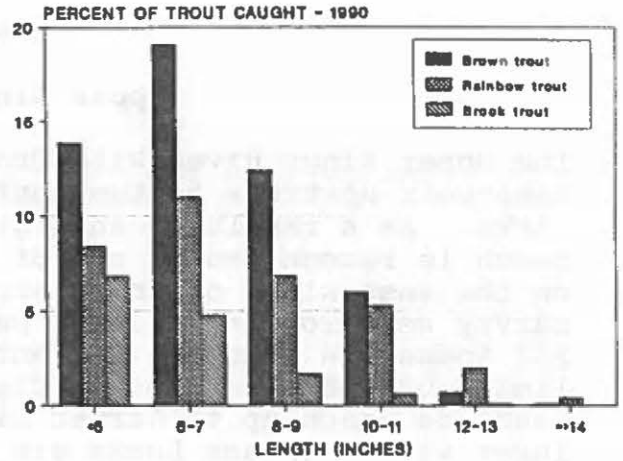


FIGURE 63. Comparison of the lengths and relative abundance of brown, rainbow, and brook trout anglers reported catching on the Middle Fork San Joaquin River in 1990.

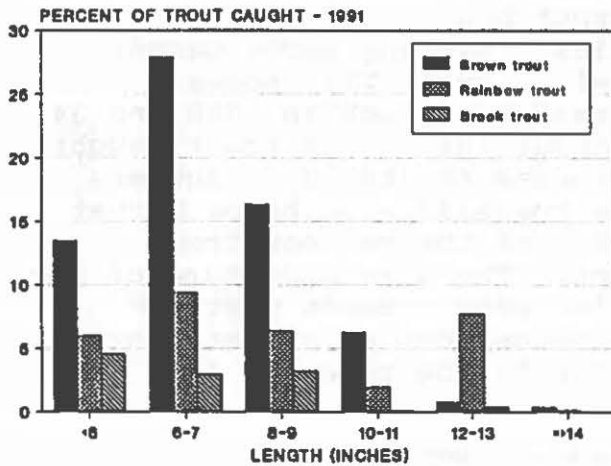


FIGURE 64. Comparison of the lengths and relative abundance of brown, rainbow, and brook trout anglers reported catching on the Middle Fork San Joaquin River in 1991.

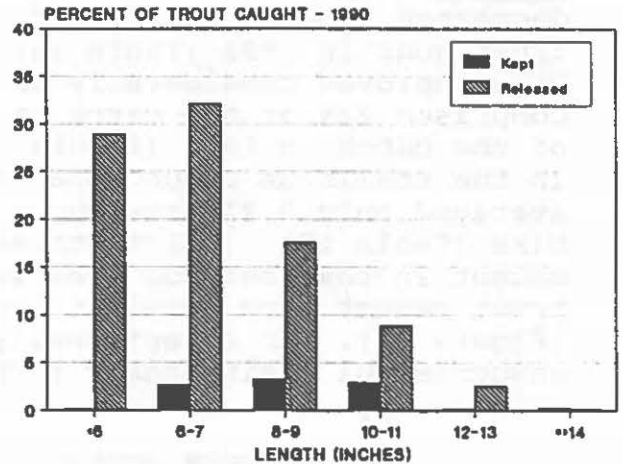


FIGURE 65. Percent and lengths of trout anglers reported keeping or releasing at the Middle Fork San Joaquin River in 1990.

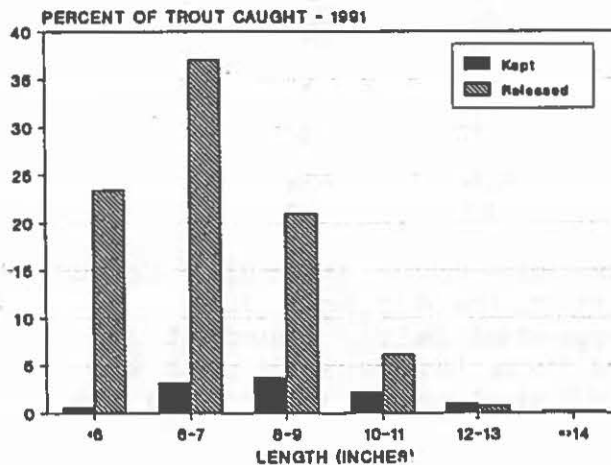


FIGURE 66. Percent and lengths of trout anglers reported keeping or releasing at the Middle Fork San Joaquin River in 1991.

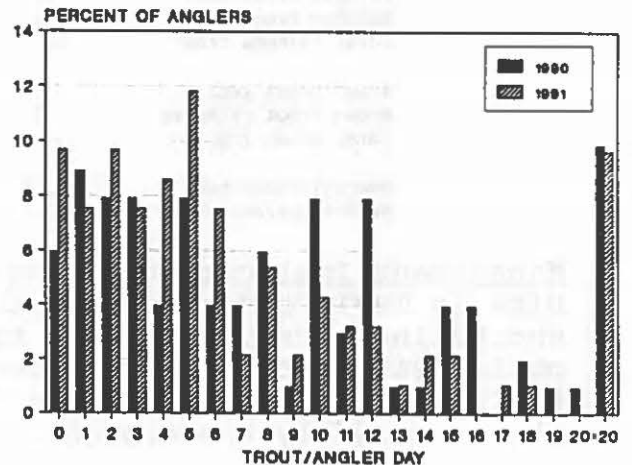


FIGURE 67. Percent of anglers reporting catches of zero to ≥ 20 trout per day at the Middle Fork San Joaquin River in 1990 and 1991.

Upper Kings River

The upper Kings River Wild Trout Area extends from Pine Flat Reservoir upstream to the confluence of the Middle and South forks. As a result of an angler survey in 1986-87, this river reach is recognized as one of the better trophy trout fisheries on the west slope of the Sierra Nevada. Catch rates during the survey were low, but a high percentage of trout caught were ≥ 12 inches in length. Currently, the river has a two-trout limit, but there are no special angling gear restrictions on the roadside reach up to Garnet Dike Campground. Only artificial lures with barbless hooks are permitted in the trailside reach above the campground. In 1992, the trailside reach will also be a catch-and-release only area. An angler survey box was installed on the Garnet Dike trail in 1990. Two additional boxes were installed downstream in 1991.

Results. Catch rates in the trailside reach above Garnet Dike decreased from an average of 1.23 trout/hour in 1990 to 0.75 trout/hour in 1991 (Table 15). In 1991, fishing above Garnet Dike improved considerably in the fall. Trout ≥ 12 inches comprised 21% of the catch in the trailside reach in 1990 and 34% of the catch in 1991 (Figure 68). About 10% of the trout caught in the trailside reach were kept (Figures 69 and 70). Anglers averaged only 0.21 trout/hour in the roadside area below Garnet Dike (Table 15). Thirty-three percent of the rainbow trout caught in the roadside area were kept. The size structure of the trout caught show somewhat larger fish were present upstream (Figure 71). An exceptionally high percentage of anglers were unsuccessful during their fishing trip to the river in 1991 (Figure 72).

Table 15. Angling Success on the Upper Kings River in 1990 and 1991.

	<u>Above Garnet Dike</u>		<u>Bailey Bridge to</u>	<u>Combined</u>
	<u>1990</u>	<u>1991</u>	<u>Garnet Dike</u>	<u>1991</u>
Surveys received	33	45	38	83
Hours fished	139.00	248.5	166.5	415.00
Rainbow trout kept	18	13	11	24
Rainbow trout released	151	167	22	189
Total rainbow trout	169	180	33	213
Brown trout kept	0	4	1	5
Brown trout released	2	3	1	4
Total brown trout	2	7	2	9
Overall catch/hour	1.23	0.75	0.21	0.53
Mean trout/angler	5.2	4.2	0.9	2.7

Management Implications. Angling success above and below Garnet Dike in 1991 corresponded with observations during a July snorkeling survey. Rainbow trout appeared fairly abundant in pools near Garnet Dike but decreased to a low density near the Bailey Bridge. The decrease is attributed primarily to the low flows caused by the drought.

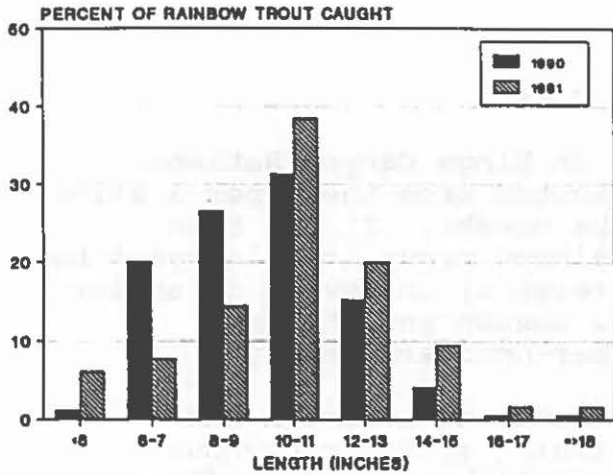


FIGURE 68. Comparison of the lengths of rainbow trout anglers reported catching at the Kings River above Garnet Dike in 1990 and 1991.

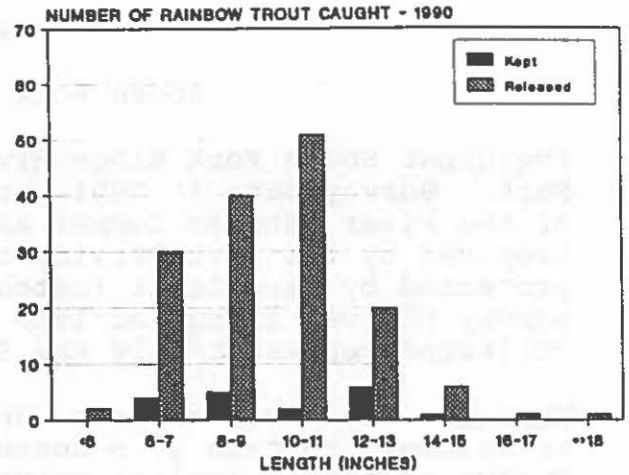


FIGURE 69. Number and lengths of trout anglers reported keeping or releasing at the Kings River above Garnet Dike in 1990.

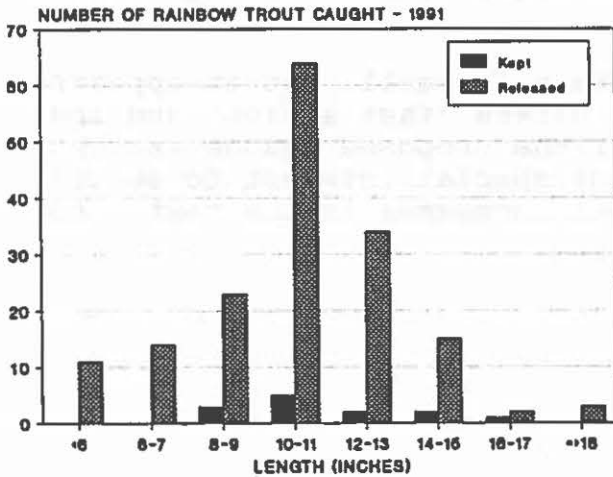


FIGURE 70. Number and lengths of trout anglers reported keeping or releasing at the Kings River above Garnet Dike in 1991.

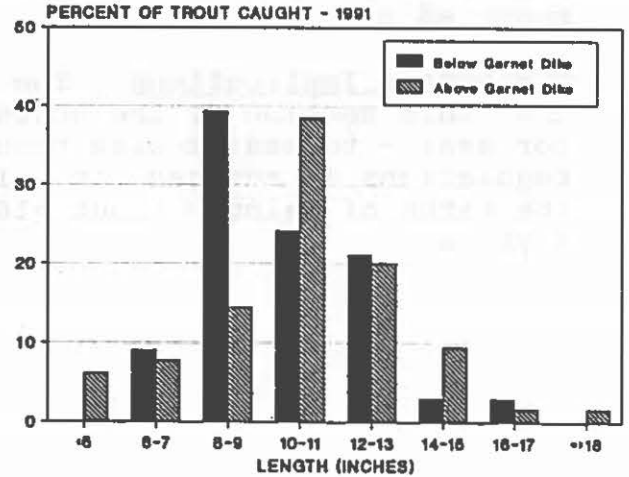


FIGURE 71. Comparison of the lengths of trout anglers reported catching on the Kings River above and below Garnet Dike in 1991.

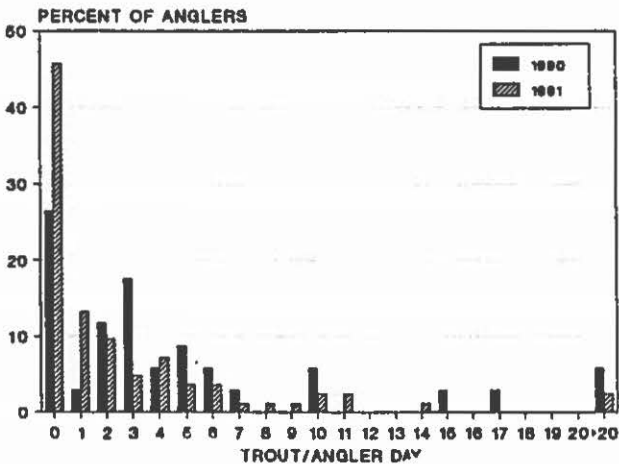


FIGURE 72. Percent of anglers reporting catches of zero to ≥ 20 trout per day on the Kings River in 1990 and 1991.

South Fork Kings River

The upper South Fork Kings River is in Kings Canyon National Park. Survey data in 1991 were collected from the upper 2 miles of the river between Copper and Bubbs creeks. It has been proposed by the Park Service that rainbow trout in this reach be protected by zero limit (catch-and-release) in 1992. An angler survey box was installed late in the season and the data collected represent only the September-October fishery.

Results. Thirteen anglers reported catching 17 brown and 66 rainbow trout in 37.5 hours of fishing (2.21 trout/hour). Twelve of the 13 anglers surveyed used either lures or flies. Lure and fly anglers averaged 2.55 and 2.00 trout/hour, respectively. Trout ≥ 12 inches comprised only 5% of the catch (Figure 73). However, three out of four larger trout caught were kept (Figure 74). Eight of the 13 anglers participating in the survey caught six to ten trout each (Figure 75). One angler reported a 15-trout day.

Management Implications. The data base is small, but it appears that this section of the South Fork offers "fast action" angling for small- to medium-size trout. If the proposed change in regulations is adopted, it will be of special interest to see if the catch of rainbow trout ≥ 10 inches increases in the next 3 to 5 years.

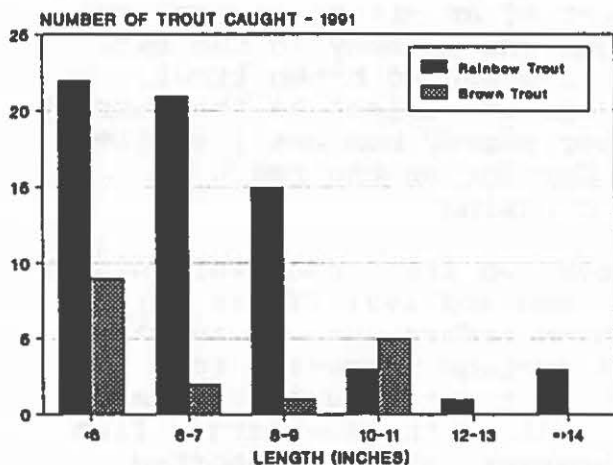


FIGURE 73. Number and lengths of rainbow and brown trout anglers reported catching at the upper South Fork Kings River in the fall of 1991.

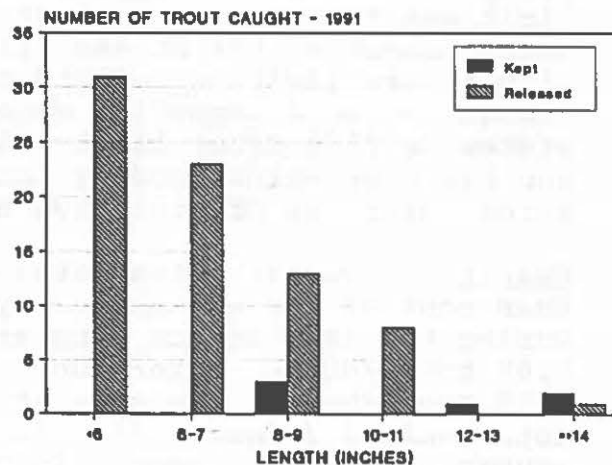


FIGURE 74. Number and lengths of trout anglers reported keeping or releasing at the upper South Fork Kings River in the fall of 1991.

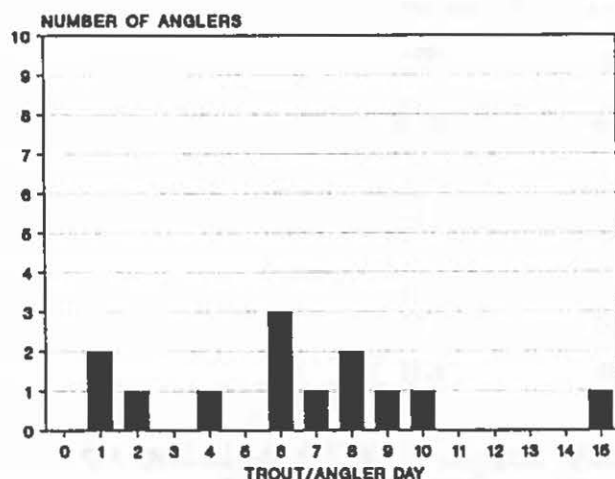


FIGURE 75. Number of anglers reporting catches of zero to 15 trout per day at the upper South Fork Kings River in the fall of 1991.

Marble Fork Kaweah River

The Marble Fork, a major tributary of the Middle Fork Kaweah River, is located in Sequoia National Park. In 1990 and 1991 the limit was two trout. In 1992, as part of an effort to preserve native species, the stream will become one of many in the Park with a zero limit on rainbow trout. Introduced brown trout, recognized as a competing species, will be subject to the current statewide five-trout limit. An angler survey box was installed and has been maintained by the Park Service on the reach of stream near the Crystal Cave Bridge crossing.

Results. Overall catch rates of above two trout/hour were higher than most of the waters surveyed in 1990 and 1991 (Table 16). During the 1991 season, anglers fishing before June 20 averaged 0.07 trout/hour. After June 20, the average increased to 3.10 trout/hour. The size structure of trout caught was similar both seasons (Figure 76). In 1990, most of the few larger fish caught were brown trout. In 1991, however, anglers reported catching equal numbers of rainbow and brown trout ≥ 12 inches (Figures 77 and 78). During the two seasons combined, anglers kept about 10% of the 8- to 11-inch trout and 25% of the ≥ 12 -inch trout caught (Figures 79 and 80). Catch rates, especially in 1991, were substantially increased by a few experienced anglers who caught >20 trout/day (Figure 76). Anglers in this category in 1990 accounted for 39% of the total catch. In 1991, those reporting >20 trout/day accounted for 62% of the catch.

TABLE 16. Angling Success on the Marble Fork in 1990 and 1991.

	1990	1991
Surveys received	31	20
Hours fished	110.75	56.75
Rainbow trout kept	10	0
Rainbow trout released	143	77
Total rainbow trout	153	77
Brown trout kept	10	4
Brown trout released	78	51
Total brown trout	88	55
Overall catch/hour	2.18	2.33
Mean trout/angler	7.8	6.6

Management Implications. The fishery appears to be holding up well during the drought. Harold Werner, Park Biologist, attributes the poor early 1991 season results to high run-off flows. The new regulation requiring anglers to differentiate between trout species will be one of the first on a designated catch-and-release stream in California and has potential application elsewhere in the State.

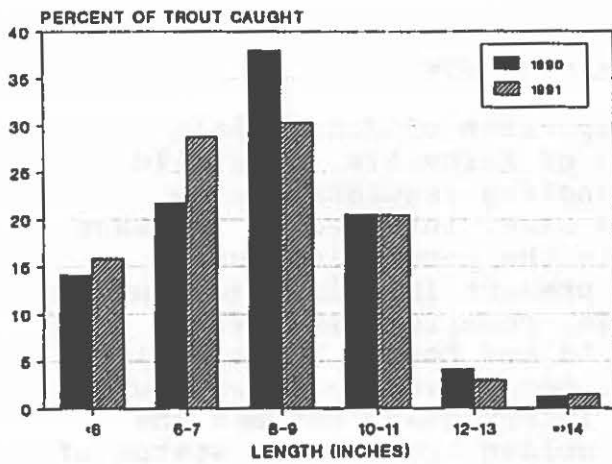


FIGURE 76. Comparison of the lengths of trout anglers reported catching at the Marble Fork in 1990 and 1991.

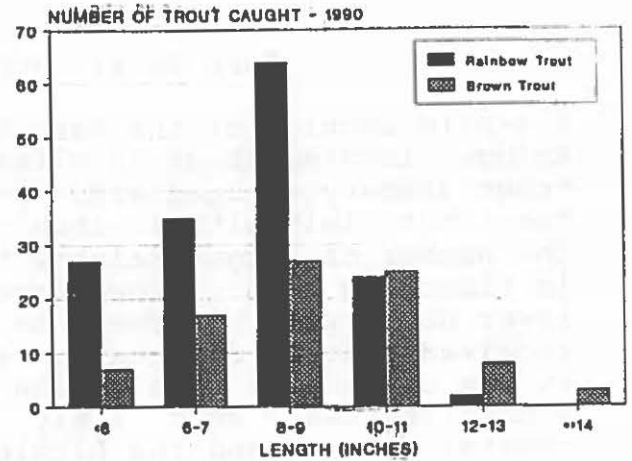


FIGURE 77. Number and lengths of rainbow and brown trout anglers reported catching at the Marble Fork in 1990.

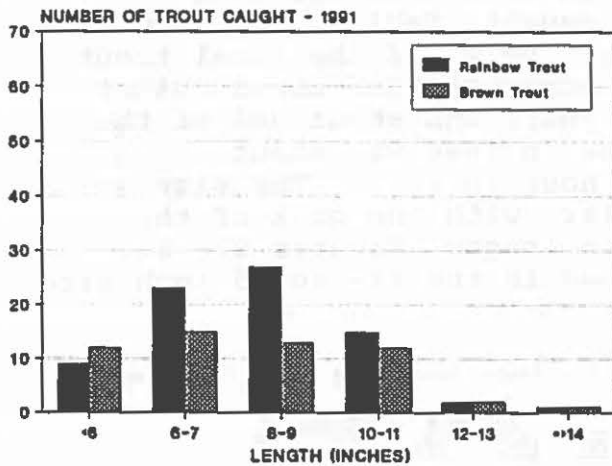


FIGURE 78. Number and lengths of rainbow and brown trout anglers reported catching at the Marble Fork in 1991.

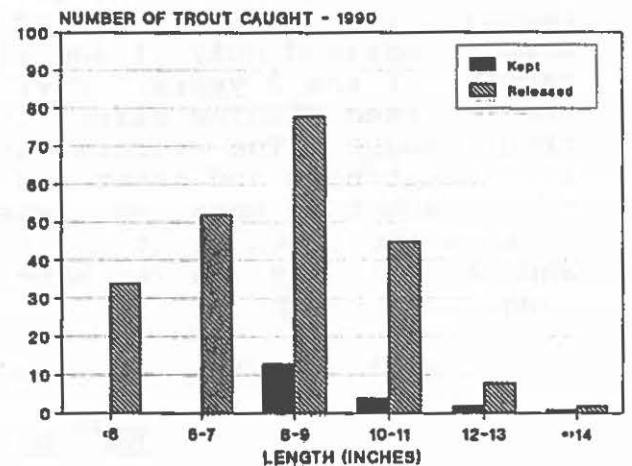


FIGURE 79. Number and lengths of trout anglers reported keeping or releasing at the Marble Fork in 1990.

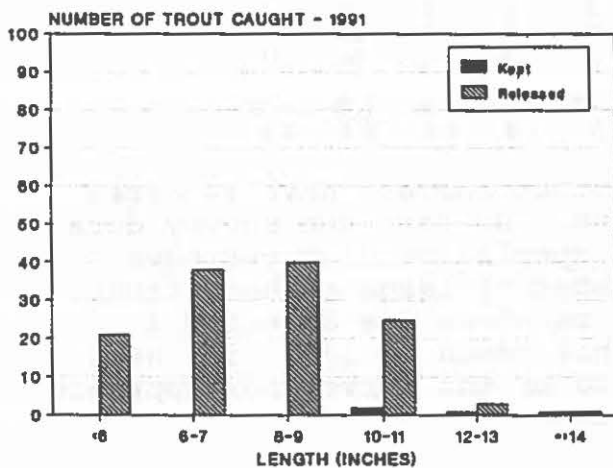


FIGURE 80. Number and lengths of trout anglers reported keeping or releasing at the Marble Fork in 1991.

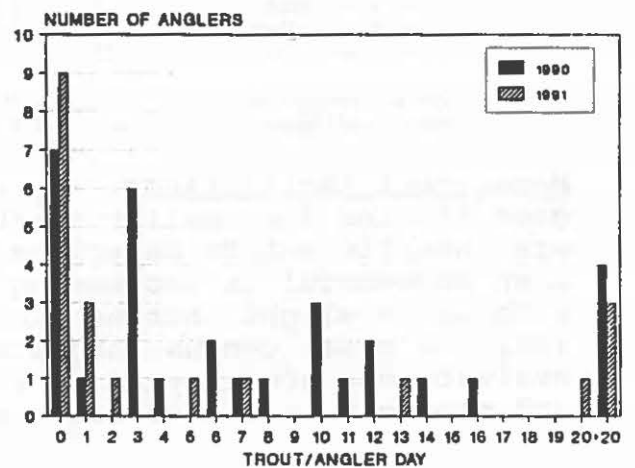


FIGURE 81. Percent of anglers reporting catches of zero to >20 trout per day at the Marble Fork in 1990 and 1991.

Kern River--Johnsondale Bridge

A 4-mile section of the Kern River upstream of Johnsondale Bridge, located about 20 miles north of Kernville, is a wild trout fishery managed with special angling regulations. A two-trout limit with 14-inch minimum size, intended to increase the number of larger rainbow trout in the population, was initiated in 1990. Brown trout are present in this reach but in lower numbers. This reach is a large, powerful river which received federal designation as a Wild and Scenic River in 1987. It was originally home to the native Kern River rainbow trout, a subspecies that, most likely, is an intermediate between the coastal rainbow and the Little Kern golden trout. The status of the Kern River rainbow in this part of the river is unknown and may have been affected by years of stocking hatchery rainbows downstream of the bridge, fishing pressure and introduced brown trout.

Results. Anglers returning surveys in both 1990 and 1991 reported releasing 99% of the trout caught (Table 17). Brown trout comprised only 4% and 2% respectively, of the total trout caught for the 2 years. Flyfishing accounted for about 80% of the reported fishing effort in both years and about 90% of the trout caught. The overall catch rate in 1990 was about 1.25 trout/hour and about 1.0 trout/hour in 1991. The size of trout caught in both years was similar, with the bulk of the rainbow and brown trout >10 inches in length (Figures 82, 83, and 84). In 1991, a few more rainbows in the 12- to 16-inch size range were caught.

TABLE 17. Success of Fly and Lure Anglers on the Kern River, Johnsondale Bridge in 1990 and 1991.

	Fly		Lure		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	106	172	29	37	3	12	138	221
Hours fished	460.8	752.5	94.5	146.5	13	57.5	568.3	956.5
Rainbow trout kept	3	0	5	9	0	0	8	9
Rainbow trout released	627	850	48	51	2	55	677	956
Total rainbow trout	630	850	53	60	2	55	685	965
Brown trout kept	0	0	0	0	0	0	0	0
Brown trout released	23	19	1	2	2	0	26	21
Total brown trout	23	19	1	2	2	0	26	21
Overall catch/hour	1.42	1.15	0.57	0.42	0.31	0.96	1.25	1.03
Mean trout/angler	6.2	5.1	1.9	1.7	1.3	4.6	5.2	4.5

Management Implications. It appears that anglers have reported good fishing for smaller rainbow trout. So far, the survey data are insufficient to determine if the special regulations have been successful in increasing the number of large rainbow trout, although a slight increase in larger rainbows was detected in 1991. A creel census conducted on this reach in 1992 will help evaluate the accuracy of data gathered by the survey box approach and progress of the special regulations.

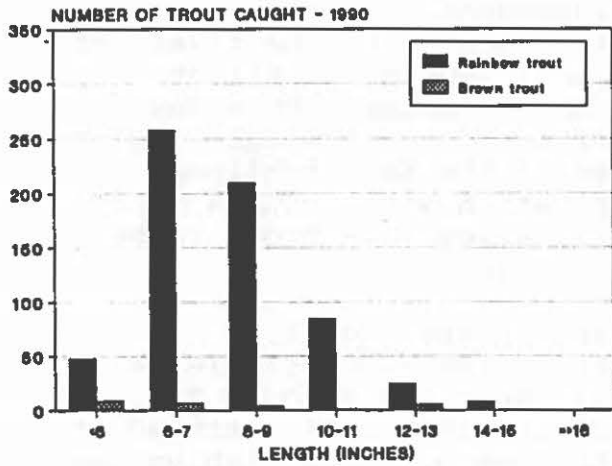


FIGURE 82. Number of rainbow and brown trout anglers reported catching in the special angling regulation reach of the Kern River above the Johnsondale Bridge in 1990.

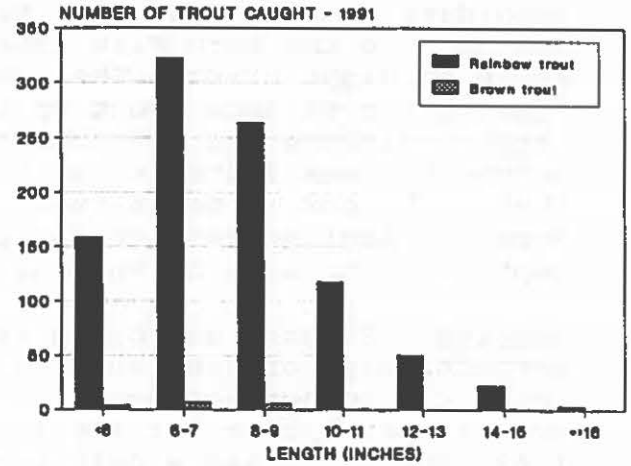


FIGURE 83. Number of rainbow and brown trout anglers reported catching in the special angling regulation reach of the Kern River above the Johnsondale Bridge in 1991.

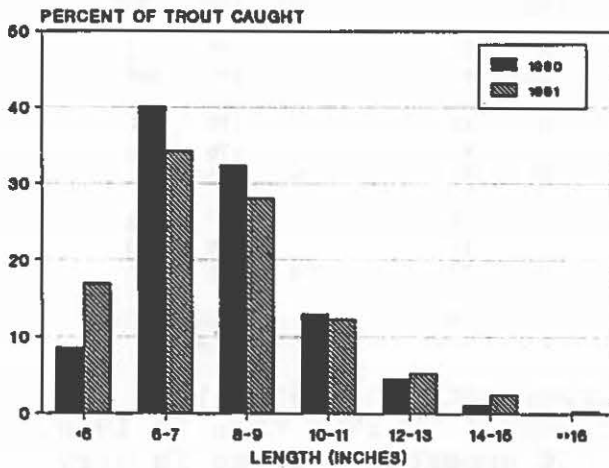


FIGURE 84. Comparison of the lengths of rainbow and brown trout anglers reported catching in the special angling regulation reach of Kern River above the Johnsondale Bridge in 1990 and 1991.

Kern River--Forks

The Kern River in the vicinity of its confluence with the Little Kern River is known as the Forks of the Kern. A popular area for fishing by several user groups, the Forks is currently a candidate water for special trout management. A trail leading upstream to the Kern Flat area provides access to the river for seven to eight miles. The area produces good to excellent fishing for rainbow trout up to 12 inches, along with a few larger rainbows and an occasional brown trout. A single angler survey box was installed at the Forks of the Kern trailhead in 1990. The box is maintained in cooperation with Sequoia National Forest. Angling regulations presently allow five trout to be kept, with no size or special gear restrictions.

Results. Rainbow and brown trout made up 96% and 4%, respectively, of the reported catches in 1990-1991 (Table 18). Trout <12 inches accounted for 94% of the catch (Figure 85). The overall catch/hour for fly fishing during 1990-1991 averaged at 1.69, but it varied widely between the years. Lure fishing was more consistent, with an average overall catch/hour of 1.66. Lure and fly anglers kept 14% of their catch over the 2 years, while bait anglers kept 42%. A high percentage of trout ≥ 10 inches were reported kept in both years (Figures 86 and 87). Anglers reporting catches of 3-10 trout made up 53% of the surveyed anglers during the 2 years (Figure 88).

Table 18. Success of Bait, Lure, and Fly Anglers Near the Forks of the Kern River in 1990 and 1991.

	Bait		Lure		Fly		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	29	20	13	16	31	58	-0-	9	73	103
Hours fished	108	93	52.5	64	124.5	292.5	-	39	285	488.5
Rainbow trout kept	63	42	17	10	39	33	-	4	119	89
Rainbow trout released	95	56	70	79	251	251	-	20	416	406
Total rainbow trout	158	98	87	89	290	284	-	24	535	495
Brown trout kept	3	2	2	1	2	2	-	1	7	6
Brown trout released	1	2	5	7	3	10	-	1	9	20
Total brown trout	4	4	7	8	5	12	-	2	16	26
Overall catch/hour	1.50	1.10	1.79	1.52	2.37	1.01	-	0.67	1.93	1.07
Mean trout/angler	5.6	5.1	7.2	6.1	9.5	5.1	-	2.9	7.5	5.1

Management Implications. Angler survey data indicates that anglers were significantly less successful in 1991 than in 1990. The reasons for the difference are not apparent. There is very little survey information available on trout populations in the upper Kern River. In the fall of 1992, the Department will conduct trout population surveys along an extensive reach of the river to improve our understanding of the status of the Kern River rainbow trout, a trout strain distinct from both golden trout and coastal rainbow trout. The information gained will be useful in addressing the concerns of anglers, conservationists, and biologists who feel that overharvest of this unique trout may be occurring.

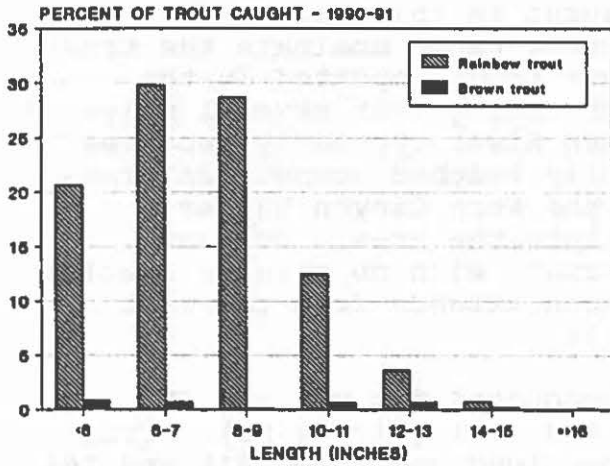


FIGURE 85. Comparison of the lengths of rainbow and brown trout anglers reported catching on the Kern River near the Forks of the Kern in 1990 and 1991.

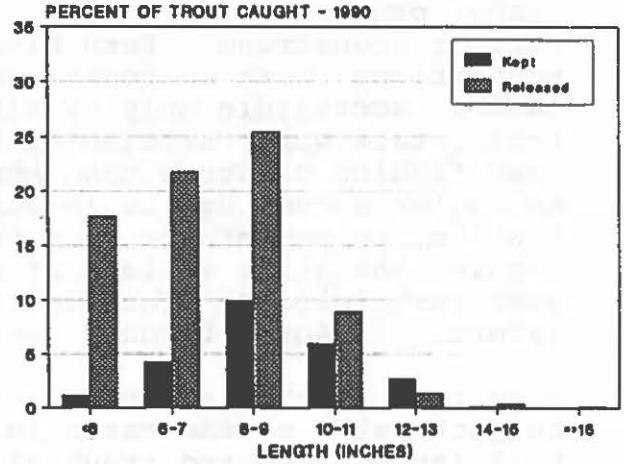


FIGURE 86. Comparison of the lengths of trout anglers reported keeping or releasing on the Kern River near the Forks of the Kern in 1990.

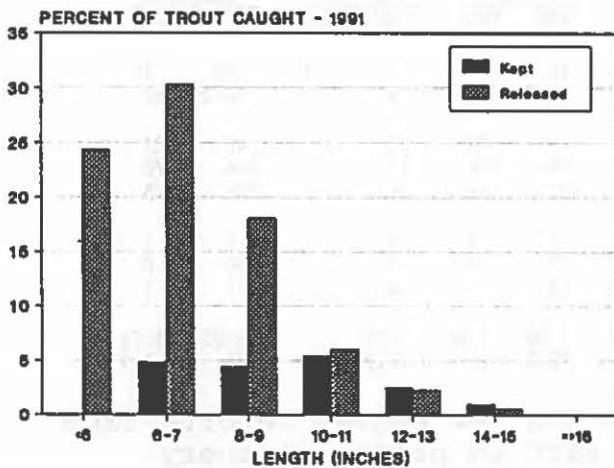


FIGURE 87. Comparison of the lengths of trout anglers reported keeping or releasing on the Kern River near the Forks of the Kern in 1991.

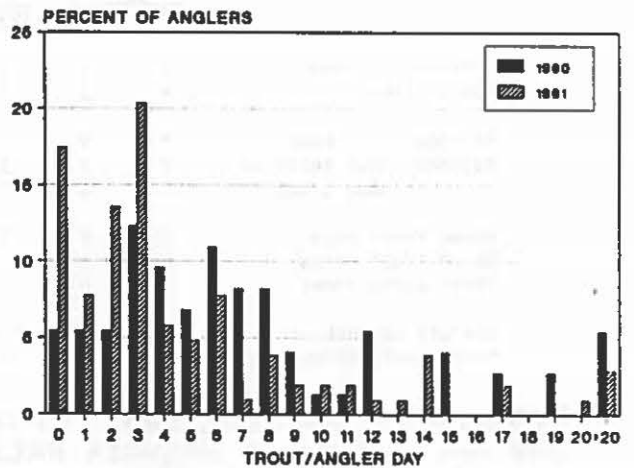


FIGURE 88. Percent of anglers reporting catches of zero to ≥ 20 trout per day on the Kern River near the Forks of the Kern in 1990 and 1991.

Kern River--Sequoia National Park

The Kern River within Sequoia National Park can provide an exceptional angling experience for backcountry anglers. Angler reports indicate that trout are numerous and that there is a higher proportion of larger fish caught in this reach than further downstream. Kern River rainbow trout dominate the trout populations, with an occasional brown trout reported in the catch. Accessible only by hiking or riding over several miles of trail, this upper section of the Kern River typically receives less fishing pressure than more easily reached downstream areas. An angler survey box is located at the Kern Canyon Ranger Station, on one of the main trails into the area. Current regulations allow a limit of five trout, with no size or special gear restrictions. The fishing season extends from the last Saturday in April through November 15.

Results. Rainbow and brown trout accounted for 97% and 3%, respectively, of the catch in 1990 and 1991 (Figure 89). Trout 8-12 inches long and trout >12 inches long comprised 51% and 16%, respectively, of the reported catch (Figure 90). The majority of the reports received (26 of 38) were from fly anglers (Table 19). The rest were fairly evenly distributed between bait, lure, and multiple gear users. Overall, anglers kept 14% of their catch. Fly fishers caught 76% of the fish reported, and kept 5% of their catch. Over 50% of the anglers reported catching 10 or more trout in 1990-1991 (Figure 91).

Table 19. Success of Bait, Lure, and Fly Anglers on the Kern River in Sequoia Nat'l Park in 1990 and 1991.

	Bait		Lure		Fly		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	2	2	3	3	16	10	2	-0-	23	15
Hours fished	9	5	7.75	4.5	81.5	42.5	4	-	102.25	52
Rainbow trout kept	8	9	13	4	6	10	13	-	40	23
Rainbow trout released	7	5	22	11	196	154	21	-	246	170
Total rainbow trout	15	14	35	15	202	164	34	-	286	193
Brown trout kept	0	0	3	1	1	0	0	-	4	1
Brown trout released	0	0	1	0	9	0	0	-	10	0
Total brown trout	0	0	4	1	10	0	0	-	14	1
Overall catch/hour	1.67	2.80	5.03	3.56	2.60	3.86	8.50	-	2.93	3.73
Mean trout/angler	7.5	7.0	13.0	5.3	13.2	16.4	17.0	-	13.0	12.9

Management Implications. There are too few angler reports from the Kern River in Sequoia National Park to predict fishery trends. The few reports received suggest that the fishery is healthy but more detailed studies will be required to properly describe the trout populations and the possible effects of management programs. Snorkeling and electrofishing surveys scheduled for the 1992 field season should provide the Department and the National Park Service with valuable information on the trout populations.

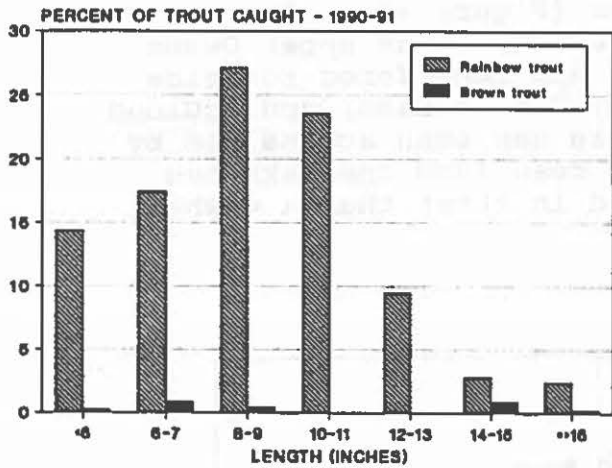


FIGURE 89. Comparison of the lengths of rainbow and brown trout anglers reported catching in the Sequoia National Park reach of the Kern River in 1990 and 1991.

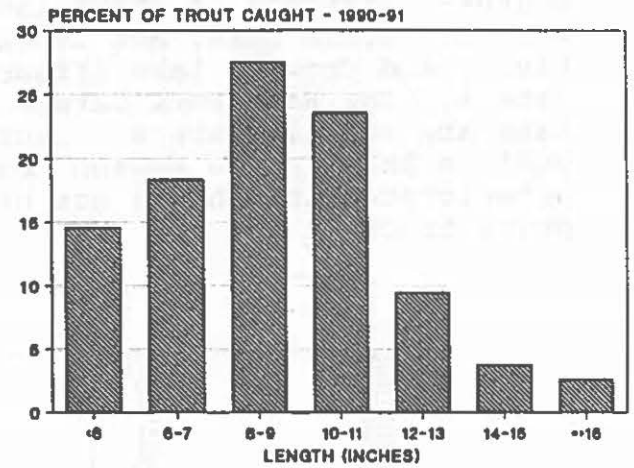


FIGURE 90. Percent by length of the trout anglers reported catching in the Sequoia National Park reach of the Kern River in 1990 and 1991.

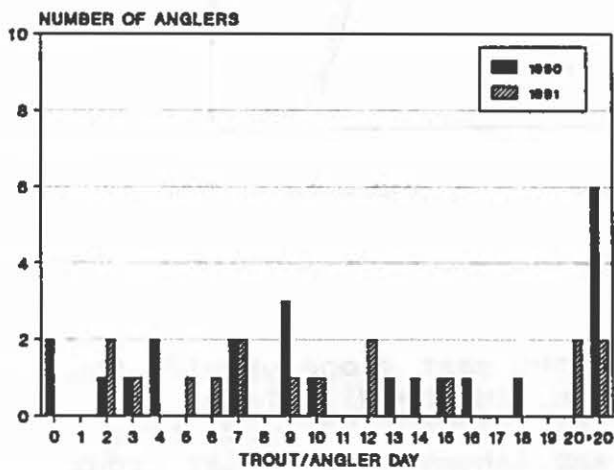


FIGURE 91. Number of anglers reporting catches of zero to >20 trout per day in the Sequoia National Park reach of the Kern River in 1990 and 1991.

EAST SLOPE SIERRA NEVADA WATERS

Eight east slope Sierra Nevada waters, five lakes and three streams, were surveyed. These waters are spread from the Truckee River drainage on the north to the Owens River drainage on the south--a distance of about 150 miles (Figure 92). Four of these waters, Martis Lake, Hot Creek (Figure 93), the upper Owens River, and Crowley Lake (Figure 94) are considered roadside waters. The East Fork Carson River, Kirman Lake, and McCloud Lake are walk-in waters. Laurel Lake has been accessible by vehicle late in the season, but the road into the lake has deteriorated and should not be tried in other than a 4-wheel drive truck.



FIGURE 92. Locations of waters surveyed on the east slope of the Sierra Nevada.

As a group, the lakes surveyed along the east slope provide the most diversified angling, species-wise, in the Wild Trout Program. Martis and Crowley lakes are rainbow and brown trout fisheries. Kirman Lake is a brook and Lahontan cutthroat trout fishery, and Laurel Lake is a golden trout fishery. The streams surveyed on the east slope are primarily rainbow and brown trout fisheries. In combination, these eight waters provide some of California's best trophy-trout angling.



FIGURE 93. Upper end of Hot Creek Gorge with eastern escarpment of the Sierra Nevada in the background.



FIGURE 94. Large rainbow trout caught by a float-tube angler on Crowley Lake.

Martis Lake

Martis was the first designated wild trout lake in California. From the late 1970's through the early 1980's, the lake provided angling for trophy-size Lahontan cutthroat trout. Due to competition from an increasingly abundant brown trout population, the cutthroat trout fishery declined sharply during the 1980's. For a few years, anglers had the opportunity to catch 2- to 5-pound brown trout. This fishery also declined as the brown trout became overpopulated in the mid-1980's. Currently, the fishery is sustained by wild brown trout and stocked and wild rainbow trout. In 1991, information on the fishery was collected by both an angler survey box and a season-long survey, conducted by members of the Tahoe-Truckee Fly Fishers. Since 1979, Martis Lake has been a catch-and-release only fishery.

Results. The very small database available from the angler survey boxes indicates the overall catch rate improved in 1991 (Table 20). However, 33 of the 57 trout reported in 1991 were caught by two anglers (Figure 95). If the catch of these two anglers were excluded from the survey, the overall catch rate in 1991 would be 0.34 trout/hour. Data from the much more extensive season-long survey showed an overall catch rate of 0.18 trout/hour. Based on angler survey box data, the percentage of brown trout ≥ 12 inches increased in 1991 while the percentage of rainbow trout decreased (Figures 96 and 97). Data on the lengths of brown trout ≥ 12 inches from both the angler box and season-long surveys were quite similar (91% vs 89%).

Table 20. Angling Success at Martis Lake in 1990 and 1991.

	<u>1990</u>	<u>1991</u>
Surveys received	22	25
Hours fished	65.00	80.00
Brown trout released	18	34
Rainbow trout released	8	23
Total trout released	26	57
Overall catch/hour	0.40	0.71
Mean trout/angler	1.2	2.3

Management Implications. The angler survey box information collected at Martis Lake in 1990 and 1991 was of limited value. Too little data were available from 1991 to carry out a meaningful comparison of a standard angler survey and an angler box survey. The management program at Martis Lake over the next 5 years was set by the larger database (the season-long survey). We recognize that the catch rates are too low to maintain a fishery attractive to most catch-and-release anglers and recommend several programs, including continued stocking of Eagle Lake rainbow trout. We also recognize that efforts to increase angler participation in the survey box program are needed. Survey box data will be utilized to monitor the fishery between repeat season-long angler surveys scheduled in 1994 and 1997.

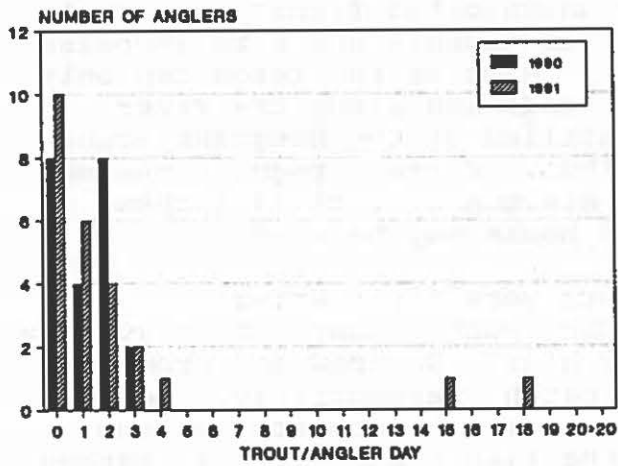


FIGURE 95. Number of anglers reporting catches of zero to 18 trout per day at Martis Lake in 1990 and 1991.

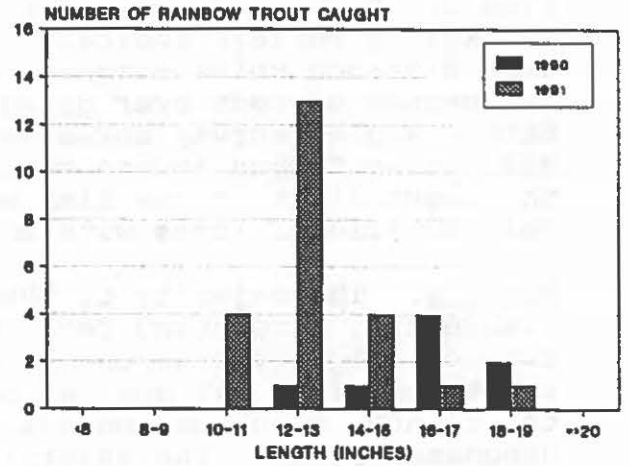


FIGURE 96. Number and lengths of rainbow trout anglers reported catching at Martis Lake in 1990 and 1991.

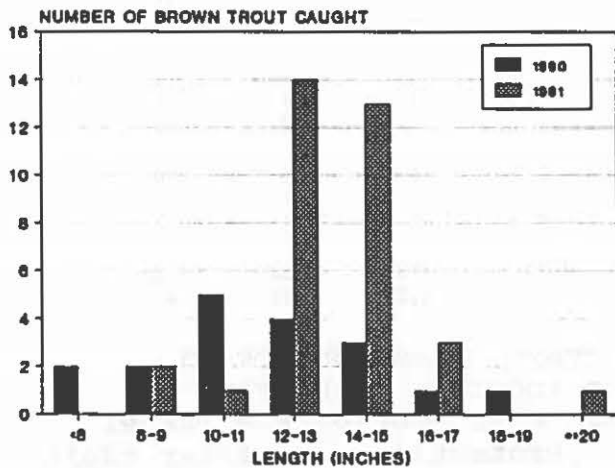


FIGURE 97. Number and lengths of brown trout anglers reported catching at Martis Lake in 1990 and 1991.

East Fork Carson River

The East Fork Carson River, from Hangmans Bridge to the Nevada state line, provides a popular wild trout fishery for rainbow, brown, and Lahontan cutthroat trout. Large mountain whitefish, also plentiful, are an essentially unexploited fishery resource. Snorkeling surveys indicate that trout numbers and size increase with distance below Hangmans Bridge. Most of the reach can only be reached on foot over gated dirt roads and along the river bars. Angler survey boxes were installed at the Hangmans Bridge and Scossa Canyon access sites in 1991. Current regulations set the trout limit at two fish with a minimum size of 14 inches. Only artificial lures with barbless hooks may be used.

Results. The majority of the anglers were fly fishing (Table 21), accounting for 83% of the trout caught, at an average rate of slightly over one trout per hour. Rainbow and brown trout comprised 74% and 24% of the catch, respectively. Some of the rainbow trout may be hatchery fish moving downstream from Hangmans Bridge. The majority of the fish reported, 67%, ranged in length from 10 to 14 inches (Figure 98). Trout ≥ 14 inches or longer comprised only 13% of the catch. Four out of 26 anglers caught >10 trout/day (Figure 99).

Table 21. Success of Lure and Fly Anglers on the East Fork Carson River in 1991.

	<u>Lure</u>	<u>Fly</u>	<u>Multiple</u>	<u>Combined</u>
Surveys received	2	21	4	27
Hours fished	2	91	13	106
Brown trout kept	0	0	0	0
Brown trout released	2	29	0	31
Total brown trout	2	29	0	31
Rainbow trout kept	1	3	0	4
Rainbow trout released	0	73	17	90
Total rainbow trout	1	76	17	94
Cutthroat trout kept	0	0	0	0
Cutthroat trout released	0	1	1	2
Total cutthroat trout	0	1	1	2
Overall catch/hour	1.50	1.16	1.38	1.20
Mean trout/angler	1.5	5.0	4.5	4.7

Management Implications. Angler surveys, electroshocking surveys, and snorkeling observations indicate that trout population levels are relatively low, with most of the larger fish confined to deep pool habitat. Protection of smaller adult trout through the size and limit restrictions should maintain the fishery and may help improve natural reproduction. Supplemental plants of fingerling brown trout have failed to increase population levels. Drought conditions and continuing input of mine tailings effluent in the lower East Fork Carson River are still potential sources of habitat degradation. Continued monitoring, especially in deepwater habitats, will be necessary to understand the population dynamics of the system.

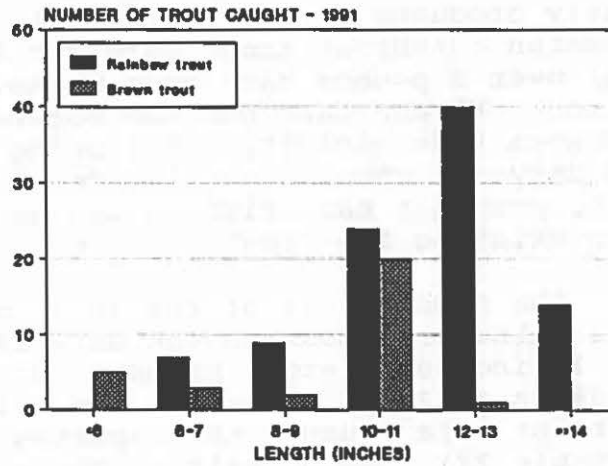


FIGURE 98. Number and lengths of rainbow and brown trout anglers reported catching on the East Fork Carson River in 1991.

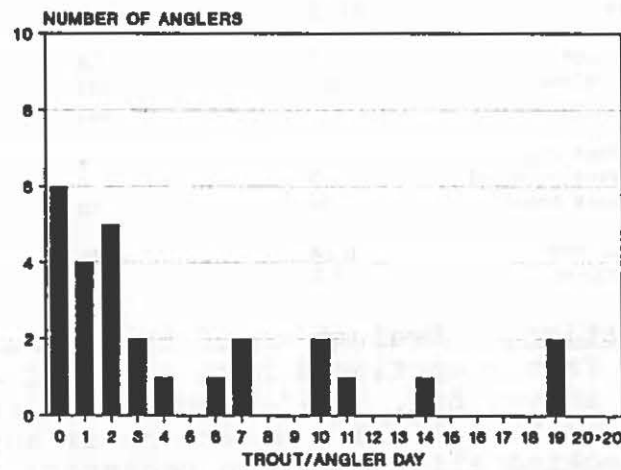


FIGURE 99. Number of anglers reporting catches of zero to 19 trout per day at the East Fork Carson River in 1991.

Kirman Lake

One of the best trophy brook trout fisheries in California is Kirman Lake located in the eastern Sierra near the West Walker River. This walk-in lake (3 miles one way) is very productive and has consistently produced large brook trout from stocked fingerlings. Lahontan cutthroat trout were stocked in the mid-1980's and several over 5 pounds have been taken. In addition to numerous trophy trout, Kirman Lake has the outstanding scenery surrounding the Sonora Pass vicinity. Following a trend of increased use and harvest, special angling regulations were modified in 1990 to prohibit bait fishing and add a 16-inch minimum size to an existing two-trout bag limit.

Results. In 1991, the second year of the 16-inch minimum size, anglers reported a marked increase in the size of brook trout. The proportion of 16-inch and larger brook trout in the catch increased from 5.5% to 49.2% (Figures 100 and 101). Although more large brook trout were caught, the reported catch rate dropped in 1991 (Table 22). About half of the anglers reported catching at least one trout (Figure 102). The reported number of cutthroat trout caught declined in 1991, despite surveys showing more than twice as many hours fished. Surveys also revealed that only 34% of anglers fishing from shore caught at least one trout while over 60% of float tube and boat anglers were successful.

TABLE 22. Angling Success at Kirman Lake in 1990 and 1991.

	1990	1991
Surveys received	83	167
Hours fished	337.3	716.25
Brook trout kept	7	58
Brook trout released	207	263
Total brook trout	214	321
Cutthroat trout kept	9	4
Cutthroat trout released	7	6
Total cutthroat trout	16	10
Overall catch/hour	0.68	0.46
Mean trout/angler	2.8	2.0

Management Implications. Evaluation of the fishery in Kirman Lake will benefit from a continued high level of cooperation from anglers using the survey box. Following trends in sizes and numbers of trout caught will help determine if any adjustments in the fingerling stocking allotments are necessary as a result of the change in angling regulations. Surveys showed that anglers gave high satisfaction ratings for the current special angling regulations. Maintaining the lake's production of trophy-size trout is a high priority. The apparent decline in numbers of cutthroat trout caught is not surprising since fingerlings were last stocked in 1986. It is time to evaluate the need for re-stocking cutthroats, which have provided many 20-inch and larger individuals to the catch in past years.

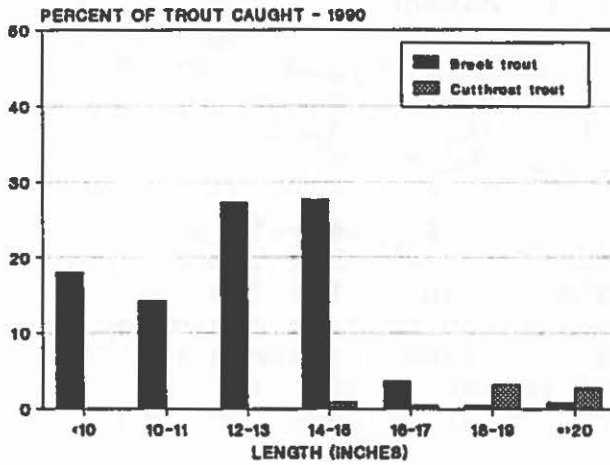


FIGURE 100. Percent by length of brook and Lahontan cutthroat trout anglers reported catching at Kirman Lake in 1990.

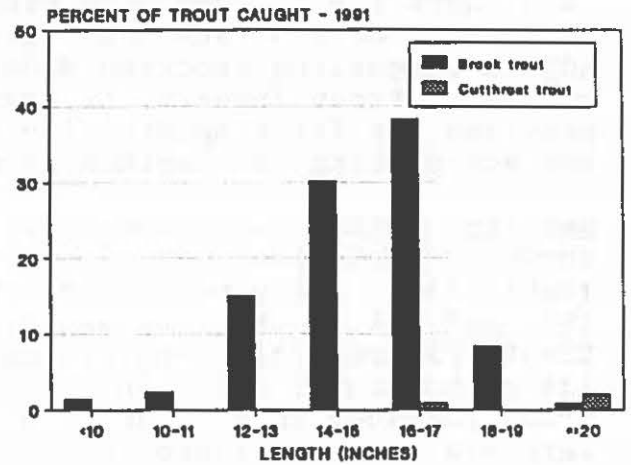


FIGURE 101. Percent by length of brook and Lahontan cutthroat trout anglers reported catching at Kirman Lake in 1991.

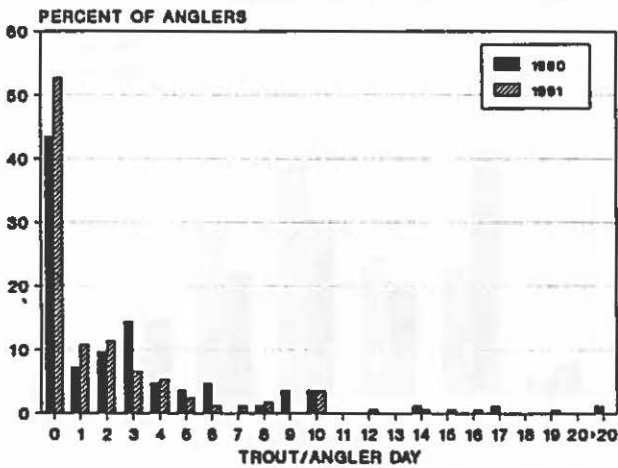


FIGURE 102. Percent of anglers reporting catches of zero to >20 trout per day at Kirman Lake in 1990 and 1991.

McCloud Lake

McCloud Lake, a small subalpine water, was one of the first lakes designated for catch-and-release only angling in California. It is the only cutthroat trout water in the Mammoth Lakes area and is a short 15- to 20-minute hike from the Mammoth Pass trailhead. Management of the lake has consisted primarily of gill netting to adjust fingerling stocking densities. Natural reproduction of cutthroat trout appears, at best, very limited. The survey box provided the first opportunity to collect angling data and may replace netting as a method of monitoring the trout population.

Results. Catch rates were low in comparison to the waters surveyed Statewide, but not in relation to most other lakes (Table 23). Fifty percent of the anglers fishing the lake in 1990 and 62% of the 1991 anglers released one or more cutthroat trout (Figure 103). Anglers catching >10 trout/day accounted for 13% of the total catch in 1990 and 10% in 1991. One of four trout released in 1990 and one of three trout released in 1991 were ≥ 12 inches (Figure 104).

TABLE 23. Angling Success at McCloud Lake in 1990 and 1991.

	1990	1991
Surveys received	66	52
Hours fished	141.00	127.50
Cutthroat released	99	101
Overall catch/hour	0.70	0.79
Mean trout/angler	1.5	1.9

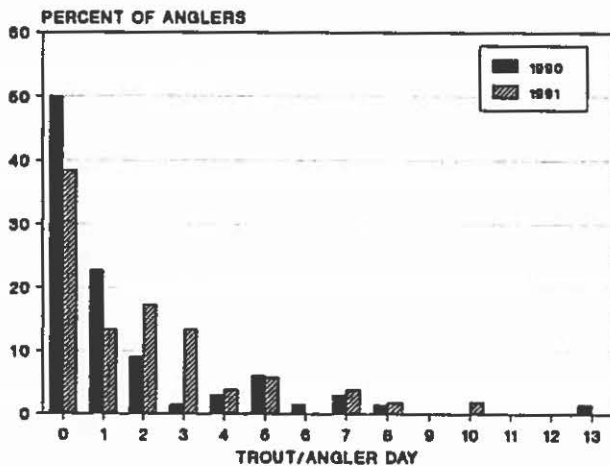


FIGURE 103. Percent of anglers reporting catches of zero to 13 trout per day at McCloud Lake in 1990 and 1991.

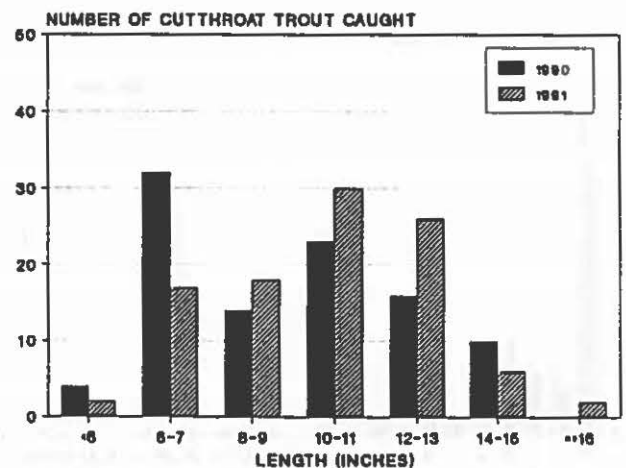


FIGURE 104. Number and length of Lahontan cutthroat trout anglers reported catching at McCloud Lake in 1990 and 1991.

Management Implications. Offering anglers the opportunity to catch ≥ 12 -inch cutthroat trout is the primary fisheries management goal for McCloud Lake. The stocking program appears to be maintaining fish densities at levels needed to achieve this goal.

Laurel Lake

Upper Laurel Lake is known to produce exceptionally large golden trout. The key to managing the lake for trophy size fish is to keep trout densities low. Recently, efforts to reduce the lake's trout population by curtailing fingerling stocking have been evaluated by gill-net and angler-box surveys. The netting survey indicated only a few, primarily larger trout, remained in the lake. Fingerling stocking was resumed in 1991 and, beginning in 1992, there will be a 14-inch minimum size limit.

Results. Two of 44 anglers in 1990 and one of 21 anglers in 1991 reported catching golden trout in Laurel Lake (Table 24). Catch rates, percentages of successful anglers, and trout/angler values were, consequently, the lowest statewide. One of six trout caught in 1990 was 10 to 11 inches in length, two were in the 12- to 15-inch range, and three ≥ 16 inches. The one trout recorded in 1991 was in the 6- to 7-inch range.

TABLE 24 . Angling Success at Upper Laurel Lake in 1990 and 1991.

	1990	1991
Surveys received	44	21
Hours fished	159	67.00
Golden trout kept	3	0
Golden trout released	3	1
Total golden trout	6	1
Overall catch/hour	0.04	0.01
Mean trout/angler	0.14	0.05

Management Implications. Angler surveys from 1991 confirmed the results from 1990 and the gillnet survey: except for possibly a rare large-size fish, it will take about 3 years for the lake to again provide trophy trout fishing. After that time, with the 14-inch minimum size restriction and necessary plants, the lake should sustain an attractive fishery from year to year. An effort should be made to inform anglers, who may otherwise travel to the lake expecting to catch large trout, that the fishing they desire will be available after 1993.

Hot Creek

Hot Creek has been recognized as the most productive one mile of wild trout stream in the western United States. It also has the distinction of being one of the few roadside fly-fishing only streams in California. Due to the ease in which it can be surveyed, Hot Creek has been used as an experimental wild trout fishery for the past 20 years. Currently, the Department is studying long-term changes in the fishery under a catch-and-release only angling regulation. Contrary to most waters, survey forms have not been distributed through boxes, but were placed on vehicle windshields by U.S. Forest Service personnel. Rather than the usual totals for hours fished and number of trout caught, results are reported in averages per angler day.

Results. The mean number of hours fished/day has remained fairly steady over a 7-year period (Table 25). The mean number of trout caught/day was highest (10.7) in 1985 and lowest (5.4 to 5.6) from 1989 through 1991. The average number of trout/day ≥ 12 inches in the catch has ranged from 2.1 to 3.1 and during the past three seasons has averaged 2.5/day. The lengths of brown trout anglers have reported catching in 1989 through 1991 has been fairly stable (Figure 105).

TABLE 25. Average Angler Success at Hot Creek from 1985 Through 1991.

	1985	1986	1987	1988	1989	1990	1991
Mean hours fished/day	4.3	4.0	4.2	4.5	4.1	4.2	4.1
Number released/day							
Brown trout	6.9	4.7	6.1	6.0	4.1	4.4	4.7
Rainbow trout	3.8	1.5	2.0	2.0	1.3	1.2	0.9
Total trout	10.7	6.2	8.1	8.0	5.4	5.5	5.6
Catch/hour							
Brown trout	1.62	1.16	1.44	1.34	0.98	1.03	1.14
Rainbow trout	0.88	0.38	0.48	0.44	0.32	0.27	0.22
Total trout	2.50	1.55	1.93	1.78	1.30	1.31	1.36
Lengths of trout released							
Number <12 inches	8.6	4.8	5.0	5.4	3.0	2.9	2.9
≥ 12 inches	2.1	1.4	3.1	2.6	2.4	2.5	2.7
Percentage <12 inches	80	77	62	67	55	54	52
≥ 12 inches	20	23	38	33	45	46	48

Management Implications. Results from angler surveys show little change in the fishery has occurred in the public reach of Hot Creek during the past 3 years. Immediately upstream on the Hot Creek Ranch, there have been reports of a declining fishery due to a complete absence of naturally reproduced young-of-the-year brown trout over the past 3 years. Upstream water diversions, increased sedimentation, and periodic water quality problems are assumed to be factors limiting natural reproduction on the Ranch. Through 1991, no significant changes were identified in the recruitment of brown trout downstream (Figure 106). Preliminary results from 1992, however, show an almost complete absence of young-of-the-year brown trout. Efforts are being made to clearly identify and correct any serious problems.

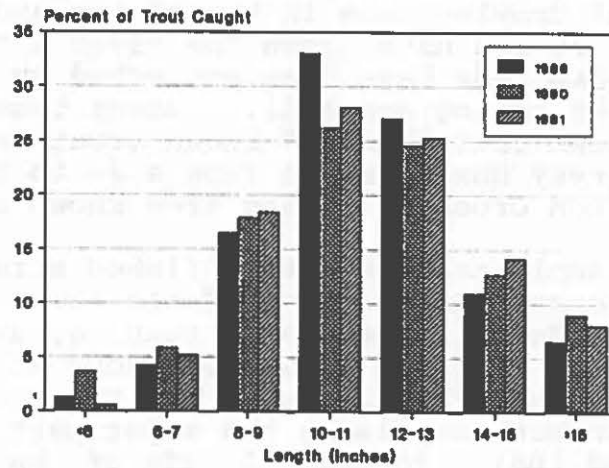


FIGURE 105. Lengths of brown trout anglers reported releasing at Hot Creek in 1989, 1990, and 1991.

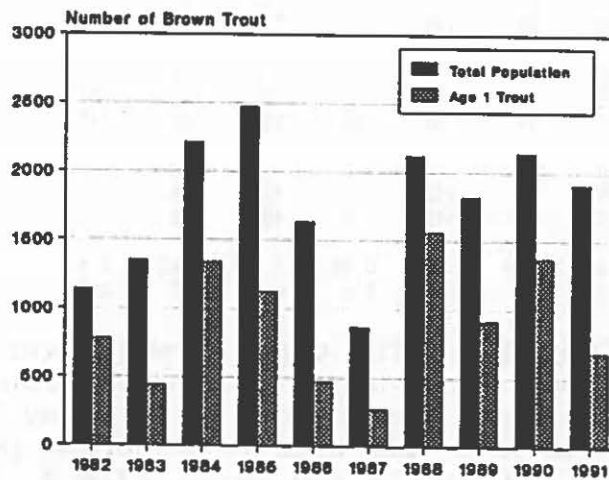


FIGURE 106. Estimated total and age 1 brown trout populations in a 400-meter section of the Hot Creek Gorge from 1982 through 1991.

Upper Owens River

A short reach of the upper Owens River below its origin at Big Springs and several miles of stream in the Benton Crossing area above Crowley Lake are open to the public. Rainbow trout migrating out of Crowley Lake in the winter and early spring and a fall brown trout run have given the river a "big trout" reputation. Those runs have been protected by an 18-inch minimum size limit in the spring and fall. Recent trout population surveys have shown that "lunker" brown trout reside in the river year-round. Survey box data are from a 2- to 3-mile reach of river above Benton Crossing in the area known as "Long Ears".

Results. The sample reach has been fished primarily by fly anglers over the past two seasons (Table 26). Catch rates have been fairly good for all methods of fishing, averaging 1.48 trout/hour in 1990 and 1.31 trout/hour in 1991. The size structure of both the rainbow and brown trout catch are similar, with fish <12 inches comprising the major part of the fishery (Figures 107 and 108). In 1990-91, 13% of the rainbow trout and 19% of the brown trout were ≥12 inches. Fifteen out of 624 rainbow trout (2%) and 15 out of 550 brown trout (3%) during the past two seasons were ≥18 inches (Figure 109). An average of 15% of the anglers reported catching ≥10 trout/day in 1990-91 (Figure 110).

Table 26. Success of Bait, Lure, and Fly Anglers on the Upper Owens River in 1990 and 1991.

	Bait		Lure		Fly		Multiple		Combined	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Surveys received	24	27	31	12	83	61	11	-0-	149	100
Hours fished	98	92	115	34.5	270	174.75	46.5	-	529.5	301.25
Rainbow trout kept	30	15	10	1	6	0	0	-	46	16
Rainbow trout released	61	26	76	21	246	120	13	-	396	167
Total rainbow trout	91	41	86	22	252	120	13	-	442	183
Brown trout kept	20	27	5	2	6	2	0	-	31	31
Brown trout released	35	38	112	7	150	136	12	-	309	181
Total brown trout	55	65	117	9	156	138	12	-	340	212
Overall catch/hour	1.49	1.15	1.77	0.90	1.51	1.48	0.54	-	1.48	1.31
Mean trout/angler	6.1	3.9	6.5	2.6	4.9	4.2	2.3	-	5.2	4.00

Management Implications. The upper Owens River has not, at least in the area sampled, lived up to its reputation as a trophy-trout fishery during the past two seasons. This may be in part due to an apparent reduction in the wild brown trout population in Crowley Lake. In the 1960's and early 1970's, about 40% of the trout captured in pre-season gill-net surveys were wild brown trout. Now, based on current studies, the wild brown trout population in the lake appears to be appreciably less abundant. Reduced flows in the river during the current drought may have had a negative impact on the spawning run. In 1992, several miles of public water above Benton Crossing will have an 18-inch minimum size restriction throughout the season.

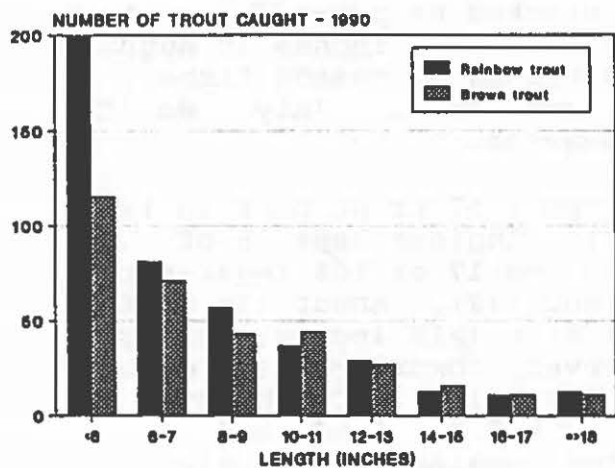


FIGURE 107. Number and lengths of rainbow and brown trout anglers reported catching at the upper Owens River in 1990.

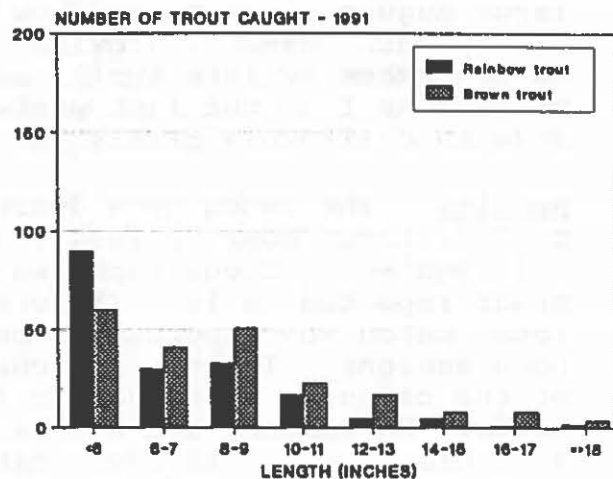


FIGURE 108. Number and lengths of rainbow and brown trout anglers reported catching at the upper Owens River in 1991.

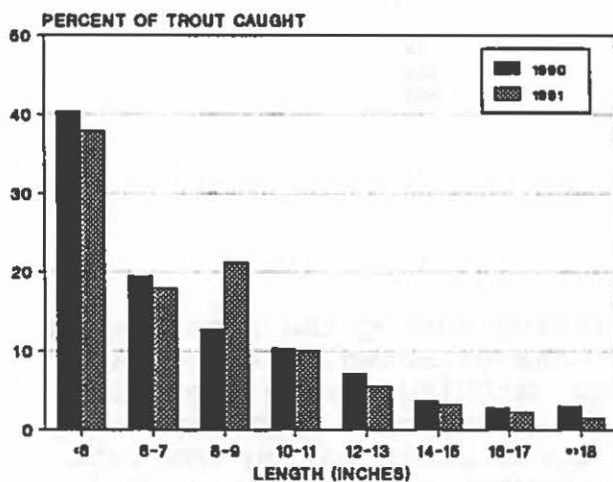


FIGURE 109. Comparison of the lengths of trout anglers reported catching at the upper Owens River in 1990 and 1991.

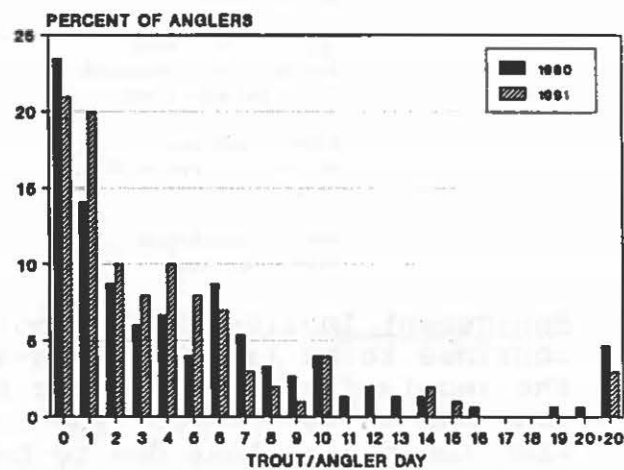


FIGURE 110. Percent of anglers reporting catches of zero to >20 trout per day at the upper Owens River in 1990 and 1991.

Crowley Lake

The late season fishery at Crowley Lake, August 1 through October 31, has become very popular with fly anglers from southern California. An 18-inch minimum size limit protects a large August plant of rainbow trout stocked as put-and-grow fish. This plant, commonly growing from about 6 to 7 inches in August to 12-inches by late April, sustains the early season fishery which runs from the last weekend in April through July. No other lake in California offers two such seasons.

Results. The catch rate decreased from 1.67 trout/hour in 1990 to 1.03 trout/hour in 1991 (Table 27). Anglers kept 26 of 121 legal-size trout reported in 1990 and 17 of 108 legal-size trout reported in 1991 (Figures 111 and 112). About 13% of the total catch was reported to be legal size (≥ 18 inches) during both seasons. Trout ≥ 12 inches, however, comprised 24% to more of the catch in 1991 than in 1990 (Figure 113). Catch rates in August, September, and October 1990 were 1.20, 1.53, and 2.12 trout/hour. In 1991, catch rates remained relatively unchanged through the season. Most anglers, 270 out of 295 participating in the surveys, fished from a float tube. Thirty percent of the anglers in 1990 and 11% in 1991 caught >10 trout/day (Figure 114). In 1990 and 1991, these anglers accounted for 65% and 37% of the total catch, respectively.

TABLE 27. Angling Success at Crowley Lake in 1990 and 1991.

	1990	1991
Surveys received	118	177
Hours fished	572.50	872.75
Rainbow trout kept	22	14
Rainbow trout released	905	834
Total rainbow trout	927	848
Brown trout kept	4	3
Brown trout released	25	51
Total brown trout	29	54
Overall catch/hour	1.67	1.03
Mean trout/angler	8.1	5.1

Management Implications. Anglers fishing during the late season continue to be largely catch-and-release oriented. About 20% of the legal-size trout anglers reported catching during the past two seasons were kept. The total number of trout kept combined with the number lost due to hooking mortalities during the late season is estimated to be $<5\%$ of the number of trout harvested during the early season. Compared to a study conducted in 1987, the number of legal-size trout caught during the 1990-91 late-seasons was down sharply. Over 95% of the trout observed in the creel during the early season in 1991 were hatchery reared according to Curtis Milliron, Department biologist studying the lake. It is possible that a decrease in the number of wild trout entering the fishery during the current drought accounts for part of the decline in larger trout.

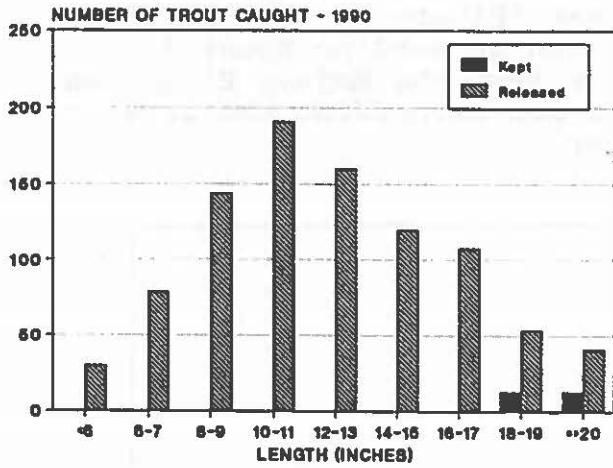


FIGURE 111. Number and lengths of trout anglers reported keeping or releasing at Crowley Lake in 1990.

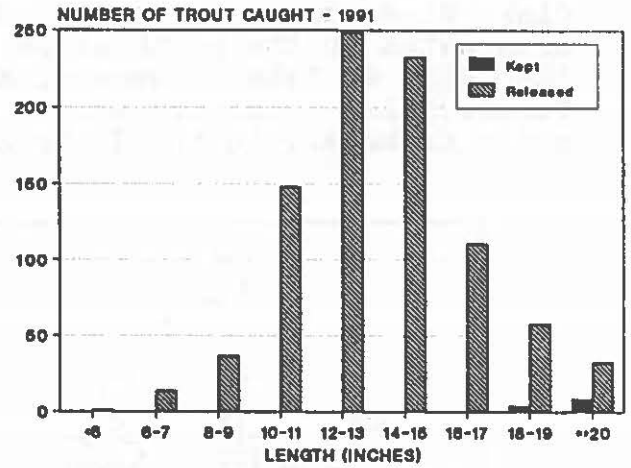


FIGURE 112. Number and lengths of trout anglers reported keeping or releasing at Crowley Lake in 1991.

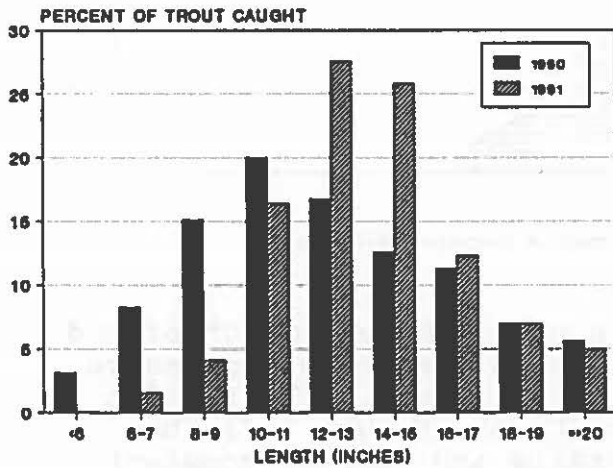


FIGURE 113. Comparison on the lengths of trout anglers reported catching at Crowley Lake in 1990 and 1991.

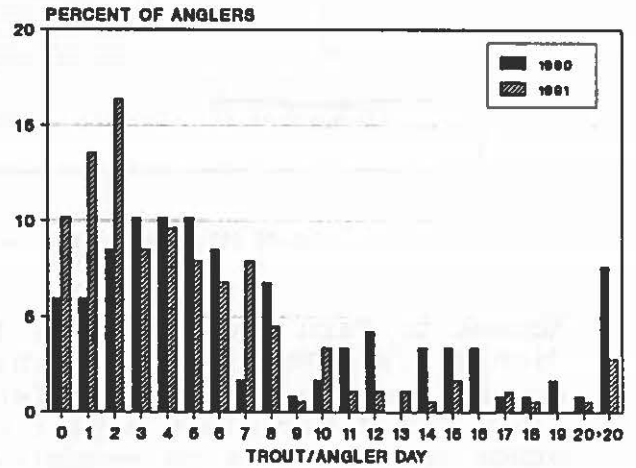


FIGURE 114. Percent of anglers reporting catches of zero to >20 trout per day at Crowley Lake in 1990 and 1991.

SOUTHERN CALIFORNIA WATERS

Three designated streams, Piru Creek, Deep Creek, and Bear Creek, were surveyed in Southern California. Piru Creek is located about 40 miles northwest of downtown Los Angeles in the Santa Clara River drainage below Pyramid Lake (Figure 115). Deep Creek originates on the north slope of the San Bernardino Mountains, just east of Lake Arrowhead, and flows into the Mojave River near Victorville. Bear Creek lies east of San Bernardino and is a major tributary to the Santa Ana River.

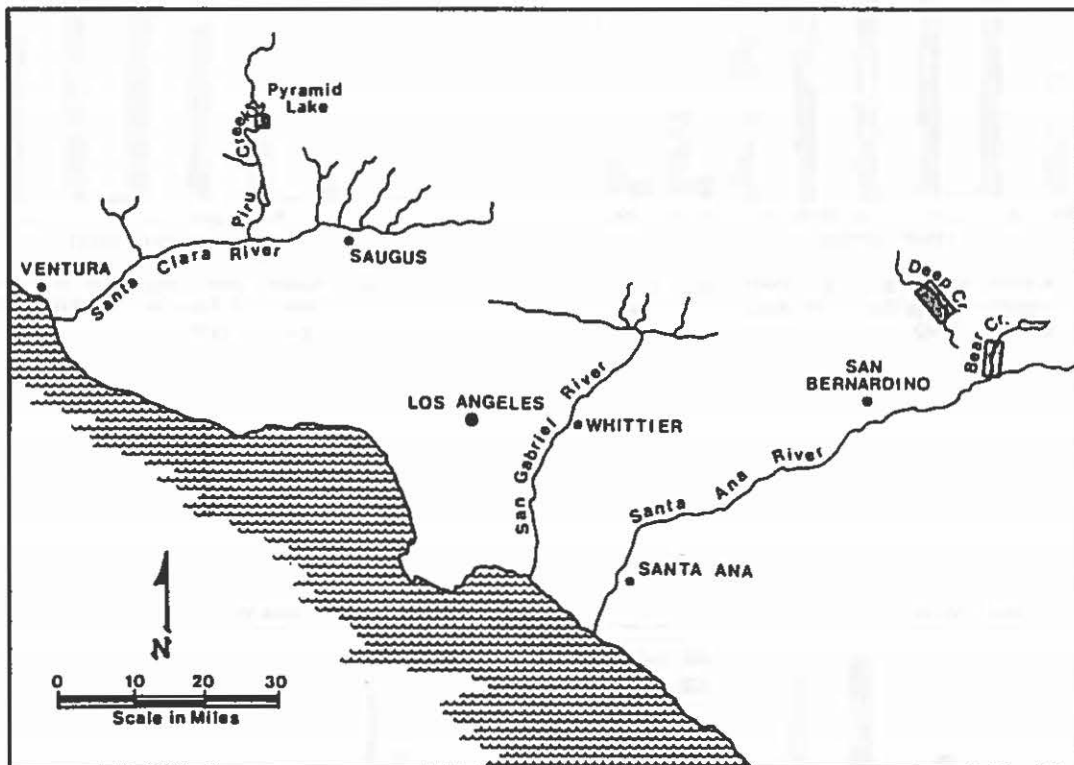


FIGURE 115. Locations of waters surveyed in southern California.

Access to Piru Creek (Figure 116) is provided by a reach of Old Highway 99. Parking along the highway puts anglers just above or, at most, a few hundred feet from the stream. The Pacific Crest Trail parallels a part of Deep Creek (Figure 117), but other reaches have no established trails and require constant scrambling over boulders or along rough terrain. There are no established streamside trails providing access to Bear Creek.

In general, trout densities in southern California streams are high, but few fish are ≥ 12 inches. Brown trout have been stocked in Piru Creek, but are rare in the catch. Brown trout, including an occasional trophy-size fish, are an important component of the Deep Creek fishery and the mainstay of the Bear Creek fishery.

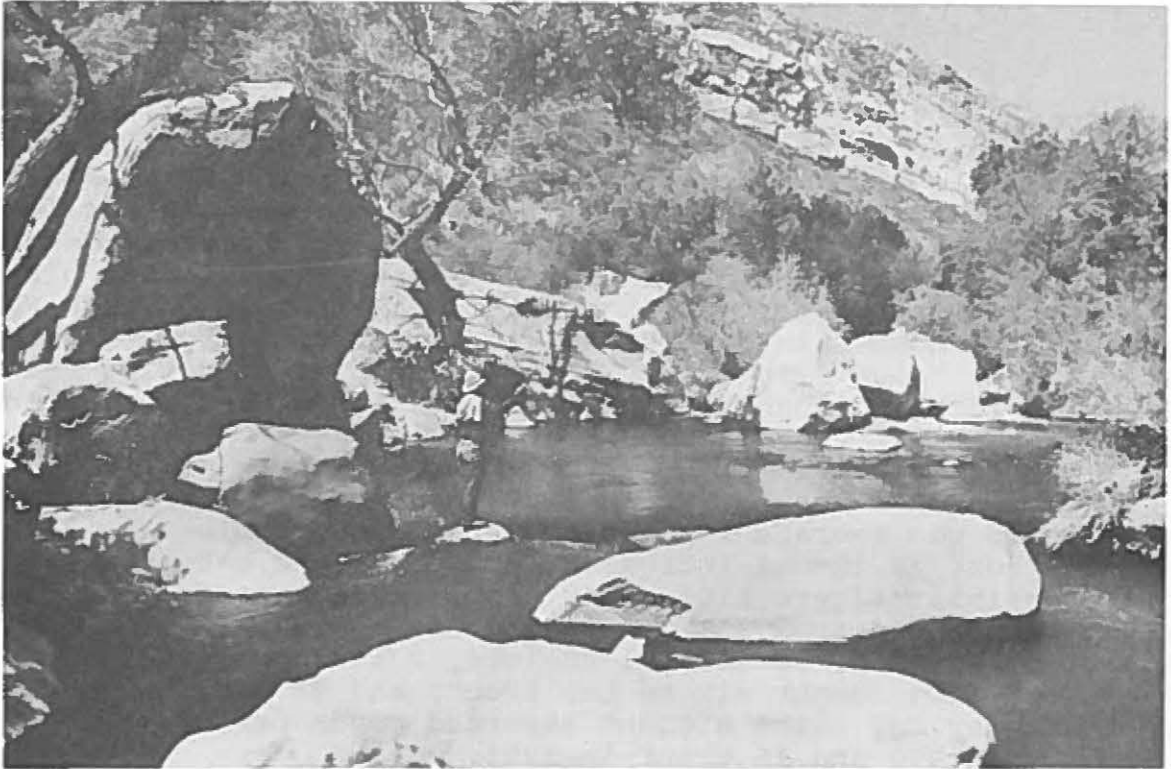


FIGURE 116. Catch-and-release section of Piru Creek below Pyramid Lake.

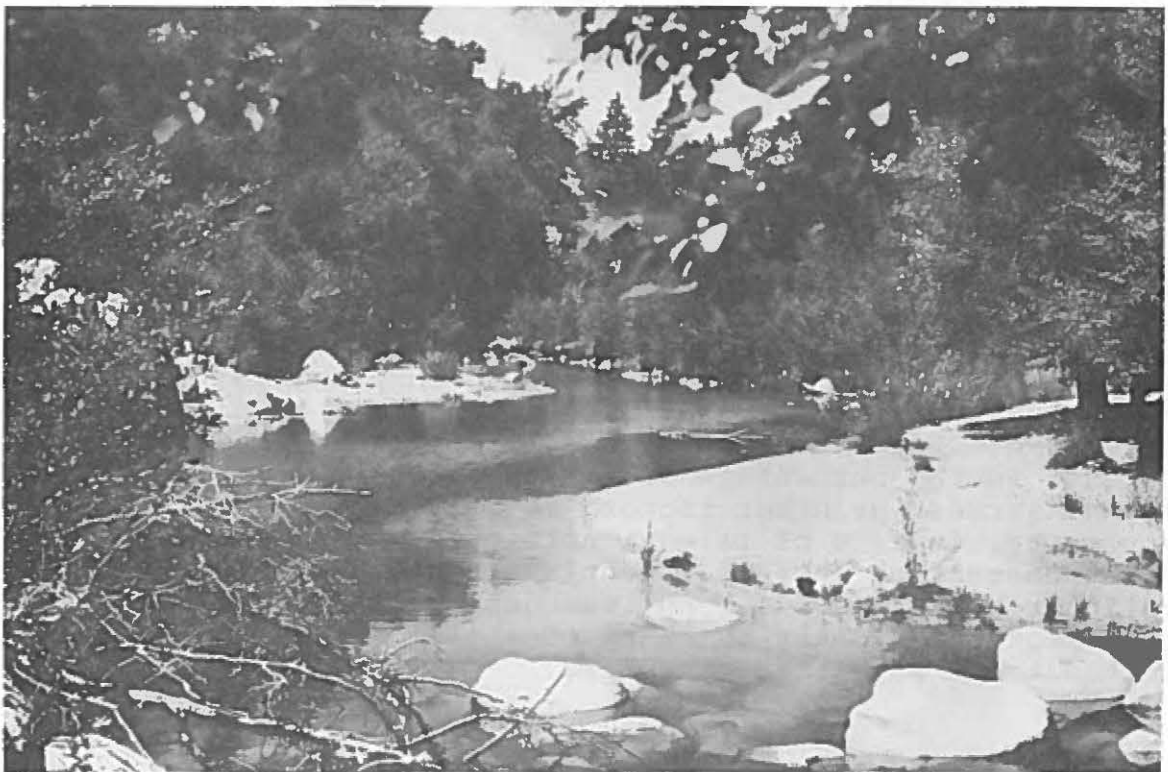


FIGURE 117. Deep Creek at Devil's Hole.

Piru Creek

Piru Creek is the only roadside stream in southern California managed as part of the Statewide Wild Trout Program. Currently, the 1-1/4 mile section from the first bridge below Pyramid Lake to the "falls" is restricted to catch-and-release only angling. The adjoining 1-1/4 mile section downstream is stocked. Natural stream flow levels during the spring, summer and fall are often enhanced by water imported into Pyramid Lake from the State Water Project. Without this supplement, it is very doubtful that a wild rainbow trout fishery would have been present during the recent prolonged drought. The survey box is located at the lower end of the special regulation area.

Results. Catch rates (1.17 and 0.77 trout/hour) were low in relation to the average for streams statewide (Table 28). Rainbow trout ≥ 8 inches increased from 9% of the catch in 1990 to 23% in 1991 (Figure 118). Anglers catching one or more trout per day decreased from 83% in 1990 to 65% in 1991 (Figure 119). Within the group of successful anglers, 73% caught one to five trout, 20% caught six to ten trout, and 7% caught more than ten trout per day. The highest reported catch per day was 12 trout in 1990 and 16 trout in 1991.

TABLE 28. Angling Success on Piru Creek in 1990 and 1991.

	<u>1990</u>	<u>1991</u>
Surveys received	59	88
Hours fished	193.00	300.75
Rainbow released	226	232
Overall catch/hour	1.17	0.77
Mean trout/angler	3.8	2.6

Management Implications. Development of the wild trout fishery at Piru Creek has encountered a unique and disheartening problem. During 1991, the local warden cited over 20 people for illegally netting trout in Piru Creek. One group of netters had over 200 trout in their possession when cited. It was assumed that catch rates, given the Department's experience elsewhere, should have increased under catch-and-release only angling regulations. In 1991, catch rates for lure and fly anglers were appreciably lower than during the 1988-89 baseline period. Whether the increase in the percentage of larger trout is a product of reduced harvest or other factors is difficult to assess. The detrimental impacts of illegal netting on the fishery has led to a postponement of the Department's planned 1992 evaluation of angling regulations. Current management plans include continuing to monitor the fishery by means of angler survey box data and limited trout population sampling.

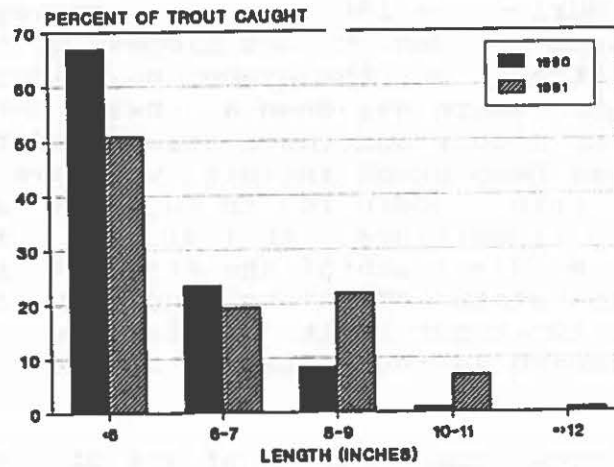


FIGURE 118. Comparison of the lengths of rainbow trout anglers reported catching at Piru Creek in 1990 and 1991.

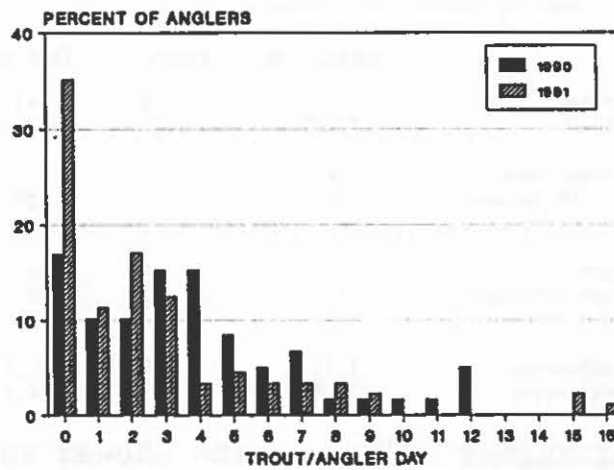


FIGURE 119. Percent of anglers reporting catches of zero to 16 trout per day at Piru Creek in 1990 and 1991.

Deep Creek

Deep Creek was recognized as one of southern California's more important wild trout resources shortly after the Wild Trout Program began. Fish populations in the stream were monitored almost annually during the 1980's. These surveys showed a direct correlation between the density and biomass of the trout populations and streamflows the preceding summer. With the continuing drought, there has been a growing concern that trout populations in the middle and lower reaches of the stream would be lost. For some Deep Creek anglers, who have enjoyed fishing for brown trout, this concern led to suggestions that the stream be restocked with fingerlings. In 1991, two survey boxes were installed in the middle reach of the stream to provide information on the status of rainbow and brown trout fisheries. The stream has a two-trout limit. Anglers must release trout <8 inches and fishing is restricted to barbless artificial lures only.

Results. Brown trout comprised about 25% of the catch reported at both Splinter's Cabin and Devils Hole (Table 29). As expected, the brown trout caught were generally larger. Thirty percent of the brown trout were ≥ 10 inches while only 8% of the rainbow trout were ≥ 10 inches (Figure 120). Anglers released about 90% of the total trout they caught and about 80% of the trout caught that were ≥ 10 inches in length (Figure 121). Thirty-six of the 41 anglers turning in surveys caught one or more trout (Figure 122). Anglers participating in the 1991 survey caught an average of 4.9 trout/day.

Table 29. Angling Success in Two Reaches of Deep Creek in 1991.

	<u>Splinters Cabin</u>	<u>Devils Hole</u>	<u>Combined</u>
Surveys received	23	18	41
Hours fished	98.75	59.50	158.25
Rainbow trout kept	4	7	11
Rainbow trout released	91	46	137
Total rainbow trout	95	53	148
Brown trout kept	4	8	12
Brown trout released	31	10	41
Total brown trout	35	18	53
Overall catch/hour	1.32	1.19	1.27
Mean trout/angler	5.7	3.9	4.9

Management Implications. The results showed that during 1991 both the rainbow and brown trout fisheries in Deep Creek were still intact. The number of trout <6 inches reported and the overall size structure of trout caught suggests that both the rainbow and brown trout populations spawned successfully during drought. With the above normal precipitation during the past winter, trout production in 1992 should improve.

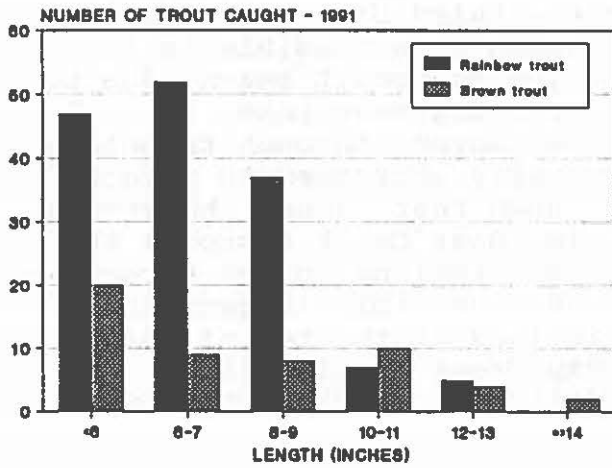


FIGURE 120. Number and lengths of rainbow and brown trout anglers reported catching at Deep Creek in 1991.

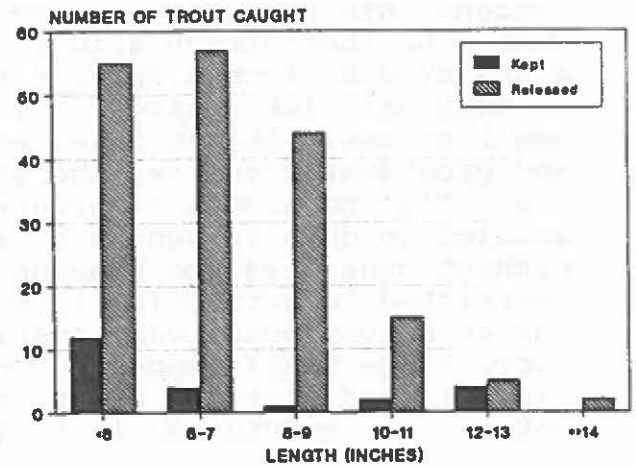


FIGURE 121. Number and lengths of trout anglers reported keeping or releasing at Deep Creek in 1991.

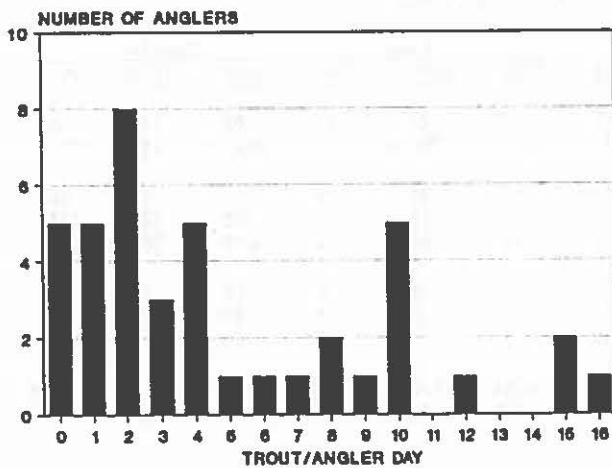


FIGURE 122. Number of anglers reporting catches of zero to 16 trout per day at Deep Creek in 1991.

Bear Creek

Bear Creek flows from Big Bear Lake to the Santa Ana River. The upper two-thirds of the stream runs through a steep-walled canyon with no trails paralleling the creek. Three trails, however, descend into the canyon. The lower one-third of the stream flows down a boulder-strewn alluvial wash which is accessible in two areas by U.S. Forest Service roads. The uppermost reach, due to an extremely low outflow (1/10 cfs) from Big Bear Lake, is a small stream. At the lower end of the canyon, through tributary and groundwater inflow, the stream usually increases to several cfs. Fish populations surveys have shown that, among the streams studied to date in southern California, Bear Creek supports the highest densities and biomass of trout. Angling on the stream is restricted to artificial lures only and the limit is two trout. Angler survey boxes were installed in 1989 at the top of the Glory Ridge Trail (upper canyon), Camp Creek Trail (middle canyon), and near the canyon mouth (alluvial wash). The lower box was not maintained in 1991.

Results. Combined catch rates during the three survey years were similar, averaging 1.91 trout/hour (Table 30). An average of 9% of the trout caught over the 3-year period were kept. The canyon mouth reach produced the highest percentages of trout ≥ 10 inches (Figures 123, 124 and 125). Twenty-eight percent of the anglers fishing this reach in 1989 and 32% in 1990 caught >10 trout/day (Figure 126). The trout caught by anglers in this category accounted for 837 out of 1,183 trout caught in the canyon mouth reach in 1989-90.

Table 30. Angling Success in Three Reaches of Bear Creek in 1989, 1990, and 1991.

	Canyon Mouth		Camp Creek			Glory Ridge			Combined		
	1989	1990	1989	1990	1991	1989	1990	1991	1989	1990	1991*
Surveys received	39	84	12	4	15	17	22	21	68	110	36
Hours fished	162.50	346.50	41.00	14.00	43.00	61.25	76.50	70.50	264.75	437	113.50
Brown trout kept	11	15	16	1	12	4	21	8	31	37	20
Brown trout released	350	687	18	15	97	20	24	66	388	726	163
Total brown trout	361	702	34	16	109	24	45	74	419	763	183
Rainbow trout kept	9	1	10	0	4	1	2	0	20	3	4
Rainbow trout released	26	84	6	31	22	7	2	5	39	117	27
Total rainbow trout	35	85	16	31	26	8	4	5	59	120	31
Overall catch/hour	2.44	2.27	1.22	3.36	3.14	0.52	0.64	1.12	1.81	2.02	1.89
Mean trout/angler	10.2	9.4	4.2	11.8	9.0	1.9	2.2	3.8	7.0	8.0	5.9

* No data from the canyon mouth survey box.

Management Implications. Despite the low flows, especially during the drought, the canyon mouth reach of stream produced high catch rates and, for southern California, good numbers of trout ≥ 10 inches. It also appears, based on the number of forms received, that the canyon mouth reach also received the highest angler use. Lower catch rates in the uppermost area may be related to lower trout populations present, angling conditions, or other factors as yet not identified.

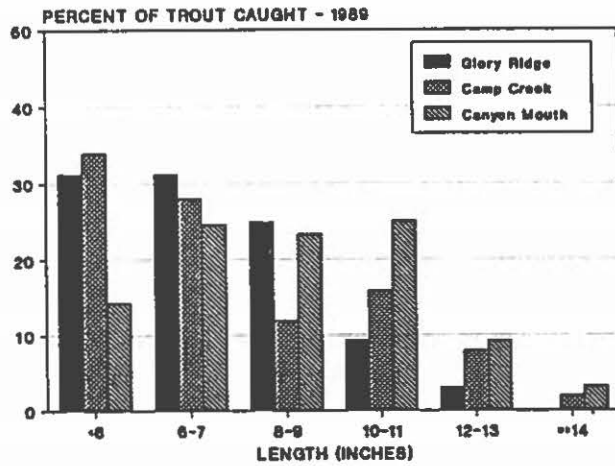


FIGURE 123. Comparison of the lengths of trout anglers reported catching in three reaches of Bear Creek in 1989.

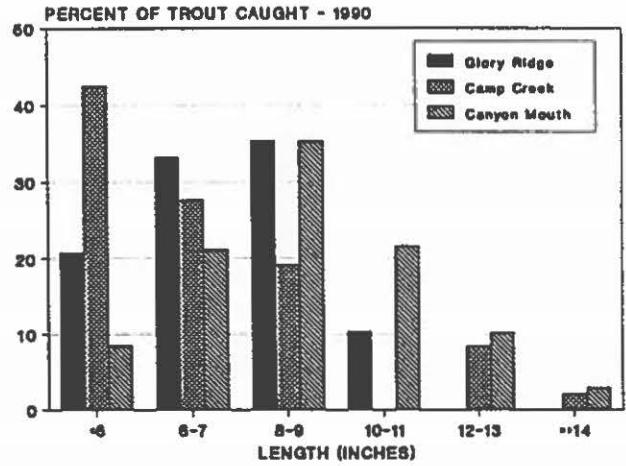


FIGURE 124. Comparison of the lengths of trout anglers reported catching in the three reaches of Bear Creek in 1990.

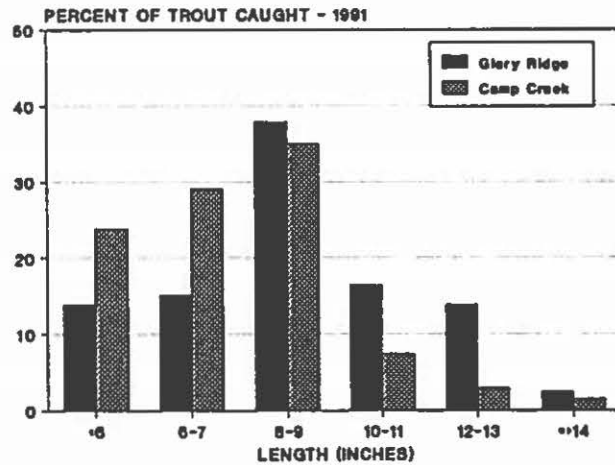


FIGURE 125. Comparison of the lengths of trout anglers reported catching in the upper two reaches of Bear Creek in 1991.

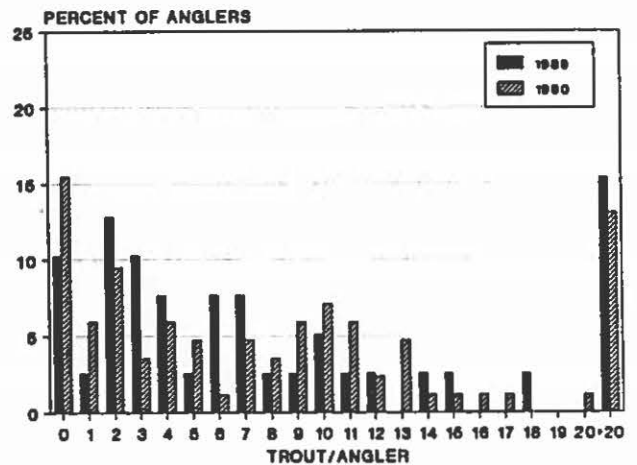


FIGURE 126. Percent of anglers reporting catches of zero to >20 trout per day in the canyon mouth reach of Bear Creek in 1989 and 1990.

