State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Northern District

SUMMARY OF OPERATIONS

FOR

WATERMASTER SERVICE IN NORTHERN CALIFORNIA

1996 Season

December 1997

PETE WILSON
Governor
State of California

DOUGLAS P. WHEELER
Secretary for Resources
The Resources Agency

DAVID N. KENNEDY
Director
Department of Water Resources

FOREWORD

This report describes the watermaster service provided by the Department of Water Resources to areas in Northern California during the 1996 irrigation season. Authority for its preparation and publication is stated in the California Water Code, Division 2, Part 4, Chapter 7.

This report presents information about 1996 watermaster service in two sections. The first section gives general introductory information about water rights, water supply, service areas, and watermaster duties. The second section describes the 15 active service areas. Thirteen of these service areas are served by Northern District watermasters. The other two service areas, Indian Creek and Middle Fork Feather River, are in the vicinity of DWR's Beckwourth Field Office and are served by watermasters of the Division of Operations and Maintenance, Oroville Field Division. Each of these service area descriptions gives detailed information on the area, the basis of watermaster service, sources of water supply, methods of distribution, 1996 water distribution, and personnel used.

Naser J. Bateni, Chief
Northern District

TABLE OF CONTENTS

15 areas

FIGURES

TABLES

(Table Numbers 14, 19, 51 and 54 were eliminated from the report this year.)

TABLES (Continued)

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INTRODUCTION

Purpose and Benefits

The main purpose of watermaster service is to distribute water according to established water rights. This is done by apportioning to the rightful users the available supplies in streams that have had water right determinations.

Distribution of water in watermaster service areas is the lawful duty of the Department of Water Resources as directed in Part 4 of Division 2 of the California Water Code. Under watermaster service, water right holders are assured that their rights are protected without their having to take legal action against other users.

A major benefit of watermaster service to water users and the State is that court litigation and violent conflict, which in the past happened often, are now rare. Also, available supplies of water are better used, as waste is reduced through careful management.

Because both the water right holders and the State receive benefits from watermaster service, the costs of performing the service are shared. The State General Fund pays one-half of the cost of operating each service area and the water right holders in the service area pay the other half. Individual users' shares are determined in accordance with Article 3 of Chapter 7 of the above-mentioned Part 4 of Division 2 of the Water Code. Although this work is done as efficiently as possible, considerable public funds are needed to maintain skilled representatives in the field during the dry months of the growing season and maintain administrative support. Most clients find the benefits of fair, reliable, and comparatively worry-free distribution of water to be far superior to doing without State watermaster service.

Determination of Water Rights

Many of the streams under State watermaster service have had their water rights defined by the courts under one of three adjudication procedures. These judgments establish each holder's rights in terms of rate of diversion, season of use, point of diversion, and place of use. They also establish priorities whereby each holder's rights are ranked according to the rights of all other decreed holders. Under this system, all rights of any one priority must be fully satisfied before water can be diverted to holders of lower priority rights. The determinations of the courts are commonly called decrees.

Water rights decisions necessary for establishing watermaster service areas are accomplished by the following methods: (1) a statutory adjudication which defines all water rights on the stream; (2) a court adjudication which results when two or more

parties have their water rights defined; and (3) a court reference whereby the State Water Resources Control Board makes an investigation and reports to the court regarding water rights of the parties involved.

Statutory Adjudication

The California Water Code (Sections 2500-2900) gives a procedure whereby water users of any stream may petition SWRCB, Division of Water Rights, to make a legal determination of all water rights on that stream. If SWRCB finds that such a determination is in the best public interest, it proceeds with a legally binding decision. This results in a court decree that defines all water rights on the stream.

Figure 1 contains a location map of the service areas, the number of decreed holders, and the amounts of water rights for each area. Table 1 lists the water right, Superior Court decrees, and their type.

Court Adjudication

A less extensive method of defining water rights is the "court adjudication" procedure. This type of adjudication results when two or more parties involved in a water rights dispute seek a solution to their problem under civil law. A decision handed down in such a civil action determines only the water rights of the parties involved in the action and therefore does not necessarily define all water rights on the stream. As a result, serious conflicts sometimes arise between decreed water right holders and persons claiming longer-standing riparian or appropriative rights that were not specified in the decree.

Court Reference

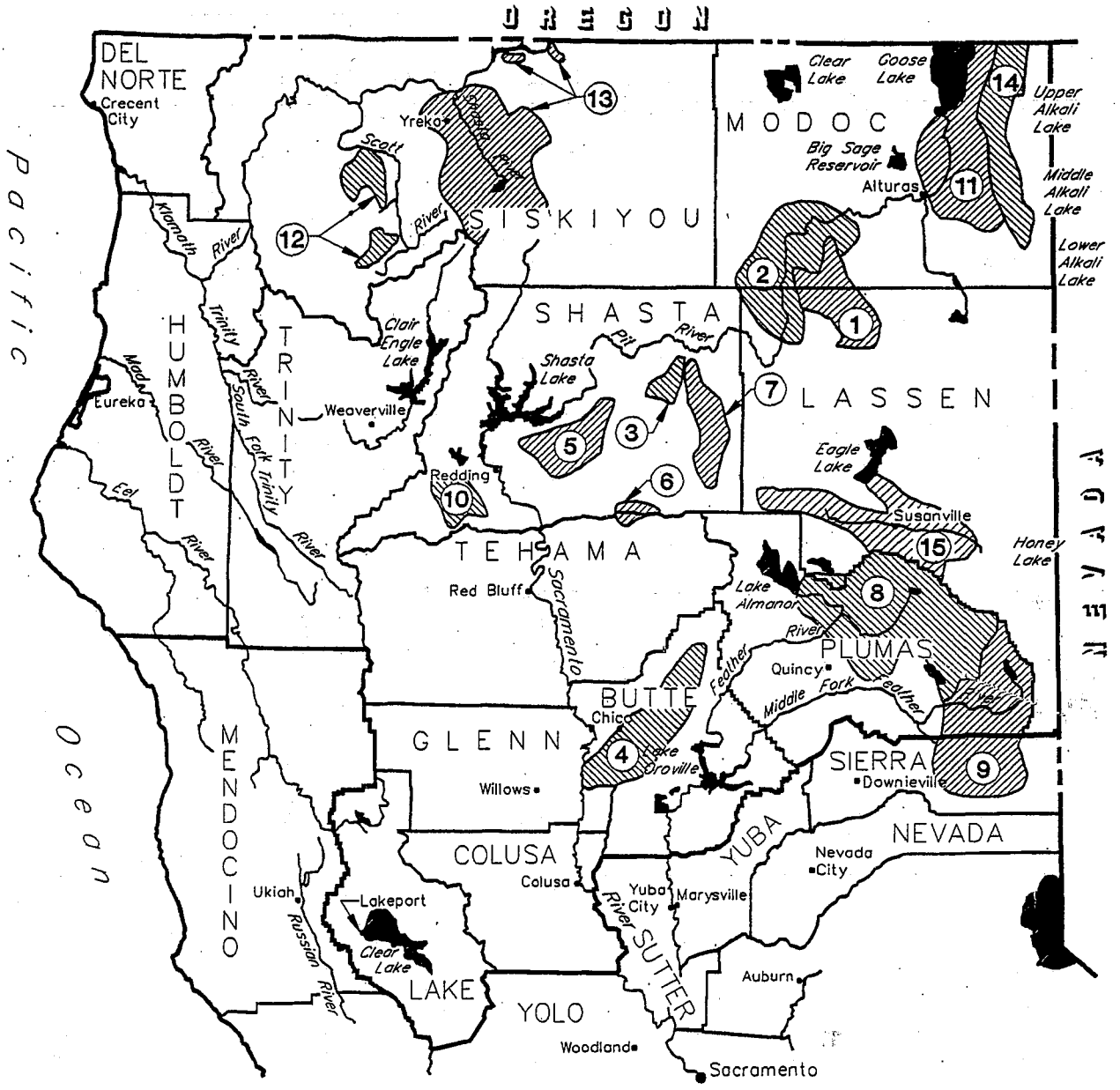
The "court reference" type of adjudication arises when a civil action, as discussed, is referred to SWRCB for a determination under authority contained in Sections 2000-2076 of the Water Code. SWRCB's report becomes the basis for the court's decision. As in court adjudications, a court referee determines only the water rights of the parties involved in the action.

Non-Judicial Decisions

A permit or "license to appropriate" can be issued by SWRCB, or agreement can be reached by mutual consent of the water users involved.

Watermaster Service Areas

Figure 1



1996 Decreed Water Rights

Service Area	Number of Decreed Water Users	Total Decreed Water Rights ft3/s
1. Ash Creek	40	123.560
2. Big Valley	58	206.730
3. Burney Creek	11	33.090
4. Butte Creek	50	432.396
5. Cow Creek	104	60.426
6. Digger Creek	106	23.226
7. Hat Creek	88	135.744 1/
8. Indian Creek	53	96.715
9. N.F. Feather River	128	378.738
10. N.F. Cottonwood Creek	12	29.050
11. N.F. Pit River	114	244.264 2/
12. Scott River	103	127.600
13. Shasta River	217	625.637 3/
14. Surprise Valley	181	373.020
15. Susan River	229	353.909

1/ Average at Upper and Lower Rotation.

2/ Includes Pine Creek near Alturas.

3/ Includes Willow Creek near Ager which is based on a percentage of flow.

TABLE 1

WATERMASTER SERVICE AREAS, STREAM SYSTEMS AND SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION

Watermaster Service Area	Name of Stream System[1]	County	Decree Number	Decree Date	Decree Type*	Date Watermaster Service Area Created	Remarks
Ash Creek	Ash Creek and Lassen	Modoc **	3670	10-27-47	CR	4-03-59	Included as part of Big Valley service area 1949 through 1958.
Big Valley	Pit River	Modoc ** and Lassen	6395	2-17-59	S	11-13-34	Service provided in accordance with recorded agreement in 1934. Service area operated under recorded agreement 1935 through 1958, and under decree since 1959. Service discontinued on December 31, 1981, and reactivated May 1, 1990.
Burney Creek	Burney Creek	Shasta	5111	1-30-28	CR	9-11-29	
Butte Creek	Butte Creek	Butte	18917	11-06-42	S	1-07-43	
Cow Creek[2]	North Cow Creek	Shasta	5804	4-29-32	CR	10-17-32	
	Oak Run Creek	Shasta	5701	7-22-32	CR	10-17-32	
	Clover Creek	Shasta	6904	10-04-37	CR	1-21-38	
Digger Creek	Digger Creek	Shasta and Tehama **	2213	8-12-99	C	6-11-64	
			3214	5-27-13	C		
			3327	10-16-17	C		
			4570	2-24-27	C		
Hat Creek	Hat Creek	Shasta	5724	5-14-24	CR	9-11-29	Service provided in accordance with decree since 1924.
			7858	5-07-35	CR		
Indian Creek	Indian Creek	Plumas	4185	12-19-50	S	2-19-51	
Middle Fork Feather River	Middle Fork Feather River	Plumas ** and Sierra	3095	1-19-40	S	3-29-40	
North Fork Cottonwood Cr.	North Fork Cottonwood Cr.	Shasta	5479	6-09-20	CR	9-11-29	Service provided intermittently in the accordance with the decree since 1924.
North Fork Pit	North Fork Pit River and all tributaries except Franklin Creek	Modoc	4074	12-14-39	S	12-18-39	All stream systems consolidated into Fork Pit River service area 12-13-40.
	New Pine Creek	Modoc	2821	6-14-32	CR	6-22-32	
	Davis Creek	Modoc	2782	6-30-32	CR	7-13-32	
	Franklin Creek	Modoc	3118	9-08-33	CR	9-14-33	
	Cottonwood Creek	Modoc	2344	5-03-40	CR	12-13-40	
	Pine Creek near Alturas	Modoc	Agreement	11-22-33		1-12-35	Pine Creek was transferred from Surprise Valley to North Fork Pit River watermaster service area in 1994.
Scott River	French Creek	Siskiyou	14478	7-01-58	CR	11-19-68	French, Shackleford, and Wildcat Creek were combined in 1980 to form the Scott River service area. Sniktaw Creek was added on April 1, 1981, and Oro Fino Creek in July 1, 1984.
	Shackleford Creek	Siskiyou	13775	4-10-50	S	11-06-50	
	Wildcat Creek	Siskiyou	30662	1-16-80	S	5-01-80	
	Sniktaw Creek	Siskiyou	30662	1-16-80	S	4-01-81	
	Oro Fino Creek	Siskiyou	30662	1-16-80	S	7-01-84	
Shasta River	Shasta River	Siskiyou	7035	12-29-32	S	3-01-33	
	Willow Creek	Siskiyou	24482	4-28-72	C	6-22-72	
	Cold Creek	Siskiyou	29348	7-05-78	S	4-01-81	
Surprise Valley	Cedar Creek	Modoc	1206	5-22-01	C	6-19-26	All adjudicated stream systems in Surprise Valley were consolidated into the Surprise Valley service area on 1-10-39. Bidwell Creek was added on March 16, 1960. Service started on Cedar Creek in 1926 in accordance with the decree. Service was provided on Soldier and Owl Creeks in 1929 in accordance with the decrees by order of the court. Cottonwood Creek was added on 7-1-77.
			2343	2-15-23	C		
	Soldier Creek	Modoc	2405	11-28-28	CR	9-11-29	
	Owl Creek	Modoc	2410	4-29-29	CR	9-11-29	
	Emerson Creek	Modoc	2840	3-25-30	CR	4-01-29	
	Mill Creek	Modoc	3024	12-19-31	CR	12-30-31	
	Deep Creek	Modoc	3101	1-25-34	CR	12-29-34	
	Pine Creek near Cedarville	Modoc	3391	12-07-36	CR	1-13-37	
	Rader Creek	Modoc	3626	6-04-37	CR	6-12-37	
	Eagle Creek	Modoc	2304	4-05-26	C	1-10-39	
			3284	11-05-37	CR		
	Cottonwood Creek	Modoc	6903	12-01-64	C	7-01-77	
	Bidwell Creek	Modoc	6420	1-13-60	S	3-16-60	
Susan River	Susan River	Lassen	4573	4-18-40	CR	11-10-41	
	Baxter Creek	Lassen	8174	12-15-55	S	2-16-56	
	Parker Creek	Lassen	8175	12-15-55	S	2-16-56	

* Explanation of type of decree: 45 decrees

C - Court adjudication (court makes determination from evidence submitted--no report of referee)
CR - Court reference (referred to State Water Resources Control Board for investigation and report)
S - Statutory adjudication (State Water Resources Control Board is petitioned by water users to make a determination of all water rights on a stream system)

** Decree entered by the Superior Court of this county.

[1] Major tributaries only; a complete listing is given in "Watermaster Service Areas and Stream Systems", page 6.
[2] Mainstem Cow Creek not in service area.

Watermaster Service Areas

Watermaster service is provided in areas where the rights have been defined by the superior court of the county, or by agreement, and where an unbiased qualified person is needed to properly apportion the available water according to the established rights. The Director of DWR creates watermaster service areas where these conditions exist, following either a request by the users or an order by the Superior Court.

The first watermaster service areas were created in September 1929. Before then, some watermaster service was provided in accordance with the Water Commission Act of 1913. About 50 streams in Northern California are now under State watermaster service. The newest service areas were created in 1984.

The counties and principal water sources of the various service areas in Northern California are listed in Table 2.

Of these 15 areas, 13 are in the Department's Northern District and two are in the Central District, served by watermasters assigned to the Division of Operations and Maintenance, Oroville Field Division.

Description of Region

The service areas are mainly in the mountainous northeastern part of the State where the growing season varies between about 100 and 140 days. Meadow hay and alfalfa are the principal crops under irrigation, although much land is used exclusively for pasturing livestock. Much irrigation is still done by gravity systems, with water users diverting directly from the streams at one or more diversion points. However, pumped diversions and sprinkler irrigation systems are becoming popular in some areas.

Watermaster Responsibilities

To assure the proper distribution of water within the service area, each watermaster must ascertain the amount of water available and distribute it both by amount and priority according to established water rights.

Authority

To accomplish this, the watermaster gets authority both from the California Water Code and from provisions of pertinent court decrees or voluntary agreements to physically regulate the streams in the service area. The watermaster is further authorized to supervise the design, construction, operation, and maintenance of diversion dams, headgates, and measuring devices.

TABLE 2

WATERMASTER SERVICE AREAS AND STREAM SYSTEMS

Service Area	County	PRINCIPAL WATER SOURCES: MAJOR STREAM and Tributaries[1]	PRINCIPAL WATER SOURCES: Reservoirs and Nontributary Streams
Ash Creek	Lassen, Modoc	ASH CREEK Butte, Rush, and Willow Creeks	
Big Valley	Modoc, Lassen	PIT RIVER Ash Creek	Roberts Reservoir
Burney Creek	Shasta	BURNEY CREEK	
Butte Creek	Butte	BUTTE CREEK	West Branch Feather River
Cow Creek	Shasta	COW CREEK[2] North Cow, Clover, Oak Run, and Cedar Creeks	
Digger Creek	Shasta, Tehama	DIGGER CREEK	
Hat Creek	Shasta	HAT CREEK	
Indian Creek	Plumas	INDIAN CREEK Lights Creek, Wolf Creek	
Middle Fork Feather River	Plumas, Sierra	MIDDLE FORK FEATHER RIVER Little Last Chance, Smithneck, Webber and Fletcher Creeks; Spring Channels; Westside Canal	Little Truckee River
North Fork Cottonwood Creek	Shasta	NORTH FORK COTTONWOOD CREEK	Rainbow Lake
North Fork Pit River	Modoc	NORTH FORK PIT RIVER Parker Creek, Shields Creek	Cottonwood, Davis, New Pine Creek, and Pine Creek near Alturas
Scott River	Siskiyou	FRENCH CREEK Shackleford, Mill, Miners, Wildcat, Oro Fino, and Sniktaw Creeks	Cliff and Campbell Lakes
Shasta River	Siskiyou	SHASTA RIVER Little Shasta River Sacramento River	Dwinnell Reservoir (Lake Shastina), Cold Creek, Willow Creek, and North Fork
Surprise Valley	Modoc	NONE (All creeks listed at right are unconnected)	Bidwell, Mill, Soldier, Pine near Cedarville, Cedar, Deep, Cottonwood, Owl, Rader, Eagle, and Emerson Creeks
Susan River	Lassen	SUSAN RIVER Willow Creek	Lake Leavitt, Hog Flat, McCoy Flat Reservoirs; Baxter and Parker Creeks

[1] Major tributaries only.
[2] Mainstem Cow Creek not in service area.

Each watermaster supervises water distribution at around 100 to 200 diversions in one or more service areas. The need for frequently checking and regulating these diversion points increases substantially in years of short water supply.

Control Devices

Permanent measurement and control devices, which the State requires (Water Code Sections 4100-4104) at each property owner's main point of diversion, are constructed by the water users under supervision of the watermaster. Installation of accurate, easily set, and lockable structures is a continuing objective of watermaster service because once they are built, conflicts among water users usually stop. Also, the watermaster's ability to check and set each diversion regularly is greatly helped by engineered and properly built structures.

Interpretation of Decrees

The watermaster is often called upon to make on-the-spot interpretations of various court decrees, agreements, etc. Because most of these documents were written more than 30 years ago, many situations have developed that were not initially considered. Therefore, watermasters must use sound, careful, and practical judgment in attempting to reach workable solutions to water disputes. To accomplish this, they must possess a good understanding of California water rights law.

Water Supply

Water supply in the watermaster service areas comes mainly from unregulated runoff of small streams. Peak runoff--snowmelt in most cases--occurs in the spring, with relatively small streamflow occurring in the summer and early fall. Additional supplies from storage reservoirs and groundwater pumping are used in some areas to supplement natural streamflow, but State watermasters do not supervise the use of groundwater in this part of the State.

In some service areas, the water supply must be predicted in advance to determine the date watermastering will begin and, to some extent, the work force needed. DWR's Bulletin 120 series, *Water Conditions in California,* is used to assist in these predictions.

Precipitation

The streamflow available for distribution is affected by total precipitation, amount of snowpack, air temperature, and the amount of rainfall received during the irrigation season. The latter is particularly important in the upper Pit River-Surprise Valley areas, where about 25 to 30 percent of the annual precipitation occurs normally in April, May, and June. Spring storms, which are normally accompanied by relatively cool temperatures, materially affect both the water supply and the demand. Temperatures in the spring affect the demand for water and the manner in which snowmelt runoff occurs. A hot, dry spring depletes the water supply very early, even in years of normal

snowpack. A cold, wet spring can extend the supply well into the irrigation season, but cold temperatures retard the growth of crops and are not necessarily desirable.

Table 3 reports the quantity of precipitation at selected stations in the service areas during the 1995-96 water year. The seasonal precipitation gives an indication of the related water supply available for distribution, and provides a basis for comparing the current year's supply with a long-term average.

Table 4 shows the snowpack on April 1, 1996 on all snow courses and the snowpack on May 1, 1996 on selected courses. This information comes from DWR's basic data files.

Streamflow

The general water supply available for diversion within each watermaster area is determined from stream gaging stations placed at key locations in the main stream channels. Several major stations are installed and maintained by DWR and the U.S. Geological Survey as part of federal and State programs for collection of year-round streamflow records. In addition, several stream gaging stations are installed and operated by the watermasters during the irrigation season to provide supplemental information. Also, water stage recorders are often installed by watermasters in selected diversion ditches to further assist them in proper distribution of the various water right allotments.

Table 5 presents runoff data at selected stream gaging stations in or near the service areas.

TABLE 3

PRECIPITATION AT SELECTED STATIONS - 1995-1996 SEASON
(Units in Inches)

1995-96 Season
Long-term Average

Station	County	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total	Percent of Normal
Lookout 3WSW	Lassen	0.00	0.00	3.09	5.43	11.45	1.18	4.03	5.09	0.81	1.22	0.07	1.13	33.50	154
		1.50	2.65	2.75	2.98	2.99	2.82	1.72	1.70	1.12	0.30	0.52	0.77	21.82	
Susanville 1WNW	Lassen	0.00	0.93	5.00	4.95	5.44	3.65	2.05	2.51	0.18	0.07	0.23	0.15	25.16	147
		1.24	1.67	2.67	2.91	2.48	1.90	0.73	0.82	1.64	0.31	0.28	0.41	17.09	
Alturas[1/] R.S.	Modoc	0.35	0.42	3.97	2.89	3.10	0.93	1.04	2.57	0.62	0.14	0.18	0.51	16.72	141
		0.85	1.55	1.37	1.39	1.19	1.27	1.06	1.15	0.96	0.25	0.35	0.46	11.85	
Cedarville	Modoc	0.28	0.69	3.92	3.87	2.75	1.38	1.55	1.58	0.79	0.08	0.31	0.39	17.59	
		1.03	1.81	1.58	1.65	1.35	1.40	1.07	1.00	0.81	0.29	0.37	0.49	12.85	137
Jess Valley	Modoc	0.19	0.10	6.74	4.69	2.09	2.16	1.82	2.48	1.41	0.00	1.34	n/a	23.02	127
	1.36	1.36	2.15	2.00	1.83	1.82	1.93	1.89	2.03	1.56	0.43	0.56	0.79	18.07	
Greenville R.S.	Plumas	0.00	0.38	8.74	8.14	10.72	4.48	4.98	6.02	0.10	0.40	0.22	0.13	44.31	115
		2.33	5.23	6.07	7.15	5.92	5.37	2.69	1.66	0.86	0.26	0.35	0.70	38.59	
Vinton 5SW	Plumas	0.00	0.48	3.16	4.09	4.57	2.06	1.60	n/a	n/a	0.02	0.62	0.42	17.02	128
		0.39	1.73	2.03	2.20	1.79	1.61	0.81	0.96	0.63	0.35	0.36	0.45	13.31	
Sierraville R.S.	Sierra	0.00	0.68	5.97	7.86	8.78	3.55	3.55	3.77	0.14	0.32	0.00	0.68	35.40	126
		2.00	4.35	4.58	5.47	3.95	3.31	1.43	1.04	0.54	0.29	0.39	0.67	28.02	
Hat Creek P.H. #1	Shasta	0.07	0.27	6.24	4.92	3.90	1.77	2.37	3.73	0.04	0.17	0.00	0.00	23.84	122
		1.50	2.48	2.86	3.03	2.47	2.49	1.28	1.30	0.78	0.21	0.31	0.61	19.32	
Redding, WSO	Shasta	0.00	0.26	10.81	9.66	9.06	1.84	2.54	4.28	0.14	n/a	n/a	n/a	38.59	117
		2.24	5.21	5.51	6.06	4.45	4.38	2.08	1.27	0.80	0.87	0.31	0.61	19.32	
Fort Jones R.S.	Sisk.	0.03	0.42	8.44	7.67	2.89	1.55	2.43	1.89	0.24	0.30	0.18	0.48	26.52	115
		1.40	3.41	4.13	5.24	2.58	2.15	1.11	0.72	0.75	0.34	0.54	0.62	22.99	
Happy Camp R.S.	Sisk.	0.30	2.73	13.29	11.93	11.32	4.73	7.34	4.56	0.50	0.31	0.00	1.33	58.34	104
		3.57	8.79	11.35	11.74	7.39	6.81	2.63	1.38	0.84	0.36	0.40	0.94	56.20	
Yreka	Sisk.	0.06	0.53	9.22	7.43	2.21	1.40	2.05	1.62	0.61	0.99	0.19	0.73	27.04	132
		1.24	2.87	3.74	2.98	2.04	3.14	1.00	0.81	0.94	0.43	0.60	0.67	20.46	

[1/] Alturas R.S. data ends October 31, 1994; new Alturas observer and gauge location beginning November 1, 1994.
E - Estimated
NOTE: Current season above line; long-term averages below line.

TABLE 4

SNOWPACK AS OF APRIL 1 AND MAY 1, 1996 AT REPRESENTATIVE SNOW COURSES

Watermaster Service Areas	Snow Course* Group Related to Each Service Area	Calif. I. D. No.	Elevation (in feet)	April 1 Average (in inches)	WATER CONTENT OF SNOW: April 1, 1996 In inches	April 1, 1996 In Percent of April 1 Average	May 1, 1996** In inches	May 1, 1996** In Percent of April 1 Average
Ash Creek	Blue Lake Ranch (BLU)	28	6,800	10.6	8.9	84		
Burney Creek	Thousand Lakes (THL)	33	6,500	34.0	32.1	94	28.5	84
Butte Creek	Silver Lake Meadows (SVR)	45	6,450	30.2	25.2	83	19.2	64
Cow Creek	New Manzanita Lake (NMN)	343	5,900	7.3	10.6	145	0.0	0
Digger Creek	Burney Springs (BNS)	41	4,700	2.0	0.0	0		
Hat Creek	New Manzanita Lake (NMN)	343	5,900	7.3	10.6	145	0.0	0
Indian Creek	Independence Lake (IDN)	86	8,450	43.2	53.3	123	55.6	129
Middle Fork Feather River	Rowland Creek (RWL)	280	6,700	17.3	20.4	118	15.5	90
	Yuba Pass (YBP)	74	6,700	29.4	29.9	102	19.6	67
	Mount Dyer No. 1 (MDY)	48	7,100	25.3	23.7	94	22.9	91
North Fork Pit River	Cedar Pass (CDP)	30	7,100	17.3	15.8	91		
Scott River	Middle Boulder No. 3 (MB3)	5	6,200	27.2	24.3	89	13.6	50
Shasta River	Little Shasta (LSH)	2	6,200	19.8	23.0	116		
	Parks Creek (PRK)	1	6,700	36.5	30.2	83		
South Fork Pit River	Adin Mountain (ADM)	35	6,750	12.8	16.0	125	6.0	47

* Snow courses are listed in order of elevation with each geographical group of watermaster areas.
** Data collected only at courses listed.

SERVICE AREA DESCRIPTIONS AND 1996 WATER SUPPLY STATISTICS

TABLE 5

1995-96 RUNOFF AT SELECTED STATIONS
(Acre-Feet)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total	Long Term Average	Percent of Average
Bidwell Creek near Fort Bidwell	NR	NR	NR	NR	NR	NR	2,320	3,670	2,240	1,010	423	288	NR	18,000	NR
Burney Creek at Burney	887	900	4,177	4,625	12,750	8,596	10,340	9,394	2,698	1,196	762	722	57,047	57,000	100
Butte Creek near Chico	7,770	6,760	22,550	29,370	83,200	56,730	44,480	48,870	20,840	10,630	7,310	9,680	348,200	288,700	121
Hat Creek near Hat Creek	8,586	8,400	10,000	9,455	10,050	10,060	10,150	14,130	11,950	9,550	9,227	8,686	120,244	102,900	117
Pit River near Canby	5,050	4,380	14,420	23,250	97,000	58,020	47,930	48,220	15,000	5,480	4,470	5,220	328,500	174,800	188
Scott River near Fort Jones	4,040	5,140	67,360	78,590	156,700	89,100	89,160	95,100	34,990	8,900	1,980	1,660	632,800	451,300	140
Shasta River near Yreka	8,670	9,770	21,290	30,560	36,940	22,700	14,230	10,320	5,370	4,550	2,150	4,640	171,200	131,900	130
Susan River at Susanville	679	774	NR	NR	16,180	18,010	25,160	21,240	4,927	5,169	1,184	464	NR	———	NR

SERVICE AREA DESCRIPTIONS AND 1996 WATER SUPPLY STATISTICS

This portion of the report consists of 15 sections, one for each service area active in 1996, presented in alphabetical order. Each of these sections presents a description of the particular service area, including location, geography, and general characteristics. Following this is a section entitled "Basis of Service," which includes such data as the case number, date, type of decrees, a brief summary of the decree or agreement that defines the water rights, the date the service area was created, and other related information.

These service area descriptions also give data on the water supply, methods of distribution, significant events of the watermaster season, and daily streamflow records. The listings of water right holders are updated as of March 1 each year from County Assessors' records.

As in previous years, watermaster service was activated on different dates in the various areas depending upon the streamflow conditions, the ranchers' needs for the water, or, as on some streams, the terms of the decrees. Service was continued in all areas through the growing season as long as needed. The date service was started and ended in each service area and the name of the watermaster in charge are listed on Table 6.

TABLE 6

1996 Service Dates and Watermasters

SERVICE DATES

Service Area	Began	Ended	Watermaster
ON – Ash Creek Faber	April 1	September 30	Ronald Libby
Big Valley Grade	May 1	September 30	Michael Faber
Burney Creek Grade	May 1	September 30	Michael Faber
ON – Butte Creek Taylor	April 1	October 15	James P. Langley
Cow Creek Taylor	May 1	October 30	James P. Langley
Digger Creek Taylor	June 1	September 30	James P. Langley
Hat Creek Grade	May 1	October 28	Michael Faber
ON Indian Creek Beckworth	March 26	October 1	Charles D. Hand
M. F. Feather River B'worth	March 15	September 30	Ronald A. Vanscoy
	April 18	September 30	Ralph D. Howell
N. F. Cottonwood Creek Taylor	June 1	September 30	James P. Langley
ON – N. F. Pit River Faber	April 1	September 30	Ronald Libby
ON – Scott River Clements	April 1	September 30	Keithal B. Dick
Shasta River Clements/Dick	April 1	September 30	Keithal B. Dick
	April 1	September 30	Lester L. Lighthall
ON – Surprise Valley Lane	March 19	September 30	George M. Fitzmorris
ON – Susan River Dossey	March 1	November 1	Virgil D. Buechler

ASH CREEK WATERMASTER SERVICE AREA

ASH CREEK WATERMASTER SERVICE AREA

The Ash Creek service area is in Modoc and Lassen counties near the town of Adin, about 100 miles northeast of Redding via Highway 299E. The major source of water for the service area are Ash Creek and three tributaries: Willow, Rush and Butte creeks. Ash Creek rises in Ash Valley in the southeastern part of the service area and flows northwesterly about 18 miles to its confluence with Rush Creek, then southwesterly to the town of Adin, and then westerly to Ash Creek Swamp and Pit River. Butte and Willow creeks head in the mountains to the east and flow northwesterly into Big Valley. Butte Creek meets Ash Creek near the head of the Valley at Adin. Willow Creek flows into Ash Creek about 3 miles farther west, near the head of Ash Creek Swamp. The valley floor elevation in this vicinity is about 4,200 feet.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 3670, Modoc County Superior Court, dated October 27, 1947. From 1949 through 1958, Ash Creek was included as a part of Big Valley watermaster service area. The Ash Creek service area has been served separately since April 3, 1959.

About 85 percent of the water rights in the service area are in Big Valley, west of the town of Adin. The rest are along the upstream tributaries and in Ash Valley, east of Adin. The part of Big Valley served is about 10 miles long by 6 miles wide, extending from Adin to the confluence of Ash Creek and the Pit River. The Ash Creek Decree establishes the number of priority classes on the individual streams within the service area as follows: Ash Creek - five, Willow Creek - four, Rush Creek - one, and Butte Creek - two. Each of these streams is independently regulated.

Water Supply

The water supply for Ash and Rush creeks comes mainly from snowmelt, because most of the watershed is between 5,000 and 6,000 feet in elevation. Willow Creek and Butte Creek get much of their water from springs. These creeks normally have enough water to satisfy demands until about June 1, after which the supply decreases rapidly. By the end of June, Ash Creek normally has receded to about 20 cubic feet per second (cfs), and Butte Creek is less than 1 cfs. The flow of these creeks then remains nearly constant for the rest of the season. Records of the daily mean discharge of stream gaging station, Ash Creek at Adin, is presented in Table 7. The flow in Willow Creek above Diversion No. 92 and 93 is presented in Table 8.

Method of Distribution

Water diverters from Ash Creek and its tributaries use numerous small dams to divert flow into systems of ditches. The ditches deliver the water to the various fields for spreading. Flooding is the method most used, but some ranchers have checks and ditches and some use pumps to operate sprinklers or to lift water to higher spreading ditches. In some cases, runoff water is captured and reused before it returns to the stream.

1996 Distribution

Watermaster service began in the Ash Creek watermaster service area on April 1 and continued until September 30. Ron Libby, Water Resources Technician II, served as Watermaster. Water conditions were much the same this year as last. The snowpack was about 120 percent of normal on April 1. The snowpack along with some May storms created surplus water into June then decreased to a normal irrigation season the rest of the year.

Ash Creek

Fifth priority water was available through May then decreased to first priority the end of June and stayed constant the rest of the watermaster season.

Willow Creek

There was surplus water available until June when regulation required closing down fourth priority users. The flow then quickly decreased to about 6 cfs (75 percent of second priority) early in June and continued to decrease to 4+ cfs by season's end.

Rush Creek

Full priority water was available until mid June then decreased to 3.1 cfs at the close of the watermaster season.

Butte Creek

Surplus water was available until mid July then gradually dropped to slightly less than first priority by the end of the watermaster season.

ASH CREEK WATERMASTER SERVICE AREA

TABLE 7

1996 Daily Mean Discharge
(In cubic feet per second)

ASH CREEK AT ADIN

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	386	158	94	25	21	22
2	436	153	82	26	21	24
3	402	145	70	21	21	24
4	329	134	63	18	23	25
5	264	124	57	22	35	25
6	236	114	54	26	28	23
7	223	105	49	26	27	23
8	222	94	42	25	28	24
9	225	88	38	24	27	25
10	222	81	37	23	26	23
11	220	73	37	21	27	26
12	208	66	32	21	27	22
13	180	66	31	27	27	21
14	165	72	29	27	28	26
15	164	80	30	31	25	32
16	203	129	28	29	25	30
17	206	136	28	29	25	27
18	238	237	34	26	25	26
19	248	261	29	25	21	25
20	247	165	29	25	15	25
21	215	156	31	24	17	25
22	204	209	27	21	21	25
23	193	149	22	22	27	20
24	223	136	21	24	27	20
25	216	122	29	22	31	20
26	203	110	29	22	29	18
27	191	276	38	22	28	18
28	176	168	33	21	27	19
29	166	138	29	23	26	19
30	161	119	29	22	27	20
31	----	103	----	21	24	----
MEAN	232	135	39.4	23.8	25.4	23.5
AC-FT	13830	8271	2342	1462	1559	1398

ASH CREEK WATERMASTER SERVICE AREA

TABLE 8

1996 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK ABOVE DIVERSIONS 92 AND 93

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	10.8	6.3	5.2	4.3
2	NR	NR	10.5	6.0	5.2	4.3
3	NR	NR	10.1	6.0	5.0	4.3
4	NR	NR	8.8	6.6	5.0	4.3
5	NR	NR	8.1	7.4	5.0	4.3
6	NR	NR	6.9	6.9	5.0	4.3
7	NR	NR	6.3	6.6	5.0	4.1
8	NR	NR	6.0	6.6	5.0	4.1
9	NR	11.8	5.5	6.0	4.5	4.1
10	NR	11.8	5.5	5.8	4.5	4.1
11	NR	11.5	5.2	5.8	4.5	4.1
12	NR	11.5	5.2	5.8	4.5	4.3
13	NR	10.5	5.0	5.5	4.7	4.7
14	NR	10.8	5.0	6.6	5.0	5.0
15	NR	12.2	5.2	6.9	5.2	5.2
16	NR	21.9	5.8	6.6	5.0	5.0
17	NR	18.5	5.5	6.3	4.7	4.7
18	NR	NR	4.7	6.6	4.5	4.7
19	NR	NR	4.3	6.6	4.5	4.7
20	NR	NR	3.9	6.3	4.5	4.7
21	NR	NR	3.9	6.3	4.5	4.7
22	NR	NR	5.2	6.3	4.7	4.7
23	NR	12.6	6.0	6.3	5.0	4.7
24	NR	11.5	6.6	6.3	5.0	4.7
25	NR	10.1	8.1	6.0	5.0	4.7
26	NR	9.1	8.1	6.0	5.0	4.7
27	NR	47	7.4	6.0	4.7	4.7
28	NR	22.7	6.6	6.0	4.7	4.7
29	NR	16.0	6.0	6.0	4.5	4.7
30	NR	13.6	6.3	6.0	4.3	4.7
31	NR	11.8	----	6.0	4.3	----
MEAN	NR	NR	6.4	6.3	4.8	4.5
AC-FT	NR	NR	382	386	294	270

BIG VALLEY WATERMASTER SERVICE AREA

BIG VALLEY WATERMASTER SERVICE AREA

The Big Valley service area is in Modoc and Lassen counties in the vicinity of the towns of Lookout and Bieber, about 90 miles northeast of Redding via State Route 299E.

The Pit River is the major source of water regulated by the watermaster. The river enters the valley north of the town of Lookout and flows southerly through the western part of the valley and out at the southern end. The major area of use is along approximately 13 miles of valley floor, up to 6 miles wide, along the Pit River at an approximate elevation of 4,200 feet.

Basis of Service

The Big Valley watermaster service area was created on November 13, 1934 and service began with the 1935 season, operating under an agreement to determine water rights recorded in 1934. The water rights in this service area were set forth in Decree No. 6395, Modoc County Superior Court, a statutory decree, dated February 17, 1959.

Distributing the water on a continuous flow basis, as provided by the decree, has proven impracticable to the users who employ wild flooding or border irrigation practices because of the wide variation of flows. By mutual agreement, an alternative procedure allowing each user a definite amount of water in acre-feet for each cubic foot per second of right allocated by the degree has been adopted. The watermaster estimates the probable amount of water available for the next 15 to 30 days and chooses the appropriate ac-ft/cfs ratio with a view to completing the rotation through the valley in not more than 30 days.

The irrigators using pumps and sprinklers have elected to receive their water on a more or less continuous flow basis. Over the years, different ways have been employed to insure that applications of small amounts over extended periods result in no advantage over the flooders who use large amounts for very short periods.

Water Supply

The flow in the Pit River at the head of Big Valley is from direct runoff, mainly snowmelt and return flow which is mostly from irrigation water released from West Valley Reservoir above South Fork Pit River and Big Sage Reservoir above Hot Springs Irrigation District.

The available water supply in the Pit River as it flows through Big Valley used to be adequate to satisfy all demands until about June 1. The irrigation practices in Hot Springs Irrigation District, about 20 miles upstream from Big Valley, have a significant effect on the available water supply in Big Valley. Water users in Hot Springs Irrigation District divert most of the flow of the Pit River for two- or three-week periods. In recent years, Hot Springs Irrigation District has improved the use and coordinated the distribution of its water, so releases from its system are less than were 10 years ago. However, Big Valley Irrigation District water users are unable to keep much stock water in August and September.

Several users, who irrigate crops by sprinkling, have drilled wells to supplement their water supply. Some of these are several miles upstream from the place of use and the Pit River is used to convey it downstream to where it is pumped out. The users who irrigate by flooding have not changed nor improved their practices.

Roberts Reservoir, which stores runoff of a minor tributary to the Pit River near the upper end of Big Valley above Lookout, serves as a supplemental source of water to those users in the area who are members of the Big Valley Mutual Water Company. Water from this reservoir is released into the Pit River and distributed to members of the water company along with the natural flow to which they are entitled.

The daily mean discharge of the Pit River near Canby stream gaging station is presented in Table 9.

Method of Distribution

Most water users in the Big Valley service area irrigate on a rotation schedule, either by wild flooding or by checks and borders. Large flashboard dams placed in the channel make it possible to use the large heads of water characteristic of the supply in the area. In addition, some pumps are used for diversion, both in ditches and directly into sprinkler systems. The ranches which irrigate by wild flooding must use large heads of water in order to cover unleveled or high ground. Some of the runoff is recaptured for use by downstream lands.

1996 Distribution

Watermaster service in Big Valley began May 1 and continued through September 30, with Michael E. Faber, Water Resources Technician I, as Watermaster.

The water supply was ample in the Pit River for Big Valley Service Area during the 1996 season. Snowmelt along with a storm the second week of May caused high flows in the Pit River and prohibited the installation of flashboard dams until the third week in June.

There was a surplus of water from May 1 through the first week of July and ample supply until the first week in August when the first cutting of hay was completed.

Roberts Reservoir was full on May 1 and only 52.4 acre feet was released into the river during the 1996 season, all going to shareholder Parish. A total of 328.9 acre feet of water was transported from groundwater wells through the Pit River system, all by Parish.

The gravity flow diversions rotated on a full allotment basis for the entire season with all users receiving four full irrigations except those who declined rotation due to drying up for haying.

BIG VALLEY WATERMASTER SERVICE AREA

TABLE 9

1996 Daily Mean Discharge
(In cubic feet per second)

PIT RIVER NEAR CANBY

DAY	MAY	JUN	JUL	AUG	SEP
1	597	679	238	82	79
2	599	083	170	85	83
3	616	590	153	82	54
4	639	477	135	72	51
5	643	374	108	65	51
6	563	388	87	56	50
7	618	279	58	56	54
8	577	318	40	59	48
9	507	267	27	62	58
10	446	226	59	53	58
11	355	187	94	50	45
12	381	225	83	49	37
13	414	209	73	40	37
14	393	188	59	51	48
15	465	175	40	94	123
16	626	150	38	91	186
17	842	134	49	69	255
18	1050	64	182	64	276
19	1230	87	65	66	191
20	1250	114	55	77	161
21	1350	114	79	82	119
22	1380	104	78	85	85
23	1310	82	69	114	65
24	1220	91	70	98	61
25	1140	107	68	73	67
26	1010	124	73	55	63
27	905	160	108	60	63
28	854	272	130	85	54
29	888	382	118	88	57
30	820	294	87	77	58
31	616	---	78	75	---
MEAN	784	252	89.1	72.7	87.8
AC-FT	48220	15000	5480	4470	5320

BURNEY CREEK WATERMASTER SERVICE AREA

BURNEY CREEK WATERMASTER SERVICE AREA

The Burney Creek service area is in eastern Shasta County above and below the town of Burney. The source of water for this service area is Burney Creek, which enters the southern part of the service area and flows through Burney in a northerly direction to the Pit River. The part of the valley served by this stream is about 11 miles long and 2 miles wide and extends both north and south of Burney.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 5111, Shasta County Superior Court, dated January 30, 1926. Watermaster service was provided on the creek from 1926 to 1929 under the Water Commission Act of 1913. The present service area was created on September 11, 1929.

The Burney Creek decree sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis (one priority class plus surplus allotments), which is now normal practice. The water allotted to the Greer-Cornaz Ditch is distributed according to supplemental court decrees.

Water Supply

The water supply for Burney Creek comes from springs and snowmelt. Most of the watershed lies between the elevations of 4,000 and 7,500 on the northwest slopes of Burney Mountain. The creek normally has enough water for all demands until about the middle of June. The supply then gradually decreases until the end of July. For the rest of the irrigation season, runoff from perennial springs keeps the flow nearly constant at about 40 percent of allotments.

The daily mean discharge of Burney Creek near Burney is presented in Table 10. The stream gaging station on Burney Creek is downstream from four points of diversion, so the records do not show all of the available water supply of the creek.

Method of Distribution

Water is diverted from Burney Creek, in most cases, by means of low diversion dams into ditches that convey it to the individual users. Some users are still using flood irrigation, while some of the lower users are pressurizing the water with low lift pumps and sprinkler irrigation.

1996 Distribution

Watermaster service on Burney Creek began on May 1 and continued through September 30, with Michael E. Faber, Water Resources Technician I, as watermaster.

The water supply on Burney Creek was much above normal due to an above average snowpack. A surplus of water was available to all users until the first week of July at which time the snow runoff was nearly depleted. The Cayton Diversion Dam was installed about July 20, at which time 64 percent of the water rights was available. The flow decreased to 50 percent by the second week in August and remained fairly constant through September 30.

BURNEY CREEK WATERMASTER SERVICE AREA

TABLE 10

1996 Daily Mean Discharge
(In cubic feet per second)

BURNEY CREEK NEAR BURNEY

DAY	MAY	JUN	JUL	AUG	SEP
1	126	99	28	15	11
2	119	89	25	15	11
3	113	80	24	15	11
4	102	74	23	15	11
5	100	68	22	15	11
6	97	64	22	15	11
7	93	58	21	14	11
8	87	53	21	14	11
9	85	49	22	13	11
10	84	47	22	13	10
11	82	45	20	13	10
12	83	43	19	13	11
13	82	41	19	12	12
14	97	40	20	12	13
15	106	37	20	12	16
16	149	32	19	11	15
17	273	32	18	11	13
18	351	31	20	11	13
19	332	30	17	11	12
20	239	29	17	11	13
21	225	29	16	11	14
22	290	29	16	12	13
23	224	28	16	12	13
24	181	27	17	11	13
25	158	30	17	11	13
26	145	38	16	11	13
27	194	39	16	11	12
28	157	37	18	11	12
29	135	32	20	11	12
30	119	30	17	11	12
31	108	—	15	11	—
MEAN	153	45.3	19.5	12.4	12.1
AC-FT	9394	2698	1196	762	722

BUTTE CREEK WATERMASTER SERVICE AREA

BUTTE CREEK WATERMASTER SERVICE AREA

The Butte Creek service area is in Butte County a few miles southeast of the City of Chico. The watermaster service area runs about 11 miles along Butte Creek, starting about 4 miles east of Chico and running downstream to the crossing of the Western Canal. It contains about 20,000 acres of valley floor lands at an average elevation of 150 feet.

Basis of Service

The rights on this stream system were determined by a statutory adjudication and set forth in Decree No. 18917, Butte County Superior Court, dated November 6, 1942. The Butte Creek watermaster service area was created on January 7, 1943.

The Butte Creek decree established three priority classes for summer use under Schedule 7, a surplus class inferior to the above rights, and a special class for Hamlin Slough. Schedule 3 of the decree defines the rights for rediversion (Diversion 50) of foreign water delivered into Butte Creek from the West Branch of the Feather River.

On September 18, 1969, the State Water Resources Control Board granted permits for the following applications to take water from Butte Creek: application 22039, Rancho Esquon Partners, application 22321, Gorrill Land Company, 22534, Garrison Patrick; and 22564, Louis C. Camenzind, Jr. These appropriative rights are also under control of the watermaster and on the condition there is 60 cfs available for fish downstream.

Water Supply

Butte Creek, the major source of water, drains about 150 square miles of the western slope of the Sierra Nevada in the northeasterly part of Butte County above the watermaster service area. The highest elevation in the watershed is about 7,000 feet.

Normally, snowmelt produces sustained high flows in the creek until about the end of June, after which perennial springs above Diversion 50 continue to produce flows of more than 40 cfs. Additional water is imported for distribution from the West Branch Feather River by means of the Hendricks (Toadtown) Canal through De Sabla Reservoir and Powerhouse into Butte Creek.

Records of the daily mean discharge at stream gaging stations in the Butte Creek service area are presented in Tables 11, 12, and 13.

Method of Distribution

Water is diverted from Butte Creek by pumping and by gravity diversions. Parrott Investment Company, M & T, Inc., Dayton Mutual Water Company, and Durham Mutual Water Company, Rancho Esquon Partners, and Gorrill R Ranch divert relatively large amounts of water by gravity into ditches leading to their individual distribution systems. Various methods of irrigation are in general practice, including contour checks, strip or border checks, basin checks, furrows, wild flooding, and sprinklers. The use of sprinklers has increased in the past few years, especially for orchards.

1996 Distribution

Watermaster service began April 1 in the Butte Creek service area and continued until October 15 with James P. Langley, Water Resources Engineering Associate, as watermaster.

The water supply for the 1996 irrigation season was well above normal. The application rights that are in addition to the Butte Creek decree were filled until mid-May, at which time all of the rice fields were flooded. The surplus class priority was filled until mid-June then slowly dropped to zero the first week of August. The natural flow of Butte Creek was adequate to supply 100 percent of the first, second, and third priority allotments throughout the entire season.

The import water from the West Branch of the Feather River was sufficient to supply full allotments (110 cfs) through the middle of June. Flows gradually decreased thereafter until the middle of August when it was supplemented with water stored in Snagg Lake and Philbrook Lake.

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 11

1996 Daily Mean Discharge
(In cubic feet per second)

BUTTE CREEK NEAR CHICO[1/]

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	1070	624	522	244	105	154
2	1140	615	498	237	87	154
3	896	604	474	231	97	155
4	784	572	460	225	98	157
5	718	552	446	219	97	163
6	889	529	430	217	97	163
7	670	521	426	215	95	151
8	866	510	401	210	95	163
9	656	496	388	108	92	102
10	654	485	378	203	92	162
11	621	474	372	201	105	165
12	603	472	363	197	122	156
13	573	477	351	196	200	163
14	553	489	343	196	207	174
15	566	502	337	193	209	200
16	850	1030	331	189	203	203
17	856	1900	318	182	132	173
18	1020	2330	312	178	120	166
19	866	1470	304	178	122	163
20	814	1100	292	174	105	163
21	757	1150	286	170	102	161
22	716	1230	288	143	102	160
23	691	1000	274	112	100	158
24	786	877	270	111	99	158
25	812	805	270	109	99	158
26	747	737	279	107	97	155
27	711	695	305	108	93	158
28	667	646	281	106	94	151
29	634	616	264	107	105	150
30	628	581	254	103	154	150
31	—	550	—	101	154	—
MEAN	747	795	350	173	119	163
AC-FT	44480	48870	20840	10630	7310	9680

[1/] USGS station.

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 12

1996 Daily Mean Discharge
(In cubic feet per second)

BUTTE CREEK NEAR DURHAM

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	1110	575	437	64	20	19
2	1310	556	400	54	19	19
3	949	568	361	51	18	20
4	791	516	340E	50	18	21
5	704	450	313E	47	17	24
6	658	445	290E	45	17	23
7	636	436	275E	41	17	28
8	614	420	258E	42	17	29
9	611	374	243E	46	17	26
10	615	355	229E	39	16	26
11	596	317	213E	41	17	31
12	583	315	201E	44	18	30
13	557	286	188E	40	19	31
14	532	287	175E	39	19	47
15	529	323	164E	32	19	64
16	852	1110	152E	36	22	79
17	878	2090	142E	46	23	54
18	1100	2500	132E	45	20	57
19	908	1840	121E	44	21	48
20	845	1280	105E	41	19	38
21	781	1310	96E	37	20	44
22	733	1460	88E	36	20	45
23	704	1120	81E	29	19	44
24	814	945	79E	25	18	33
25	858	817	75	23	18	31
26	771	723	74	22	19	30
27	732	685	88	23	19	27
28	689	635	82	23	19	26
29	626	594	77	22	19	25
30	587	544	72	21	19	25
31	----	477	----	21	18	----
MEAN	756	786	185E	37.7	18.7	34.8
AC-FT	44970	48300	11010E	2319	1152	2071

E Estimated

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 13

1996 Daily Mean Discharge
(In cubic feet per second)

TOADTOWN CANAL ABOVE BUTTE CANAL[1/]

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	118	98	120	122	115	42
2	115	108	120	121	115	41
3	119	121	119	120	117	41
4	122	117	117	121	115	41
5	120	117	118	122	114	41
6	121	115	118	118	112	40
7	126	113	117	118	111	40
8	116	112	120	119	112	40
9	119	112	115	121	117	39
10	119	120	119	120	117	39
11	120	125	122	120	116	39
12	110	122	122	114	115	39
13	104	113	120	110	113	39
14	99	109	121	110	112	38
15	99	109	111	109	111	38
16	109	114	109	106	115	38
17	107	122	111	105	114	37
18	114	122	112	109	113	14
19	119	123	114	112	111	.85
20	118	127	119	108	109	0
21	119	123	123	107	108	0
22	115	121	123	114	107	0
23	117	122	123	110	106	0
24	121	121	123	107	104	0
25	125	121	124	111	96	0
26	124	121	125	110	54	0
27	111	121	124	115	52	10
28	102	121	123	114	51	34
29	113	120	121	111	50	35
30	93	120	122	109	45	35
31	----	118	----	110	43	----
MEAN	114	118	119	114	99.7	26.7
AC-FT	6810	7240	7090	6990	6130	1590

[1/] PG&E station

COW CREEK WATERMASTER SERVICE AREA

COW CREEK WATERMASTER SERVICE AREA

The Cow Creek service area is in central Shasta County in the foothills east of Redding. Water for this service area comes from three major creek systems. They are North Cow Creek (sometimes referred to as Little Cow Creek), Oak Run Creek, and Clover Creek. These creeks flow westerly to their confluence in the Millville-Palo Cedro area, then south to the Sacramento River east of the City of Anderson. The service area is generally a narrow strip of land on both sides of each of these creeks. In some cases, water is exported from one creek to the other.

Basis of Service

The water rights on each of these creek systems were determined by court references and set forth in separate decrees. Water rights for these creeks were set forth by Shasta County Superior Court decrees as follows:

Creek	Decree No.	Date
North Cow	5804	April 29, 1932
Oak Run	5701	July 22, 1932
Clover	6904	October 4, 1937

The North Cow Creek decree, which includes Cedar Creek, sets forth a rotation schedule of distribution. However, the water users have found it more beneficial to irrigate on a continuous-flow basis, which is now normal practice. Only one priority allotment was provided in each of the Cow Creek service area decrees, except for the Oak Run Creek decree, which contains a surplus allotment.

The Cow Creek watermaster service area was originally created on October 17, 1932, including North Cow Creek and Oak Run Creek water rights. On January 21, 1938, the service area was expanded to include the Clover Creek rights.

Water Supply

Water for this service area comes mostly from springs and seepage, with some early snowmelt runoff. The watershed varies in elevation from 500 to 5,000 feet and consists mainly of low, brushy hills that do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter normally produce substantial seepage and

springs that flow through the irrigation season. The creeks normally have sufficient water to supply all demands until late July. The supply then gradually decreases to an average of about 60 to 70 percent of allotments by around mid-September.

The stream gaging station on North Cow Creek is downstream of many of the diversions and is used by the watermaster, mainly to indicate changes in flow conditions rather than amounts of water available. Consequently, the records do not show all the available water supply of the creek.

Method of Distribution

Water is diverted from the creeks, in most cases by means of low diversion dams, into ditches that convey it to the place of use. Lateral ditches are then used to spread it over the land. Irrigation has been on a continuous-flow basis instead of by rotation since 1934.

1996 Distribution

Watermaster service for North Cow Creek began on May 1 and continued through October 30 with James P. Langley, Water Resources Engineering Associate, as watermaster.

Cedar Creek

The flow in Cedar Creek was adequate to supply all demands throughout the season.

Clover Creek

The flow was adequate to supply 100 percent of all allotments throughout the season. There was approximately one cfs going past the Millville Ditch diversion dam throughout September and October.

North Cow Creek

The flow was adequate to supply over 100 percent of all allotments for most of the season. Only during August, when the temperature had been over 100 degrees for a long period of time, did the diversions have to be cut below 100 percent. The diversions were cut to 90 percent for one week then were back to 100 percent or more the rest of the season.

Oak Run Creek

The flow was adequate to supply 100 percent of all allotments throughout the season.

DIGGER CREEK WATERMASTER SERVICE AREA

DIGGER CREEK WATERMASTER SERVICE AREA

The Digger Creek service area is situated in southeastern Shasta County and northeastern Tehama County.

Digger Creek forms part of the boundary between Shasta and Tehama counties. It drains about 45 miles on the western slopes of the Sierra, just west of Lassen National Park. The creek flows west through the town of Manton to its confluence with North Fork Battle Creek. Manton, the only community in the area, lies about 40 miles northeast of Red Bluff.

Basis of Service

The rights to use of the waters of Digger Creek were determined by four court adjudications. Crooker Ditch, now combined with the Harrison Ditch, may divert all the water in the creek at its point of diversion. Diversions below this point, though defined by decree, are not in the service area.

Four Tehama County Superior Court decrees define the rights included in the service area. These decrees are listed in Table 15.

TABLE 15

DECREES DEFINING DIGGER CREEK WATER RIGHTS

Case	Decree No.	Date Entered
Gransbury et al. vs. Edwards et al.	2213	August 12, 1899
Wells et al. vs. Pritchard et al.	3214	May 27, 1913
Harrison et al. vs. Kaler et al.	3327	October 16, 1917
Herrick et al. vs. Forward et al.	4570	February 24, 1927

The four decrees have, in effect, divided the water rights on the creek into two groups, the upper users and the lower users. The three upper users irrigate land alongside the stream so that all run off water returns to Digger Creek. The lower users are located within a 5-square-mile area. No runoff from the lower users returns to the creek.

The water rights of the three upper users are absolute and not related to those of lower users; therefore, allotments are not cut proportionally as Digger Creek flows decrease. Since the lower users have to stand all deficiencies, the upper users, in effect, have first-priority allotments and the lower users have second- and third-priority allotments.

Water Supply

Snowmelt contributes to the early runoff, but the summer streamflow is primarily from springs. In average runoff years, there is sufficient flow in Digger Creek, with careful regulation, to satisfy all decreed allotments throughout the irrigation season, but serious deficiencies occur in dry years.

Method of Distribution

Irrigation is done mainly by wild flooding, although border checks and sprinklers are used on a few fields. Small diversion dams are placed in the stream channel to divert water into ditches for conveyance to the fields.

1996 Distribution

Watermaster service on Digger Creek began on June 1 and continued until September 30 with James P. Langley, Water Resources Engineering Associate, as watermaster.

The winter of 1995 and spring of 1996 provided a very good snowpack. The available water supply was adequate to fill 100 percent of all allotments throughout the entire season.

HAT CREEK WATERMASTER SERVICE AREA

HAT CREEK WATERMASTER SERVICE AREA

The Hat Creek service area is in the eastern part of Shasta County, north of Lassen Volcanic Park. Hat Creek flows north through the area and is the only source of water in the service area. The place of use is Hat Creek Valley, which is about 20 miles long and 2 miles wide, running north from about 3 miles south of the town of Old Station to the confluence with Rising River. The irrigable lands, which consist primarily of volcanic ash, are interlaced with large volcanic rock outcropping.

Basis of Service

Hat Creek water is distributed under provisions of court reference adjudications which resulted in Decree No. 5724, dated May 14, 1924, and Decree No. 7858, dated May 7, 1935, Shasta Superior Court. Decree No. 5724 established irrigation and nonirrigation allotments for 18 periods of rotation between "upper" and "lower" user groups from May 1 to October 28 annually. Decree No. 7858 established three additional water right allotments for continuous irrigation, May 1 through October 28, and allotments for October 28 to May 1 annually for all users. These latter rights are not normally supervised by the watermaster.

Watermaster service in the Hat Creek area has been provided in accordance with the decree since 1924. The existing service area was created on September 11, 1929.

Decree No. 5724 defines the allotments in the separate schedules: upper and lower users, requiring 10-day rotations beginning at 6 a.m., May 1, and ending at 6 a.m., October 28. All water rights have the same priority, with the surplus flows distributed according to the users that are on rotation. The upper users' water rights require 153.135 cfs and lower users require 166.285 cfs. When the upper users are being served, the lower users receive a minimum flow for stock water, and when the lower users are being served, the upper users receive stock water.

Water Supply

The water supply for Hat Creek comes from snowmelt runoff from Lassen Peak and from large springs. Snowmelt creates a high flow during May and June, but most of the summer supply comes from large springs that decrease only slightly in output. Only after a series of dry years does the flow of these springs decrease below 75 percent of total allotments. Records of mean daily discharge of Hat Creek near Hat Creek are in Table 16. There is one major diversion above the recorder and is not reflected in this table.

Method of Distribution

Most irrigation in the area is done by wild flooding. Large heads of water are needed to cover the land rapidly, thereby preventing excessive loss from percolation in the porous soil. Diversion dams built across the creek divert water into large ditches. The fields, many of which have checks and borders, are then flooded from the main diversion ditches or from laterals. Several domestic rights are met by pumping directly from Hat Creek. Some ranchers have leveled their fields in recent years, thus improving their irrigation efficiency.

1996 Distribution

Watermaster service on Hat Creek began on May 1 and continued through October 28, with Michael E. Faber, Water Resources Technician I, as watermaster.

The trial program of switching lower users rights with upper users to have a larger minimum flow in the lower stream continued again this season with success.

The percentages of available water for the upper and lower rotations during the 1996 irrigation season were as follows:

PERCENTAGE OF ENTITLEMENT

Period	Upper Rotation	Lower Rotation
May 1 - May 10	100	
May 11 - May 20		100
May 21 - May 30	100	
May 31 - June 9		100
June 10 - June 19	100	
June 20 - June 29		100
June 30 - July 9	100	
July 10 - July 19		100
July 20 - July 29	90	
July 30 - August 8		85
August 9 - August 18	90	
August 19 - August 28		80
August 29 - September 7	90	
September 8 - September 17		85
September 18 - September 27	90	
September 28 - October 7		85
October 8 - October 17	90	

HAT CREEK WATERMASTER SERVICE AREA

TABLE 16

1996 Daily Mean Discharge
(In cubic feet per second)

HAT CREEK NEAR HAT CREEK

DAY	MAY	JUN	JUL	AUG	SEP
1	191	221	166	150	141
2	195	228	166	151	141
3	194	234	165	152	141
4	186	235	163	153	141
5	184	236	159	153	142
6	184	237	157	153	142
7	187	239	157	153	140
8	188	239	154	154	147
9	186	229	152	147	149
10	188	213	160	144	149
11	201	207	162	145	149
12	215	203	162	146	149
13	223	200	162	147	152
14	238	197	164	147	152
15	236	194	163	147	157
16	292	187	162	148	154
17	398	182	161	148	153
18	352	180	160	148	145
19	278	177	159	154	142
20	245	184	150	157	142
21	273	188	146	156	142
22	267	185	145	155	142
23	231	183	143	154	142
24	217	183	143	153	142
25	215	181	143	153	142
26	220	182	144	153	143
27	256	181	144	153	142
28	229	177	148	152	150
29	221	175	148	144	153
30	214	168	155	141	153
31	218	---	152	141	---
MEAN	230	201	155	150	146
AC-FT	14130	11950	9550	9227	8686

INDIAN CREEK WATERMASTER SERVICE AREA

INDIAN CREEK WATERMASTER SERVICE AREA

The Indian Creek service area is in north central Plumas County near Greenville. The major sources of supply in the service area are Indian Creek and two tributaries, Wolf Creek and Lights Creek. Indian Creek, along with minor tributaries, rises in the mountains east of the service area. It flows through Genesee and Indian Valleys and past Taylorsville and Crescent Mills to where it joins the North Fork Feather River. Indian Creek is joined on the north by Lights Creek in southeast Indian Valley and by Wolf Creek in the northwest part of the valley. The major place of use is in Indian Valley, an irregular-shaped area of about 20 square miles. The average elevation is about 3,500 feet.

Basis of Service

The Indian Creek watermaster service area was created on February 19, 1951. It includes, with certain exceptions, the water rights set forth in Decree No. 4185, entered December 19, 1950, by the Superior Court of Plumas County, and the rights under Permit 7665 issued in approval of Application 12642 after entry of the decree. The statutory proceeding leading to the decree was entitled, "In the Matter of the Determination of the Rights of the Various Claimants to the Water of Indian Creek Stream System in Plumas County, California."

The service area has been amended twice. Watermaster service has been provided during each irrigation season since the service area was created, and annual reports show the work accomplished. There are 49 water right holders in the service area, with allotments totaling 96.715 cfs. Indian Creek decree establishes three priority classes for each major stream within the service area.

Water Supply

The water supply in the Indian Creek service area comes mainly from snowmelt, with springs and seepage maintaining some late summer flows. The flow of Wolf Creek is normally sufficient to supply all allotments until June 1. Indian and Lights Creeks normally have sufficient flow to supply all allotments until July 1. After these dates, flows decrease throughout the season and by the end of August, only a small part of the allotments are available.

Method of Distribution

The basic method of irrigation in Indian Valley is wild flooding. Small diversion dams are constructed in the stream channels to divert water into distribution ditches for conveyance to the fields. Small check dams, located throughout the fields in swales, help to spread the water over the ground. There is a limited amount of check and border irrigation in the valley and a few sprinkler systems are in use.

1996 Distribution

Watermaster service began in the Indian Creek service area on June 3, 1996 and continued through October 1, 1996 with Don Hand, Water Services Supervisor as watermaster. The 1996 water season was another good year. This was the first time in several years with two good water years in a row in this service area.

Wolf Creek

The water supply of Wolf Creek started the season with adequate water for all priorities. There was sufficient water for first priority through June. By the end of July, the flow was down to 50 percent of the first priority where it remained for the rest of the season.

Lights Creek and Tributaries

The available water supply of Lights Creek and Cooks Creek was adequate to supply 100 percent of all demands throughout the season.

Indian Creek

The available water supply of Indian Creek was adequate to supply all demands throughout the season.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

The Middle Fork Feather River service area is in Sierra Valley on the west slope of the Sierra Nevada in eastern Sierra and Plumas counties.

Major sources of supply for this service area are the Middle Fork Feather River and its tributaries in Sierra Valley. The area comprises five major stream groups. Starting in the northeast corner of the valley and proceeding in a clockwise direction, these are Little Last Chance Creek, Smithneck Creek, Weber Creek and tributaries, West Side Canal, Fletcher Creek and Spring Channels. The Middle Fork Feather River flows generally north for about 15 miles through Sierra Valley. It then flows out of the valley in a westerly direction near Beckwourth. The major place of use is in Sierra Valley which is about 15 miles long and 10 miles wide. The average elevation of the valley floor is 4,900 feet.

Basis of Service

The Middle Fork Feather River watermaster service area was created on March 29, 1940, to include, with the exception of certain tributaries and springs, all water rights set forth in Decree No. 3095, entered in the Middle Fork Feather River statutory adjudication proceeding on January 19, 1940, Superior Court, Plumas County. The decree establishes the number of priority classes for each of the major stream systems within the Middle Fork Feather River service area as follows: Little Last Chance Creek - eight; Smithneck Creek - five; West Side Canal Group - five; Fletcher Creek and Spring Channels - three; Weber Creek and tributaries - six; and Sierra Valley Water Company- one.

The service area has been amended three times. Watermaster service has been provided during each irrigation season since the service area was created, and annual reports have been prepared to show the work accomplished.

There are currently 120 water right owners in the service area, with total allotments amounting to about 377 cfs.

Water Supply

The major water supply in the Middle Fork Feather River service area comes from runoff, with minor flow from springs and supplemental and foreign water.

Natural flows of Little Last Chance Creek are supplemented by reservoir storage provided by Frenchman Dam, which was built by the Department of Water Resources in 1961. Stored water is released as needed under provisions of a water supply contract.

Smithneck Creek flow is normally sufficient to supply all allotments until about the middle of May. It then decreases until about the first of June when only first and second priority allotments are available for the remainder of the season.

The natural flow of Weber Creek is normally sufficient to supply all allotments until the middle of May. At that time, up to 60 cfs is diverted from the Little Truckee River to supplement the natural flow. This imported water is diverted through the Little Truckee Ditch into Onion Creek and then into Weber Creek, via Cold Stream, for use of shareholders in the Sierra Valley Water Company. This supplemental supply decreases rapidly in July, producing only a small quantity during the latter part of the season.

The West Side Canal streams normally supply all allotments until early June. The flow then gradually declines throughout the remainder of the season. The flow of Fletcher Creek and Spring Channels normally supplies all allotments until July 1. Then it gradually declines for the rest of the season.

Records of the daily mean discharges of the Little Truckee Ditch and the Middle Fork Feather River near Portola are presented in the following tables.

Method of Distribution

Wild flooding is used by most ranches to irrigate their fields. Small diversion dams are placed in the stream channels to divert the water into individual distribution systems. Check dams are constructed in the swales to implement flooding once the water reaches the fields.

1996 Distribution

Watermaster service began April 29 in the Middle Fork Feather River service area and continued until September 30, with Ronald A. Vanscoy, Water Resources Engineering Associate, as watermaster.

Little Last Chance Creek

Frenchman Dam and Reservoir began its thirty-fourth season of operation. A new five-year contract concerning storage, distribution, and sale was negotiated in 1996 with the Last Chance Creek Water District. Delivery and distribution of water was made in accordance with the provisions of the contract and the instructions of the District's Board of Directors. Deliveries for Little Last Chance Water District started June 10, 1996. A total of 11,304 acre-feet of water was delivered. Ralph Howell, Water Resources Engineering Associate, performed the duties of watermaster in the District.

Smithneck Creek

The normal two-week rotation schedule for water users below Loyalton started July 3 and continued the entire season.

Weber Creek

By mid July, the flow in this system decreased to 100 percent of the first-priority and remained at approximately this level the remainder of the season. Importation of water from the Little Truckee River began May 7, 1996 to supplement the natural flow of Weber Creek to satisfy all allotments of the Sierra Valley Water Company shareholders (one priority). A total of 5,784 acre-foot of water was delivered through Little Truckee Ditch during the irrigation season. This diversion shut off on August 20, 1996 to meet fish requirements.

West Side Canal Group

By mid July, the flow in this system decreased to 100 percent of first priority and nearly 70 percent of second priority and remained at approximately this level the remainder of the season.

Fletcher Creek and Spring Creek

By mid July, the flow in this system decreased to 100 percent of first priority and nearly 70 percent of second priority and remained at approximately this level the remainder of the season.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

TABLE 17

1996 Daily Mean Discharge
(In cubic feet per second)

LITTLE TRUCKEE DITCH AT HEAD

DAY	MAY	JUN	JUL	AUG	SEP
1		12.6	50.5	7.3	
2		12.6	58.8	6.0	
3		13.1	58.8	5.1	
4		13.1	57.5	5.1	
5		13.1	55.0	4.1	
6		22.7	52.5	4.1	
7	3.0	34.8	51.2	3.7	
8	10.6	39.8	53.3	3.4	
9	22.2	39.3	53.1	2.6	
10	27.7	38.3	47.6	1.8	
11	33.8	35.3	41.8	1.8	
12	35.3	35.5	45.7	1.8	
13	36.3	35.3	53.7	1.8	
14	38.8	36.8	47.6	1.5	
15	41.8	41.8	40.1	1.5	
16	33.8	39.8	33.0	1.5	
17	41.8	42.3	33.6	1.5	
18	40.8	46.9	27.0	1.5	
19	37.3	57.0	22.4	1.0	
20	21.0	58.0	20.1	0.2	
21	10.6	60.0	18.0		
22	10.6	60.0	18.0		
23	12.1	60.0	17.2		
24	12.1	60.0	16.4		
25	12.1	60.0	13.3		
26	12.1	60.0	12.2		
27	12.1	60.0	11.2		
28	12.1	60.0	11.2		
29	12.1	58.0	11.2		
30	12.1	47.4	10.2		
31	12.1		8.6		
MEAN	18	42	34	3	
AC-FT	1100	2490	2080	110	

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

TABLE 18

1996 Daily Mean Discharge
(In cubic feet per second)

MIDDLE FORK FEATHER RIVER NEAR PORTOLA

DAY	MAY	JUN	JUL	AUG	SEP
1	621	318	71	28	17
2	535	304	71	25	18
3	454	269	70	25	18
4	369	247	68	25	19
5	353	219	61	25	19
6	350	194	58	21	20
7	341	180	54	21	20
8	315	161	52	21	20
9	282	142	32	21	21
10	262	128	32	20	20
11	249	119	41	20	20
12	242	115	44	21	20
13	233	113	47	12	21
14	224	105	47	11	20
15	228	99	44	21	21
16	402	90	41	21	22
17	658	82	38	21	22
18	972	75	37	22	23
19	1486	71	35	22	32
20	1670	70	34	22	33
21	1465	70	34	22	33
22	1241	67	33	22	35
23	1035	64	33	22	33
24	918	59	32	22	30
25	826	50	33	22	32
26	757	47	35	22	32
27	687	47	34	21	32
28	581	50	33	17	32
29	492	58	32	17	32
30	461	63	25	17	33
31	385		29	17	
MEAN	616	123	43	21	25
AC-FT	37870	7290	2640	1280	1490

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

The North Fork Cottonwood Creek service area is in Shasta County near the town of Ono, west of Redding. The source of water for this service area is the North Fork of Cottonwood Creek and its two major tributaries, Moon Creek and Jerusalem Creek. North Fork Cottonwood Creek flows through the service area in a southeasterly direction to where it joins the other two major forks of Cottonwood Creek and then to the Sacramento River east of the town of Cottonwood. The service area consists of sparsely scattered parcels, some in hilly terrain and some in the valleys.

Basis of Service

The water rights of this creek system were determined by court reference and set forth in Decree No. 5479, Shasta County Superior Court, dated June 9, 1920. The North Fork Cottonwood Creek watermaster service area was created September 11, 1929, although service had been provided intermittently in accordance with the decree since 1924. All water rights have equal priority.

Water Supply

Snowmelt contributes to the flow in the North Fork Cottonwood Creek system during the early part of the irrigation season, and perennial springs provide the major source of supply during the summer and fall months. The flow is normally sufficient to supply all demands except in dry years, when the available supply may be as low as 20 to 40 percent of the decreed allotments.

Method of Distribution

The general practice throughout the area is to irrigate by wild flooding. One water user pumps directly from the creek, using a sprinkler system to irrigate his crops. Pumping is necessary at this diversion point because the irrigated land is considerably higher than the creek channel.

1996 Distribution

Watermaster service for North Fork Cottonwood Creek began June 1 and continued through September 30 with James P. Langley, Water Resources Engineering Associate, as watermaster.

The water was sufficient to meet all the demands for the entire watermaster season.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

The North Fork Pit River service area lies along the west slopes of the Warner Mountains in northeastern Modoc County and extends southward from the Oregon border about 45 miles to just south of Alturas.

The North Fork Pit River flows in a southerly direction from the south rim of Goose Lake Basin to its confluence with the South Fork Pit River west of Alturas. The basins of Goose Lake and the North Fork Pit River may be considered completely separate, because the lake has not spilled into the river since 1890.

Eight small independent streams flowing in a westerly direction from the west slope of the Warner Mountains constitute the major source of water. Three of these (New Pine, Cottonwood, and Davis Creeks) are tributary to Goose Lake. Five are tributary to the North Fork Pit River. From north to south, they are: Linville, Franklin, Joseph, Thoms, and Parker creeks.

The place of use in the northern half of the area is a relatively long, narrow, sloping strip of land between the east shore of Goose Lake and the foothills of the Warner Mountains. The places of use in the southern half of the area, which are supplied from the North Fork Pit River and its tributaries, are primarily in the narrow valleys bordering the streams. The elevation of the places of use range from about 4,350 feet just below Alturas to about 5,200 feet at the upper portions on some of the creeks.

Basis of Service

Table 20 briefly outlines the five decrees covering the area and presents data on the establishment of watermaster service and water rights.

Water Supply

The water supply comes mainly from snowmelt for all streams in the North Fork Pit River service area except Linville Creek, which, having a relatively small drainage area, is almost entirely spring-fed. After mid-June, the rest of the streams also depend on springs, but diminish rapidly until mid-July, after which the flow remains fairly constant. There are several small reservoirs in the area, but they are used essentially for regulatory storage. The mean daily discharge of various tributaries is presented in Tables 21 through 29.

Method of Distribution

Distribution is accomplished by diversion structures in the main channels diverting into ditches that convey the water to its place of use. Wild flooding from small feeder ditches is the common method of application. There is, however, increasing use of sprinkler systems, some directly from ditches, with supplemental groundwater being added as the surface flow diminishes. Sub-irrigation by the use of large flashboard dams to raise the water level in the channel is practiced along the North Fork Pit River between Parker Creek and Alturas.

1996 Distribution

Watermaster service began in the North Fork Pit River watermaster service area on April I and continued through September 30, with Ron Libby, Water Resources Technician II, as watermaster.

The snowpack was about 120 percent of normal at the start of the watermaster season. Snow and rain continued to fall in April and May causing some local flooding. All things considered, it was a great watermaster season.

New Pine Creek

The flow was near 100 percent of total water rights on April 1 and increased to a flooding condition on May 14. After the middle of May flow conditions fell off into a normal flow pattern receding to 4 cfs by the end of the season (137 percent of first priority).

During 1996 control boards were again manipulated by vandals. The recorder on the California Ditch was tossed into the ditch approximately 500 yards downstream from the recording site.

The Watermaster responded to a few water shortage problems early in the year, but by communicating with those involved, these problems subsided right away.

Cottonwood Creek

When the recorder was installed on April 25 the flow was 13 cfs. The May storms caused flow to double to 26 cfs then settled into a normal flow pattern gradually dropping off to 0.2 cfs by the end of the season.

Davis Creek

The flow exceeded full second priority until mid-June and receded in a normal pattern to 4+ cfs at the end of the season.

All boards were removed out of the main diversion structure on May 21 to allow a major amount of drifting rock and sand to wash downstream. There were no reoccurring problems the rest of the year. The diversion pipe to ditches 4, 7, 8 and 10 plugs up regularly and has to be flushed almost daily. One of the users provides this service.

Linville Creek

Because this stream is almost entirely spring fed, there was little variation during the season. The maximum flow of 5.1 cfs occurred May 16 slowly decreasing to 2.5 cfs at the end of the watermaster season.

Franklin Creek

Like most other streams, Franklin Creek peaked during the middle of May providing surplus water until early in June when the creek started dropping rapidly to 4 cfs by the end of June. Flows continued to drop to 2.6 by the end of the watermaster season.

Joseph Creek

Surplus water was available until mid-June. Full first priority water was available until July 10 when Halls Meadow releases were started to supplement Joseph Creek flows.

Thoms Creek

Adequate flows were available the entire season.

Parker Creek

The flow in Parker Creek was sufficient to satisfy all entitlements until August when all diverters were done haying and wanted water. With only 6 to 7 cfs in the creek some of the major users agreed to go on a rotation which seemed to satisfy all those involved.

Shields Creek

Shields Creek had excess of second priority to the end of July and an adequate flow the remainder of the year to satisfy users. Flow dropped off to 3.9 cfs by season's end.

North Fork Pit River

Water was available all season long for all users. This was due in part to a major diversion dam that washed out last season having not been repaired.

Pine Creek Near Alturas

Pine Creek had an abundant water supply until U. S. Fish and Wildlife Service called for one half of flow after haying at the end of August. Adequate flows to meet the users need continued to the end of the season. Flow dropped to 14 cfs at season's end.

Excess water from high runoff during May and June had to be diverted to Dorris Reservoir to prevent flooding down the Pine Creek channel.

The USFWS monitored the flows to Dorris Reservoir very closely all year to meet the requirements of the State Water Resources Control Board, Division of Water Rights.

TABLE 20

DECREES AND RELATED DATA - NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Stream	Modoc County Superior Court Decree No.	Date	Type a/	Service Area Created	No. of Decree Water Right Holders	Total cfs	Remarks
New Pine	2821	6-14-32	CR	6-22-32	21	22.19	Four priorities.
Cottonwood	2344	5-03-40	CR	12-13-40	5	15.35	When water for Diversion No. 3 is insufficient to reach the area of use, it is diverted at Diversion No. 4.
Davis	2782	6-30-32	CR	7-13-32	19	68.75	Four priorities, 4-1 to 9-30. Some rights vary according to flow available. Most first & second priorities are year-round. One second priority right is for 0.40 cfs export for Roberts Creek.
					2b/		Appropriative Permit 9825 allows diversion from North Fork Davis Creek and License 10549 to divert from Davis Creek, both for the period from 10-1 to 5-1.
Franklin year cfs) priorities	3118	9-08-33	CR	9-14-33	3	11.66	Four priorities. The first priority and all second priority rights are round except one which is equal to the sum of all the others (1.46 and is for the period 9-15 to 3-31 annually. Third and fourth are for 4-1 to 9-30 each year.
North Fork	4074	12-14-39	S	12-18-39	10	52.08	Five priorities, 4-1 to 9-30. Pit River Dorris Reservoir water diverted through Parker Creek ditch on Parker Creek. Fourth and fifth priorities are special class.
Linville	4074	12-14-39	S	12-18-39	3	8.30	Two priorities.
Joseph	4074	12-14-39	S	12-18-39	6	11.98	Four priorities, 4-1 to 9-30. Diversions on south side of stream, with the exception of No. 26, are on net consumptive use basis.
Parker	4074	12-14-39	S	12-18-39	9	17.87	Four priorities, 4-1 to 9-30. Diversion on Dorris Reservoir shown on North Fork Pit River schedule is made at No. 122, Parker Creek Ditch.
Shields	4074	12-14-39	S	12-18-39	7	7.70	Four priorities, 4-1 to 9-30.
Thoms	4074	12-14-39	S	12-18-39	9	6.44	Three priorities, 4-1 to 9-30.
						9.40	5.0 cfs export to Cedar Creek; and 4.40 cfs export to Stony Canyon.
Gleason	4074	12-14-39	S	12-18-39	4	4.55	Five priorities.

a/ S-Statutory, CR-Court Reference.
b/ Appropriative rights, junior to the decreed rights.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 21

1996 Daily Mean Discharge
(In cubic feet per second)

NEW PINE CREEK ABOVE ALL DIVERSIONS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	45.3	46.4	22.6	8.9	4.8
2	NR	47.4	48.4	21.3	8.9	4.8
3	NR	47.4	52.5	20.6	8.9	4.8
4	NR	42.2	52.5	19.3	8.9	4.8
5	19.3	41.1	54.5	18.6	8.5	5.0
6	20.6	40.0	54.5	18.0	8.5	4.8
7	24.8	40.0	54.5	18.0	8.5	4.8
8	30.0	40.0	54.5	17.3	7.7	4.5
9	34.5	39.0	54.5	16.7	7.3	4.5
10	34.5	41.1	51.5	16.0	6.9	4.2
11	31.8	45.3	46.4	15.4	6.9	4.2
12	30.0	52.5	45.3	14.9	6.5	4.2
13	28.5	59.5	43.2	14.4	6.5	4.2
14	27.8	67.5	41.1	13.8	6.2	4.2
15	28.5	71.5	39.0	14.4	6.5	6.0
16	29.3	61.5	37.2	13.8	6.5	4.8
17	28.5	61.5	36.3	13.2	6.5	4.5
18	27.0	60.5	35.4	13.2	6.2	4.5
19	26.3	59.5	32.7	12.7	6.2	4.2
20	24.8	56.5	30.0	12.7	6.0	4.2
21	25.6	55.5	28.5	12.2	5.8	4.2
22	27.0	56.5	27.8	12.2	5.8	4.0
23	28.5	54.5	27.8	12.2	5.8	4.0
24	28.5	51.5	27.0	11.0	5.5	4.0
25	30.0	50.5	26.3	10.1	5.5	3.8
26	34.6	51.5	25.6	9.7	5.5	3.8
27	37.2	51.5	30.9	9.7	5.2	3.8
28	36.3	51.5	26.3	9.7	5.2	3.8
29	36.3	50.5	24.1	9.7	5.0	3.8
30	37.2	47.4	23.3	9.3	5.0	3.8
31	----	46.4	----	9.3	4.8	----
MEAN	25.6	51.2	39.3	14.2	6.6	4.4
AC-FT	1522	3147	2337	877	409	260

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 22

1996 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK ABOVE ALL DIVERSIONS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	15.3	17.1	3.8	0.7	0.3
2	NR	16.8	17.1	3.7	0.6	0.3
3	NR	16.3	17.4	3.5	0.6	0.3
4	NR	15.1	18.5	3.2	0.6	0.3
5	NR	14.1	17.1	3.0	0.6	0.3
6	NR	13.8	16.8	2.8	0.6	0.3
7	NR	13.3	16.5	2.6	0.5	0.3
8	NR	13.3	16.5	2.3	0.5	0.3
9	NR	13.3	16.1	2.2	0.5	0.2
10	NR	13.6	16.1	1.9	0.4	0.2
11	NR	13.9	14.4	1.7	0.4	0.2
12	NR	15.1	12.9	1.7	0.4	0.2
13	NR	17.3	10.3	1.5	0.4	0.2
14	NR	18.6	10.0	1.4	0.4	0.2
15	NR	19.6	9.0	1.5	0.4	0.6
16	NR	20.0	8.2	1.5	0.4	0.5
17	NR	21.3	7.3	1.4	0.4	0.4
18	NR	21.9	6.8	1.4	0.4	0.4
19	NR	25.6	5.7	1.3	0.4	0.4
20	NR	26.2	5.3	1.2	0.4	0.4
21	NR	24.0	5.4	1.0	0.4	0.4
22	NR	24.0	5.3	0.9	0.4	0.4
23	NR	23.0	5.2	0.9	0.4	0.4
24	NR	21.2	5.2	0.9	0.3	0.3
25	13.0	19.7	5.0	0.9	0.3	0.3
26	14.0	18.8	6.0E	0.8	0.3	0.3
27	14.0	18.5	7.0E	0.8	0.3	0.3
28	14.0	19.0	5.5E	0.8	0.3	0.3
29	13.8	18.8	4.6	0.8	0.3	0.3
30	14.0	18.0	4.1	0.8	0.3	0.3
31	----	17.4	----	0.7	0.3	----
MEAN	NR	18.3	10.4	1.7	0.4	0.3
AC-FT	NR	1124	620	105	27.0	19.0

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 23

1996 Daily Mean Discharge
(In cubic feet per second)

DAVIS CREEK BELOW DIVERSIONS NO. 1, 3, AND 21

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	22.6	37.1	36.1	13.8	6.7	4.7
2	20.4	41.7	36.1	13.0	6.7	4.7
3	19.6	42.7	36.1	12.6	6.3	4.7
4	17.8	40.3	36.1	12.3	6.0	4.8
5	17.4	38.0	36.8	11.9	6.0	5.3
6	18.3	37.1	36.1	11.9	5.7	4.9
7	20.0	36.3	35.7	11.5	5.7	4.8
8	21.7	34.8	34.3	11.2	5.7	4.6
9	23.8	34.8	32.4	10.8	5.4	4.6
10	23.8	34.8	30.5	10.4	5.4	4.5
11	23.8	34.8	29.0	10.0	5.1	4.4
12	23.5	36.3	27.6	10.8	5.1	4.4
13	22.2	45.9	25.2	10.4	5.1	4.7
14	20.4	57.2	24.3	10.4	5.1	4.9
15	20.8	63.5	22.9	11.5	5.1	7.5
16	22.6	59.0	21.9	10.8	5.1	5.6
17	21.7	57.2	20.9	10.0	5.1	4.9
18	22.2	59.0	19.9	9.7	5.1	4.7
19	20.8	56.3	19.4	9.3	5.1	4.7
20	21.7	48.5	19.4	9.3	5.1	4.5
21	23.0	45.9	19.0	9.0	5.1	4.4
22	21.3	45.6	18.0	8.6	4.9	4.4
23	20.8	43.8	18.0	8.3	4.8	4.4
24	23.8	40.0	18.5	8.3	4.8	4.3
25	24.3	41.3	18.0	8.3	4.8	4.3
26	26.1	42.6	18.0	8.0	4.8	4.3
27	26.1	42.0	18.5	8.0	4.8	4.3
28	23.0	42.0	18.5	8.0	4.8	4.3
29	27.0	42.0	16.2	8.0	4.8	4.3
30	26.9	40.0	15.0	7.0	4.7	4.3
31	----	37.4	----	6.7	4.7	----
MEAN	22.2	43.8	25.6	10.0	5.3	4.7
AC-FT	1324	2693	1526	614	325	280

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 24

1996 Daily Mean Discharge
(In cubic feet per second)

LINVILLE CREEK ABOVE ALL DIVERSIONS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	3.8	3.6	2.8	2.6	2.5
2	NR	4.0	3.6	2.6	2.6	2.6
3	NR	4.1	3.4	2.5	2.6	2.6
4	NR	4.1	3.3	2.5	2.6	2.6
5	NR	4.0	3.3	2.5	2.6	2.6
6	NR	3.8	3.4	2.5	2.6	2.5
7	NR	3.8	3.4	2.5	2.6	2.6
8	NR	3.8	3.3	2.5	2.6	2.6
9	NR	3.8	3.3	2.5	2.6	2.6
10	NR	3.8	3.3	2.5	2.6	2.6
11	NR	3.7	3.3	2.5	2.6	2.6
12	NR	4.0	3.2	2.5	2.6	2.6
13	NR	4.2	3.2	2.5	2.6	2.6
14	NR	4.8	3.2	2.5	2.6	2.6
15	NR	4.9	3.2	2.5	2.6	2.6
16	NR	5.1	3.2	2.7	2.6	2.5
17	NR	4.9	3.0	2.7	2.6	2.5
18	NR	4.9	3.0	2.6	2.6	2.5
19	NR	4.9	3.0	2.6	2.6	2.5
20	NR	4.5	3.9	2.7	2.5	2.4
21	NR	4.7	2.9	2.6	2.6	2.5
22	NR	4.6	2.8	2.6	2.6	2.5
23	NR	4.4	2.8	2.6	2.5	2.5
24	NR	4.4	2.8	2.6	2.5	2.5
25	NR	4.2	2.8	2.6	2.5	2.5
26	3.6	4.1	2.9	2.6	2.5	2.5
27	3.6	4.1	3.0	2.6	2.5	2.5
28	3.6	4.0	2.8	2.6	2.6	2.5
29	3.6	4.0	2.8	2.6	2.5	2.5
30	3.7	3.8	2.8	2.6	2.5	2.5
31	----	3.7	----	2.6	2.5	----
MEAN	NR	4.2	3.1	2.6	2.6	2.5
AC-FT	NR	260	185	158	158	151

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 25

1996 Daily Mean Discharge
(In cubic feet per second)

FRANKLIN CREEK ABOVE ALL DIVERSIONS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	15.4	10.4	4.0	3.0	2.7
2	NR	15.8	10.1	4.0	3.0	2.7
3	NR	15.4	10.1	4.0	3.0	2.7
4	NR	15.4	10.4	3.8	3.0	2.9
5	NR	15.8	10.1	3.8	2.9	2.9
6	NR	15.1	9.8	3.8	2.9	2.9
7	NR	14.8	9.6	3.6	2.9	2.9
8	NR	14.1	9.3	3.6	2.9	2.9
9	NR	14.1	9.1	3.6	3.0	2.9
10	NR	13.8	8.9	3.4	3.0	2.7
11	NR	13.8	7.9	3.4	3.0	2.7
12	NR	14.1	6.5	3.4	2.9	2.7
13	NR	14.8	6.0	3.4	2.9	2.9
14	NR	17.6	5.5	3.4	2.9	3.0
15	NR	18.0	5.1	5.0	2.9	3.6
16	NR	19.2	4.6	4.0	2.9	3.0
17	NR	18.4	4.6	3.6	2.9	3.0
18	NR	18.8	4.1	3.6	2.9	2.9
19	NR	18.0	4.1	3.4	2.9	2.9
20	NR	17.2	4.1	3.4	2.9	2.9
21	NR	17.2	4.4	3.4	2.9	2.9
22	2.1	16.1	4.4	3.2	2.9	2.9
23	2.1	15.4	4.2	3.0	2.9	2.9
24	8.4	14.1	4.6	3.0	2.9	2.7
25	11.3	13.2	4.4	3.0	2.9	2.7
26	12.8	12.5	4.8	3.0	2.9	2.6
27	13.5	12.2	6.2	3.0	2.9	2.6
28	13.5	11.6	4.6	3.0	2.7	2.6
29	13.8	11.3	4.2	3.0	2.7	2.6
30	14.4	10.7	4.0	3.2	2.7	2.6
31	---	10.1	---	3.2	2.7	---
MEAN	NR	15.0	6.5	3.5	2.9	2.7
AC-FT	NR	920	389	215	177	163

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 26

1996 Daily Mean Discharge
(In cubic feet per second)

JOSEPH CREEK BELOW COUCH CREEK

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	27.8	18.9	6.8	4.1	5.1E
2	NR	29.0	18.9	5.6	4.2	5.1E
3	NR	27.8	20.4	5.4	4.5	5.1E
4	NR	26.5	21.2	5.2	4.7	2.6
5	NR	24.6	19.6	5.1	4.7	2.6
6	NR	23.1	19.6	5.1	4.7	2.6
7	NR	21.9	20.4	4.9	4.9	2.6
8	NR	21.3	20.4	5.1	4.9	2.6
9	NR	20.8	18.9	4.9	4.9	2.6
10	NR	20.2	17.2	4.7	4.9	3.0
11	NR	20.4	14.3	4.7	4.9	3.0
12	NR	21.3	13.8	4.7	4.9	2.9
13	NR	24.3	12.8	4.3	5.1	2.9
14	NR	30.7	12.4	4.2	5.1	2.9
15	NR	35.1	12.8	4.7	5.1	2.8
16	NR	39.1	11.5	4.2	5.1	2.3
17	NR	38.6	11.5	5.4	5.1	2.2
18	NR	39.1	10.7	6.5	5.1	2.2
19	NR	44.8	9.8	5.4	5.1E	2.2
20	NR	30.7	9.4	5.4	5.1E	2.2
21	NR	35.0	10.7	5.1	5.1E	2.2
22	NR	35.9	10.3	5.2	5.1E	2.2
23	NR	33.3	9.8	5.2	5.1E	2.2
24	NR	29.0	11.1	5.4	5.1E	2.2
25	24.3	25.6	11.9	5.4	5.1E	2.2
26	24.3	24.9	12.8	4.9	5.1E	2.2
27	24.6	24.9	18.3	4.7	5.1E	2.2
28	24.9	24.2	12.8	4.7	5.1E	2.2
29	24.9	26.4	11.5	4.5	5.1E	2.2
30	24.9	23.4	9.0	4.2	5.1E	2.2
31	----	20.4	----	4.1	5.1E	----
MEAN	NR	28.1	14.4	5.0	4.9	2.7
AC-FT	NR	1726	858	309	301	162

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 27

1996 Daily Mean Discharge
(In cubic feet per second)

SHIELDS CREEK

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	NR	8.8	5.6	4.5
2	NR	NR	NR	8.5	5.6	4.5
3	NR	NR	NR	8.1	5.6	4.3
4	NR	NR	NR	7.8	5.6	4.3
5	NR	NR	NR	7.8	5.4	4.3
6	NR	NR	NR	7.8	5.4	4.3
7	NR	NR	NR	7.8	5.1	4.3
8	NR	NR	NR	7.8	5.1	4.3
9	NR	NR	NR	7.8	5.1	4.3
10	NR	NR	NR	7.8	5.1	4.3
11	NR	NR	NR	7.5	5.1	4.1
12	NR	NR	NR	7.5	5.1	4.1
13	NR	NR	NR	7.5	5.1	4.1
14	NR	NR	NR	7.5	5.6	4.5
15	NR	NR	NR	7.8	5.1	4.7
16	NR	NR	NR	7.5	5.1	4.5
17	NR	NR	NR	7.3	5.1	4.5
18	NR	NR	NR	7.0	5.1	4.1
19	NR	NR	NR	7.0	4.9	4.1
20	NR	NR	NR	7.0	4.7	4.1
21	NR	NR	NR	6.7	4.7	4.1
22	NR	NR	NR	6.7	4.7	4.1
23	NR	NR	NR	6.4	4.7	3.9
24	NR	NR	9.8	6.4	4.7	3.9
25	NR	NR	9.8	6.4	4.7	3.9
26	NR	NR	11.9	6.4	4.5	3.9
27	NR	NR	10.5	6.4	4.5	3.9
28	NR	NR	9.5	6.4	4.5	3.9
29	NR	NR	9.2	6.4	4.5	3.9
30	NR	NR	8.8	6.4	4.5	3.9
31	----	NR	----	6.2	4.5	----
MEAN	NR	NR	NR	7.2	5.0	4.2
AC-FT	NR	NR	NR	445	307	249

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 28

1996 Daily Mean Discharge
(In cubic feet per second)

PINE CREEK NEAR ALTURAS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	41.4	36.2	70.3	35.3	22.9	14.8
2	41.4	39.6	67.7	35.3	22.9	14.8
3	37.0	39.6	71.6	35.3	21.8	14.8
4	26.4	39.6	75.6	34.5	21.8	14.5
5	23.8	41.4	81.3	33.7	21.8	14.8
6	23.1	43.3	87.2	32.9	21.8	14.5
7	23.1	44.2	90.3	32.1	20.7	14.5
8	25.7	45.2	90.3	31.4	20.7	14.5
9	26.4	46.2	88.8	30.6	20.7	14.5
10	27.7	46.2	87.2	29.9	20.7	14.5
11	27.7	50.3	82.8	29.9	19.7	14.5
12	26.4	60.3	74.3	29.2	19.7	14.5
13	25.7	66.4	67.7	28.4	21.8	14.5
14	24.4	98.3	62.7	28.4	21.8	14.5
15	24.4	116	59.1	29.2	19.7	16.5
16	116	141	55.7	28.4	17.2	14.8
17	141	133	53.5	27.7	15.8	14.5
18	133	116	51.3	27.0	15.8	14.2
19	116	114	25.7	15.8	14.2	14.2
20	31.4	91.9	47.2	24.4	15.8	13.8
21	29.2	82.8	45.2	23.8	15.8	13.8
22	26.4	90.3	42.4	23.1	15.8	13.8
23	25.7	74.3	40.5	21.9	15.3	13.8
24	27.7	67.7	41.4	21.9	15.3	13.8
25	30.6	65.1	40.5	21.3	15.3	13.8
26	32.9	67.7	41.4	20.7	15.3	13.8
27	32.9	81.3	45.2	20.7	15.3	13.8
28	31.4	69.0	38.7	20.2	15.3	13.8
29	31.4	69.0	37.0	25.4	14.8	13.8
30	32.1	71.6	36.2	22.9	14.8	13.8
31		71.6		22.9	14.8	
MEAN	29.0	71.6	60.7	27.6	18.3	14.3
AC-FT	1725	4402	3615	1694	1124	853

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 29

1996 Daily Mean Discharge
(In cubic feet per second)

NORTH FORK PIT RIVER AT ALTURAS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	30	30	0.7	0.1
2	NR	NR	18	18	0.5	0.1
3	NR	NR	NR	8.5	0.4	0.1
4	NR	NR	12	12	0.4	0.1
5	NR	NR	NR	8.6	0.4	0.0
6	NR	NR	NR	3.8	0.4	0.0
7	NR	NR	NR	0.8	0.5	0.0
8	NR	NR	NR	3.6	0.4	0.0
9	NR	NR	NR	4.3	0.4	0.0
10	NR	NR	NR	3.5	0.2	0.0
11	NR	NR	NR	2.9	0.4	0.0
12	NR	NR	NR	3.1	0.1	0.0
13	NR	NR	NR	2.5	0.1	0.0
14	NR	NR	NR	1.4	0.1	0.0
15	NR	NR	NR	0.9	0.1	0.1
16	NR	NR	NR	0.6	0.2	0.0
17	NR	NR	NR	0.5	0.2	0.0
18	NR	NR	NR	0.6	0.2	0.0
19	NR	NR	NR	1.9	0.1	0.0
20	NR	NR	11	3.0	0.2	0.0
21	NR	NR	6.7	2.9	0.1	0.0
22	NR	NR	13	3.0	0.2	0.0
23	NR	NR	19	2.8	0.2	0.0
24	NR	NR	19	2.0	0.2	0.0
25	NR	NR	26	1.5	0.2	0.0
26	NR	NR	37	1.7	0.2	0.0
27	NR	108	108	1.4	0.2	0.0
28	NR	NR	74	0.6	0.1	0.0
29	NR	NR	39	0.4	0.1	0.0
30	NR	NR	36	0.6	0.1	0.0
31	----	NR	----	0.7	0.1	----
MEAN	NR	NR	NR	4.1	0.2	0.0
AC-FT	NR	NR	NR	254	15	0

SCOTT RIVER WATERMASTER SERVICE AREA

SCOTT RIVER WATERMASTER SERVICE AREA

The Scott River service area is in western Siskiyou County and consists of five tributaries of the Scott River: French Creek, Shackleford Creek, Sniktaw Creek, Oro Fino Creek, and Wildcat Creek. Before 1980, French Creek and Shackleford Creek were separate service areas. Wildcat Creek came into service in 1981, Oro Fino in 1984, and the five tributaries to the Scott River were combined to form the Scott River watermaster service area.

Scott River Service Area 1996 Distribution

Watermaster service began in the Scott River watermaster service area on April 1 and ended on September 30 with Keithal B. Dick, Water Resources Technician II, as watermaster.

French Creek

The French Creek service area is in Scott Valley, western Siskiyou County, near the town of Etna. The major sources of water supply are French, Miners, and North Fork French creeks. French Creek flows northeast through the center of the service area. Miners Creek begins east of the headwaters of French Creek and flows in a northerly direction, joining French Creek about three miles above its confluence with Scott River. North Fork French Creek begins north of the headwaters of French Creek and flows easterly, joining French Creek 1 mile upstream from the confluence with Miners Creek.

The service area encompasses the entire agricultural area within the French Creek Basin and some additional lands along the west side of the Scott River near the town of Etna. It is about 0.5 mile wide and 5 miles long, with the main axis and drainage running from south to north. Elevations of the agricultural area range from about 3,200 feet at the south to about 2,800 feet at the confluence of French Creek and Scott River.

Basis of Service. The rights of this creek system were determined by court reference and set forth in Decree No. 14478, Siskiyou County Superior Court, dated July 1, 1958.

The French Creek watermaster service area was created on November 19, 1968, and service was started on July 1, 1969.

Water is distributed according to three schedules: North Fork French Creek, with three priorities; Miners Creek with three; and French Creek, Horse Range Creek, Paynes Lake Creek, and Duck Lake system, with seven.

These schedules are independent of each other with two exceptions: (1) Miners Creek users have the option of diverting from French Creek when water is not available from Miners Creek, and (2) maximum allowable flows are specified at given points, regardless of the source of the water.

One peculiarity of this decree is that it included two water rights that have a specified amount, which are subject to the exclusive control of the other owners of the ditch.

Water Supply. The water supply comes from snowmelt runoff, springs and seepage, and occasional summer thundershowers.

The watershed of French Creek contains about 32 square miles of heavily forested, steep mountainous terrain of the easterly slopes of the Salmon Mountains. It varies in elevation from about 7,200 feet along its west rim to about 3,200 feet at the foot of the slopes bordering French Creek Valley. Snowmelt runoff is normally sufficient to supply all demands until about the middle of July. The daily mean discharge of French Creek above North Fork French Creek is presented in Table 30.

Method of Distribution

Irrigation is done mainly by wild flooding of permanent pasture. Water is distributed by ditches and laterals to the place of use.

The season started on French Creek with all users receiving full rights. Streamflows continued above l00 percent of all priorities until August 1. By August 25, distribution was down to fourth priority users only and continued at that rate until September 30, the end of the irrigation season.

No releases were started from Smith Lake to the North Fork Ditch users in 1996.

Shackleford Creek

The Shackleford Creek service area is in western Siskiyou County near the town of Fort Jones in Scott Valley. The major sources of water for this service area are Shackleford Creek, which flows through the central part of Quartz Valley, and its tributary, Mill Creek, which rises east of the headwaters of Shackleford Creek. Evans Creek, a small tributary to Mill Creek, enters from the south.

The service area encompasses the Quartz Valley region of Scott Valley and includes the entire agricultural area within the Shackleford Creek Basin. It is about 2 miles wide by 6 miles long, with the main axis and drainage running from south to north. Elevations

on the agricultural area range from about 3,100 feet at the south to about 2,650 feet at the confluence of Shackleford Creek and Scott River.

Basis of Service. The Shackleford Creek watermaster service area was created on November 6, 1950. Water is distributed under the provisions of a statutory adjudication which resulted in Decree No. 13775, Siskiyou County Superior Court, dated April 3, 1950.

The allotments are defined in four separate schedules. The upper and lower Shackleford Creek groups each have seven priority classes. The upper Mill Creek group and lower Mill Creek group each have three priority classes.

The decree also includes two storage rights upstream of all diversions. This stored water is released late in the irrigation season to Shackleford Creek for use by water right holders.

Water Supply. The water supply for Shackleford Creek comes from snowmelt runoff, springs and seepage, and supplemental stored water released from Campbell Lake, near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system contains about 31 square miles, located in the heavily forested, steep mountainous terrain of the northeasterly slopes of the Salmon Mountains. It varies in elevation from about 7,000 feet along its west rim to about 3,000 feet at the foot of the slopes bordering Quartz Valley. Snowmelt runoff is normally sufficient to supply all demands until the middle of July. The supply then usually decreases until the first part of August when water is released from Cliff and Campbell Lakes to maintain sufficient flow in the Shackleford Ditch.

Method of Distribution. Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is distributed by ditches and laterals to the places of use. Shackleford Ditch, the largest of these ditches, has a length of about 6 miles and a capacity of about 12 cfs.

Shackleford Creek 1996 Distribution

The season started on Shackleford Creek with all users receiving full rights and continued until August 20.

Releases were started from Campbell Lake to the Shackleford Ditch on September 1. One hundred percent of all third priority allotments was available through September 30.

Sniktaw Creek

The Sniktaw Creek service area is in western Siskiyou County, 7 miles west of the town of Fort Jones in Scott Valley. It encompasses an agricultural area about 3 miles long and 1 mile wide, running from south to north. Elevations in the Sniktaw watershed range from 6,700 feet in the southwest to about 2,650 feet at the confluence of Sniktaw Creek and Scott River.

Basis of Service. The Sniktaw Creek service area was added to the Scott River watermaster service area on April 1, 1981. Water is distributed under the provisions of a statutory adjudication which resulted in Decree No. 30662, Siskiyou County Superior Court, dated January 16, 1980.

The allotments are defined in the Scott River Decree, Schedule B 38, which has three priority allotments.

Water Supply. The water supply for Sniktaw Creek comes from snowmelt, springs, and seepage. Water from Shackleford Creek (Diversions 3, 17, 19, 20, and 21) supplements available water in Sniktaw Creek.

Return water from Heide's Shackleford Creek Ditch, Diversion 3, commingles with natural flow of Sniktaw Creek. After leaving the Heide property and entering Sniktaw Creek, it is alloted as set forth in Schedule B 38 (Sniktaw Creek) from Diversions 665 to 679. Heide may use tailwater from Shackleford Creek Ditch, Diversion 3, for irrigation of 27 acres under License 10875 issued on Application 22882 for use on former Indian lands. The right may be exercised only at times that Heide is receiving water from Shackleford Creek Ditch, Diversion 3, or at times that all Sniktaw Creek allotments are being filled.

Method of Distribution

Irrigation is done mainly by wild flooding of permanent pasture. Water is distributed by ditches and laterals to the place of use.

Sniktaw Creek 1996 Distribution

All priorities were filled until August 10; by August 20, the water supply had receded to 80 percent of second priority. The Heide Ditch from Shackleford Creek was turned off August 20.

Wildcat Creek

The Wildcat Creek service area is in western Siskiyou County near the town of Callahan. The major sources of water are Wildcat Creek, which flows through the service area, and foreign water imported from Sugar Creek, Jackson Creek, Grizzly Creek, and Camp Gulch.

Basis of Service. The Wildcat Creek watermaster area was started May 1, 1980. Water is distributed under a statutory adjudication that resulted in Decree No. 30662, Siskiyou County Superior Court, dated January 16, 1980. The allotments are defined in the Scott River Decree, Schedule B 10.

Method of Distribution. Irrigation is done mainly by wild flooding of permanent pasture. Water is distributed by ditches and laterals to the place of use.

Wildcat Creek 1996 Distribution

The water supply was above normal. Import water from Sugar Creek and Jackson Creek was not used in 1996 due to washed out ditch, and runoff from the Hall Ranch helped supply the Thamer Ranch. Recorders were installed on the Parshall flumes at points A and B, described in the decree. These two ranches both were leased and irrigated by one operator and required no regulation.

Oro Fino Creek

The Oro Fino Creek service area is in southwestern Siskiyou County near the town of Greenview. It encompasses an agricultural area about 5 miles long and 0.5 mile wide, running from south to north. Elevations along Oro Fino Creek range from 2,900 feet near the headwaters to 2,700 feet at the confluence of Oro Fino Creek and the Scott River.

Basis of Service. The Oro Fino Creek service area was added to the Scott River watermaster service area on July 1, 1984. Water is distributed under the provision of the statutory adjudication which resulted in Decree 30662, Siskiyou County Superior Court, dated January 16, 1980.

Water Supply. The water supply for Oro Fino Creek above Diversion 606 is derived from Kidder Creek. Springs feed Oro Fino Creek below Diversion 607. Allotments are diverted from underflow by means of offset wells or sumps at Diversions 606, 606a, 611, and 612. The allotments at Diversions 607, 608, 609, 610, 613, 613a, 614, 615, and 616 may be diverted, at the option of the claimant, from surface flow or from underflow by means of offset wells or sumps or a combination of both with the provision that when surface flow in the creek (at the county road at the O. Lewis property) recedes to 3 cfs, the percentage or amount of the surface flow reaching the point of diversion of each of the following claimants shall be bypassed at the claimant's lower

property line: Friden, 51 percent; O. Lewis, 96 percent; and J. Eppler, all flow in excess of 1.31 cfs.

The ground water table along Oro Fino Creek is recharged mainly by Kidder Creek Diversions 446 and 448 which supply surface water to the Foster and Friden lands. Kidder Creek streamflow for these diversions is mainly snowmelt runoff.

Method of Distribution

Irriation is done mainly by wild flooding of permanent pasture. Water is distributed by ditches and laterals to the place of use.

Oro Fino Creek 1996 Distribution

The water supply of Oro Fino Creek was above normal. Water supply was helped with imported water from Kidder Creek until August 1. Flows receded to stock water in late September.

SCOTT RIVER WATERMASTER SERVICE AREA

TABLE 30

1996 Daily Mean Discharge
(In cubic feet per second)

FRENCH CREEK ABOVE NORTH FORK FRENCH CREEK

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	NR	24	7.9	4.8
2	NR	NR	NR	23	7.4	4.9
3	NR	NR	NR	22	7.1	5.3
4	NR	NR	NR	19	7.1	5.1
5	*	NR	NR	19	6.9	5.1
6	NR	NR	NR	18	5.8	4.9
7	NR	NR	NR	17	5.8	4.9
8	NR	NR	NR	16	5.8	4.9
9	NR	NR	NR	16	5.6	4.9
10	NR	NR	NR	15	5.6	4.9
11	NR	NR	NR	15	5.6	4.9
12	NR	NR	NR	14	5.3	4.9
13	NR	NR	NR	16	5.3	5.1
14	NR	NR	NR	46	5.3	13
15	NR	NR	NR	62	5.3	7.9
16	NR	NR	NR	29	5.1	6.9
17	NR	NR	NR	20	5.1	6.6
18	NR	NR	NR	18	5.1	6.3
19	NR	NR	NR	16	4.7	6.3
20	NR	**	NR	15	4.7	6.1
21	NR	NR	NR	14	4.7	5.8
22	NR	NR	NR	14	4.7	5.6
23	NR	NR	NR	12	4.7	5.6
24	NR	NR	NR	12	4.5	5.6
25	NR	NR	NR	11	4.5	5.5
26	NR	NR	NR	11	4.5	5.3
27	NR	NR	NR	10	4.5	5.3
28	NR	NR	NR	11	4.5	5.3
29	NR	NR	NR	11	4.5	5.3
30	NR	NR	NR	9	4.5	5.3
31	NR	NR	NR	7.9	4.5	----
MEAN	NR	NR	NR	18	5.4	5.6
AC-FT	NR	NR	NR	1116	330	342

* Recorder started on April 5
** June 20 recorder & house found in creek
***July 1 Recorder reinstalled

SHASTA RIVER WATERMASTER SERVICE AREA

SHASTA RIVER WATERMASTER SERVICE AREA

The Shasta River service area is in the central part of Siskiyou County. Willow Creek and Cold Creek, formerly in the Klamath River watermaster service area, were incorporated into the Shasta River watermaster service area in 1983.

The water supply comes from North Fork Sacramento River, Shasta River, and its several tributaries. The upper reaches of the service area are served by two groups of tributaries. One group, comprising Boles, Beaughan, Carrick, and Jackson creeks, rises on the northwestern slopes of Mount Shasta. The other group, consisting of Dale and Eddy creeks, and Shasta River west of Interstate 5, rises on the eastern slopes of the Trinity Mountains. All these streams join the mainstem Shasta River above Lake Shastina (Dwinnell Reservoir) near the town of Weed. As the Shasta River flows northward from Lake Shastina to its confluence with the Klamath River, north of Yreka, it is joined by three major tributaries. Parks Creek, rising on the eastern slopes of the Trinity Mountains, enters from the west near the town of Gazelle. Big Springs Creek, from Big Springs Lake, enters from the east about a mile below Parks Creek. Little Shasta River, rising on the slopes of the mountainous area between Butte Valley and Shasta Valley, enters from the east near the town of Montague.

Shasta Valley is about 30 miles long and 30 miles wide. In the center of the valley are many small, cone-shaped, volcanic hillocks that divide the area into separate parts. Because of these volcanic formations, only about 141,000 acres of about 507,000 acres in the valley are irrigable. The valley floor elevation averages about 3,000 feet.

Willow Creek is in Siskiyou County, about 10 miles northeast of Montague. It is the major source of water to the service area and rises on the west slope of the 7,800-foot Willow Creek Mountain. It flows northwest through about 11 miles of rolling hills to its confluence with the Klamath River. The Willow Creek area is about 8 miles long by 1 mile wide and varies in elevation between about 2,600 and 4,000 feet.

Cold Creek is just south of Copco Lake, a hydroelectric power reservoir on the Klamath River in the extreme northern part of Siskiyou County. Yreka is 30 miles southwest of the Cold Creek stream system. Elevations within the Cold Creek watershed range from 2,900 feet to about 6,500 feet.

Basis of Service

The Shasta River watermaster service area was created on March 1, 1933. The appropriative water rights on this stream system were determined by a statutory

adjudication that resulted in Decree No. 7035, Siskiyou County Superior Court, dated December 29, 1932.

The decree lists the water rights of the entire stream system by the names of the users. The rights supervised by the watermaster are broken down into eight separate schedules. These are: Shasta River above its confluence with Big Springs Creek - 43 priorities; Boles Creek - 20 priorities; Beaughan Creek - 5 priorities; Jackson Creek - 7 priorities; Carrick Creek - 13 priorities; Parks Creek - 25 priorities; Shasta River below its confluence with Big Springs Creek and Big Springs Creek and tributaries - 29 priorities; and Little Shasta River - 7 priorities. Additional schedules include Willow Creek, Yreka Creek, and miscellaneous independent springs, gulches, and sloughs, but these are not included in the service area.

Montague Water Conservation District has appropriative rights for storage of Shasta River and Parks Creek water in Lake Shastina. By agreement with the District, five nearby downstream users receive water from storage in lieu of their decreed continuous flow allotments. The watermaster handles the reservoir releases for these users. A peculiarity of the Shasta River decree is that it defines only appropriative rights and excludes a number of riparian users on the Lower Shasta River. Holders of these riparian rights are not regulated by the watermaster.

Water Supply

The water supply for Shasta Valley comes from snowmelt runoff, groundwater and related springs, and occasional summer thundershowers. In several parts of the stream system, the springs are enough to supply most allotments throughout the season. Much of the underground flow comes from the northern slopes of Mount Shasta, which rise to 14,162 feet at the south end of Shasta Valley. Although the snowpack on Mount Shasta is usually heavy, there is little surface runoff.

Parks Creek, Upper Shasta River, and Little Shasta River get much of their water from snowmelt runoff, usually enough to supply allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Lake Shastina, Big Springs, and Lower Shasta River have enough runoff from springs to supply many of the allotments throughout the season.

Records of the daily mean discharge at several stream gaging stations in the Shasta River service area are in Tables 31 through 34. The daily mean storage in Lake Shastina is in Table 35.

Method of Distribution

Irrigation of permanent pasture and alfalfa lands is mainly by wild flooding. Much of the return water is recaptured and used on lower pasture lands. Sprinkling systems are used for irrigating some alfalfa and grain lands. Water is routed by diversion dams and then carried by ditch or canal to the place of use. The largest and longest canal in the area is the Edson-Foulke Yreka Ditch, which has a capacity of about 60 cfs and a length of about 14 miles. Water is also supplied to ditch systems by pumped diversions, the three largest belonging to two irrigation districts and a private water users' association. Some riparian lands are also served by pump diversions. Many privately owned storage reservoirs are in the area. Water from these reservoirs supplements continuous-flow allotments.

Because of the large rights of Grenada and Big Springs Irrigation districts and Shasta River Water Users Association, the watermaster's close surveillance is very important, particularly in dry years. Control of releases from Montague Water Conservation District's Dwinnell Reservoir (Lake Shastina) is another responsibility of the watermaster. This includes measurement of deliveries of stored water to users just below the dam. Control of releases from Hammond Lake is also a duty of the watermaster.

1996 Distribution

Watermaster service began April 1 in the Shasta River watermaster service area and ended September 30 with Keithal B. Dick, Water Resources Technician II, and Lester L. Lighthall, Water Resources Technician II, as watermasters.

The water supply for the 1996 irrigation season was above normal. After the middle of June, the flows rapidly decreased to normal due to the unusually hot weather.

Parks Creek

Flows were above normal with all rights being filled until the middle of June. Flows decreased and third priorities were discontinued by the last week of June. Flows continued to decrease with less than 4.0 cfs by September.

Upper Shasta River

Upper Shasta River, Dale Creek, and Eddy Creek are on the same order of priorities. The flow was enough to fill all priorities until August 4. Flow decreased to 35 percent of third priorities in September and remained near that level until the end of September. Lower priorities below the Yreka Ditch received return flow and inflow from springs after August 4.

The Hammond Reservoir Irrigation Association, owners of the Hammond Reservoir, was added to the Shasta River watermaster service area in 1989. The 348-acre-foot reservoir has storage licenses 5261 and 6531 for water diverted from the North Fork Sacramento River. The stored water is released to the Shasta River and then diverted into diversions 3, 4, 4 west, 5, 6, 7, and 19. The releases are measured at a weir located downstream from the reservoir. The reservoir filled and remained full until July 5; releases started August 9. The reservoir was not drained this year. Diversions from North Fork Sacramento River were started on May 7 and ended June 10.

Boles Creek and Shasta River to Lake Shastina (Dwinnell Reservoir)

Boles Creek and this portion of Shasta River are operated as one stream under a long-standing oral agreement among the water right holders. The water is distributed on a correlative, equal-priority basis. Water was set to 100 percent of all rights in August. Flows decreased to 90 percent for the rest of the season.

Beaughan Creek

With close regulation of the upper users, all priorities were satisfied for the entire season. Roseburg Lumber Company used all of its rights to sprinkle its log decks.

Carrick Creek

Carrick Springs supplied enough water to satisfy all 13 priorities for the entire season with close regulation.

Little Shasta River

There was above-average snowmelt runoff this season on the Little Shasta River. The flows started at 100 percent of all priorities and decreased gradually to 80 percent of fifth priority on July 15. Flows decreased to 40 percent of fifth priority on August 1, and remained that way until the end of the season.

Dwinnell Reservoir

Storage in Dwinnell Reservoir on March 1 was 42,660 acre-feet and increased to 47,680 acre-feet by April 30. On September 30, storage was down to 15,260 acre-feet. By agreement with the Montague Water Conservation District, owner of Dwinnell Reservoir, water users on Shasta River below the reservoir received stored water on demand.

Deliveries to Natural Flow Water Right Owners
Below Dwinnell Reservoir - 1996

Name of Water Right Holder	Allotment (in acre-feet)	Amount Delivered from Dwinnell Reservoir (in acre-feet)
Wagner, Richard W.	1,200	1,200
Flying L Ranch	198	198
Hole-in-the-Ground Ranch	596	596
Seldom Seen Ranch	924	924
Hidden Valley Ranch	464	383
	3,382	3,301

Big Springs Lake

Big Springs Irrigation District used its own wells, and no water was received from Big Springs Lake. An agreement between E. J. Louie, A. H. Newton, Jr., and Montague Water Conservation District was established during the winter of 1986. They agreed when the flows of Big Springs receded from 17.5 cfs to 10.0 cfs, Montague Water Conservation District would do the following:

- Turn off the Basey pumps until the flow of Big Springs is 17.5 cfs or pay A. H. Newton, Jr. the additional power cost to use his own pumps.

- If flows of Big Springs fall below 10.0 cfs, Montague Water Conservation District will shut off the Basey pumps until flows return to above 10.0 cfs.

There was no pumping by the Montague District during the 1996 season. The total flow of Big Springs receded to 10 cfs for parts of August and September.

Lower Shasta River

The flows in the Lower Shasta River were enough to supply all priorities until August 15. Grenada Irrigation District was cut from 40 cfs to 30 cfs three times between August 15 and September 13, 1996. The season ended with all users at 100% of their rights.

Willow Creek (North of Montague)

Basis of Service. Willow Creek has had a long history of litigation. The present basis of service was initiated in 1949 when the Department of Public Works, Division of Water Resources, was asked to referee a civil suit. The matter was not finalized by a decree until 1972. The issues involved were reopened in 1971, and by Decree No. 24482, dated April 28, 1972, the Siskiyou County Superior Court appointed DWR to supervise distribution of water in accordance with an earlier agreement between the users which defined their respective rights. Currently, Willow Creek is part of the Shasta River Watermaster Service Area.

There are three water users in the service area. Distribution is on a fractional basis until the flow drops to a specified amount below the upper two users. At that time, the total flow is rotated between the upper two users.

Water Supply. The main source of water for the Willow Creek stream system is from snowmelt. Runoff from the snowmelt begins late in March or early April and is usually depleted by June. Thereafter, the streamflow decreases rapidly until about July 25. From then until the rainy season begins, the flow remains at a low-flow stage sufficient to provide domestic and stock-watering purposes to the two upper users.

Method of Distribution. Both sprinkler and flood irrigation are used on Willow Creek. The upper water user has the option of using gravity diversions for either flood or sprinkler irrigation. The middle user relies entirely on runoff from the upper user's flood irrigation. The lower user in the area uses both flood and sprinkler irrigation during the early season when the supply is abundant. As the supply dwindles, the remaining water is pumped from a sump to the sprinkler system.

1996 Distribution. Snowmelt lasted until August 15. On September 30, 1996 there was only 0.2 cfs left for distribution.

Cold Creek

Basis of Service. A statutory adjudication of Cold Creek in 1978 ordered DWR to provide watermaster service at Diversions 2, 3, and 4, and at the division weir on the Silva-Lennox Ditch. Watermaster service began April 1, 1981.

Water Supply. Flow is from springs and remains fairly constant each season.

Method of Distribution. Both sprinkler and flood irrigation are used in Cold Creek service area.

1996 Distribution. The water supply of the Cold Creek stream system satisfied all requirements until August 1. Only a portion of full entitlements were satisfied thereafter. No regulation was required since the automatic split worked well.

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 31

1996 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER NEAR YREKA[1/]

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	328	144	136	102	58	43
2	337	148	137	94	48	41
3	315	149	122	87	42	46
4	289	153	107	79	33	44
5	277	163	71	77	25	50
6	268	157	66	76	24	40
7	263	156	70	82	35	44
8	257	140	74	70	41	47
9	252	139	73	68	29	41
10	309	140	72	65	31	39
11	308	117	75	65	43	42
12	279	101	74	74	49	57
13	265	91	70	60	39	63
14	250	94	63	79	53	75
15	235	118	59	96	40	92
16	192	121	56	90	35	84
17	188	158	97	82	38	82
18	180	269	114	86	37	96
19	174	273	97	90	35	103
20	178	215	99	80	27	107
21	178	209	94	72	24	108
22	187	275	97	70	24	103
23	175	221	81	70	27	115
24	274	211	73	58	30	117
25	303	201	77	51	25	116
26	235	161	94	49	23	108
27	202	198	113	55	27	107
28	168	200	123	53	32	106
29	162	171	115	53	40	107
30	140	151	107	76	38	115
31	----	148	----	65	33	----
MEAN	239	160	90.2	74.1	25.0	70.0
AC-FT	14230	10320	5370	4550	2150	4640

1/ USGS Gage

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 32

1996 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER NEAR EDGEWOOD

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	92	34	12	10
2	NR	NR	97	34	12	11
3	NR	NR	113	34	12	9.7
4	NR	NR	144	32	12	9.5
5	NR	NR	113	34	11	9.5
6	NR	NR	100	27	10	9.5
7	NR	NR	90	25	9.8	9.7
8	NR	NR	84	24	9.3	9.7
9	NR	NR	74	24	9.3	9.8
10	NR	NR	69	24	9.2	9.8
11	NR	NR	63	24	8.8	9.7
12	NR	NR	60	23	8.8	9.7
13	NR	NR	58	23	9.2	12
14	NR	NR	57	28	9.2	16
15	NR	NR	56	28	9.2	22
16	NR	NR	60	26	9.2	19
17	NR	NR	56	25	9.5	14
18	NR	NR	53	24	9.8	9.5
19	NR	NR	49	23	9.3	9.3
20	NR	NR	49	22	9.3	9.3
21	NR	NR	50	20	9.5	9.5
22	NR	NR	48	19	9.3	9.7
23	NR	NR	43	18	9.3	9.8
24	NR	NR	47	18	9.3	10
25	NR	NR	49	17	9.3	10
26	NR	NR	49	16	9.3	10
27	NR	NR	51	16	9.3	10
28	NR	NR	51	15	9.7	11
29	NR	NR	42	14	9.8	12
30	NR	NR	38	14	9.8	12
31	NR	NR	36	13	9.8	----
MEAN	NR	NR	66.8	23.2	9.8	11.1
AC-FT	NR	NR	3978	1425	602	660

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 33

1996 Daily Mean Discharge
(In cubic feet per second)

PARKS CREEK ABOVE EDSON-FOULKE YREKA DITCH

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	55	11	6.0	3.3
2	NR	NR	58	10	5.8	3.3
3	NR	NR	60	9.2	5.6	3.3
4	NR	NR	55	9.2	5.6	3.1
5	NR	NR	49	9.2	5.8	3.1
6	NR	NR	47	9.2	5.8	3.1
7	NR	NR	44	9.1	5.6	3.1
8	NR	NR	41	9.0	5.3	3.1
9	NR	NR	39	8.8	4.9	3.1
10	NR	NR	36	8.6	4.5	3.1
11	NR	NR	32	8.2	4.1	3.1
12	NR	NR	30	8.1	3.8	3.1
13	NR	NR	29	8.2	3.8	3.1
14	NR	NR	26	10	3.5	3.3
15	NR	NR	26	10	3.3	6.0
16	NR	NR	25	9.3	3.3	4.5
17	NR	NR	25	8.6	3.3	3.8
18	NR	NR	26	8.4	3.3	3.3
19	NR	NR	13	8.1	3.3	3.5
20	NR	NR	12	7.7	3.1	3.8
21	NR	NR	12	7.4	3.3	3.5
22	NR	NR	12	7.0	3.3	3.3
23	NR	NR	11	6.5	3.3	3.3
24	NR	NR	11	6.5	3.3	3.3
25	NR	NR	12	6.5	3.3	3.3
26	NR	NR	13	6.2	3.3	3.3
27	NR	NR	13	6.2	3.1	3.3
28	NR	NR	12	6.5	3.3	3.5
29	NR	71	12	6.5	3.3	3.5
30		65	11	6.5	3.3	3.8
31	NR	58	----	6.2	3.3	----
MEAN	NR	NR	28.2	8.1	4.1	3.4
AC-FT	NR	NR	1680	500	250	205

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 34

1996 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER AT MONTAGUE-GRENADA HIGHWAY BRIDGE

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	275	137	141	100	48	40
2	271	144	137	94	48	36
3	267	141	137	84	34	38
4	263	154	97	87	36	41
5	260	154	67	94	31	45
6	256	151	67	87	34	20
7	252	158	71	94	26	40
8	245	148	80	80	24	33
9	267	130	74	71	26	33
10	267	134	77	74	45	31
11	267	100	80	74	38	36
12	263	107	80	87	38	34
13	260	94	71	77	41	39
14	248	107	61	100	33	45
15	219	120	48	90	33	40
16	197	127	58	103	33	41
17	190	168	120	87	29	41
18	186	219	107	97	33	64
19	179	234	87	94	26	64
20	190	172	94	84	23	58
21	197	148	103	74	27	58
22	197	238	103	77	26	84
23	197	215	87	74	29	80
24	267	193	77	61	26	94
25	279	148	90	45	22	103
26	248	158	100	51	22	117
27	219	208	120	45	27	120
28	183	193	124	45	29	124
29	172	162	110	55	33	141
30	130	154	110	71	27	134
31	----	148	----	55	33	----
MEAN	230	157	93	78	32	62
AC-FT	13700	9648	5510	4782	1983	3717

SHASTA RIVER WATERMASTER SERVICE AREA
1996 Season

TABLE 35

LAKE SHASTINA (DWINNELL RESERVOIR)
DAILY MEAN STORAGE IN ACRE-FEET

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21780	20380	20100	27200	31520	42660	46780	47500	45880	38580	28700	19960
2	21640	20380	20100	27200	31520	42830	46960	47500	45700	38240	28400	19680
3	21640	20380	20100	27350	31680	43180	46960	47320	45520	37900	28100	19540
4	21500	20380	20100	27650	31840	43540	47140	47140	45340	37560	27800	19260
5	21360	20380	20100	27800	32800	43900	47140	46960	45160	37220	27500	18980
6	21360	20380	20100	27950	33310	44080	47140	46780	44980	36880	27300	18840
7	21220	20240	20100	27950	33990	44260	47140	46600	44620	36710	27030	18700
8	21220	20240	20100	28100	34670	44440	47140	46420	44440	36370	26750	18420
9	21220	20240	20100	28100	35010	44620	47140	46240	44260	36030	26450	18140
10	21080	20240	20240	28250	35690	44980	47320	45880	44080	35690	26150	18000
							26150	18000				
11	21080	20240	20940	28400	36030	45160	47320	45700	43720	35350	25850	17740
12	21080	20240	22620	28400	36540	45340	47320	45520	43540	35010	25550	17610
13	21080	20240	24050	28400	36710	45700	47320	45340	43180	34670	25250	17350
14	20940	20240	24800	28550	37050	45880	47140	45340	42830	34330	24800	17220
15	20940	20240	25700	NR	37220	45880	47140	45160	42660	33990	24650	17090
16	20800	20100	26000	NR	37390	45880	47140	45160	42320	33820	24350	16960
17	20800	20100	26150	NR	37900	46060	47140	45340	42150	33480	24050	16830
18										33140	23750	16700
19	20660	20100	26300	NR	38580	46060	47140	45700	41980	32800	23320	16580
20	20660	20100	26450	NR	39260	46240	46960	45880	41810	32640	23040	16460
21	20660	20100	26450	NR	39940	46240	46960	46060	41300	32320	22760	16340
22	20660	20100	26600	NR	40450	46420	46780	46060	40960	32160	22620	16220
23	20520	20100	26600	30400	40790	46600	46780	46240	40790	31840	22340	16220
24	20520	20100	26750	30560	40960	46600	46960	46240	40620	31520	22200	16100
25	20520	20100	26750	30720	41300	46600	47140	46240	40110	31040	21920	15980
26	20520	20100	26750	30880	41810	46780	47500	46420	39770	30720	21640	15860
27	20520	20100	26900	30880	41810	47680	47500	46420	39430	30400	21360	15740
28	20520	20100	26900	31040	41810	47680	47500	46420	39260	30080	21080	15620
29	20520	20100	27050	31200	41980	47860	47680	46240	39090	29760	20800	15380
30	20520	20100	27050	31200	42320	47860	47680	46240	38920	29300	20520	15260
31	20520	---	27050	31360	---	47860	---	46060	---	29000	20240	---

SURPRISE VALLEY WATERMASTER SERVICE AREA

SURPRISE VALLEY WATERMASTER SERVICE AREA

The Surprise Valley service area is in Modoc County, east of the Warner Mountains. Eleven individual stream systems rising on the eastern slope of the Warner Mountains supply water to the area. These are fed by snowmelt runoff and run in fast, steep courses down the eastern slope of the Warner Mountains to the valley floor where numerous scattered diversion ditches convey water to the irrigated lands.

Basis of Service

The Surprise Valley watermaster service area was created January 10, 1939 and included Mill, Soldier, Pine, Cedar, Deep, Owl, Rader, and Emerson creeks, all of which once had individual watermaster service. Also, service was started on Eagle Creek at that time. Bidwell Creek was added to the service area March 16, 1960, and Cottonwood Creek was added in 1977. Each of the 11 stream systems in Surprise Valley is under separate decrees.

See Table 36, page 84 for specific data regarding the decrees and water rights on the individual creeks.

Water Supply

The water supply comes almost entirely from snowmelt, with only minor spring-fed flows occurring late in the season. Due to the steep eastern slope of the Warner Mountains, there are no likely storage sites on the service-area streams. Because of the lack of such regulatory storage, the available water supply at any specific diversion point may vary considerably within a few hours. Wide daily temperature changes cause great changes in the rate of snowmelt runoff. This situation is worsened by the relatively short, steep drainage area. Also, occasional summer thundershowers may cause a creek to discharge a flow of mammoth proportions for several hours. These flashes can cause considerable damage from washouts and debris deposition but are of such short duration that little or no beneficial use can be made of the water.

Records of the daily mean discharge at several stream gaging stations within the service area are presented in Tables 37 through 48, pages 85 through 96.

Method of Distribution

Continuous-flow distribution is used on most creeks; but water is rotated among some users in accordance with either decree schedule or by mutual agreement.

Alfalfa and meadow hay, the major crops in the valley, are irrigated by sprinklers and wild flooding, although some lands depend upon subsurface irrigation. A few of these systems work by gravity, but most use pumps with the surface water supplemented by deep wells. Many additional acres have been put into production during the past few years through the use of deep wells. Only surface water supplies are under State watermaster service.

To facilitate distribution of irrigation water, construction of permanent diversion dams, headgates, and measuring devices has been encouraged in recent years. Although these structures do not solve the problems of discharge variation and debris deposition, they do help to solve water measurement and distribution problems.

1996 Distribution

Watermaster service began in the Surprise Valley watermaster service area on March 19 and continued until September 30. George Fitzmorris, Engineer, Water Resources, was watermaster.

The 1996 season was very wet. The snowpack and resulting spring and early summer runoff were over 140 percent of normal. The streams flowing from the North Warner Mountains peaked in early May and then declined slowly. The streams flowing from the South Warners peaked in early to mid-June and declined slowly. Spring rains and thunder showers during July, August, and September contributed to the flows in the creeks. Cooler weather in September resulted in some increase in stream flows.

The Alkali Lakes, which were full at the end of the 1995 irrigation season, remained full during this season. The water levels in the Alkali Lakes remained high enough during this season to encroach upon what is normally the water users lower pastures.

Bidwell Creek

The maximum flow in Bidwell Creek this season was 111 cfs, lowering to 4.2 cfs in mid-September and rising to 4.8 cfs at the end of September. Full first priority water was available through mid-June, lowering to one-half of first priority on July 10, when the water right schedule changes. One-half of third priority water in the July 10 - September 30 schedule was available until mid-July, declining to second priority in mid-August, and to one-half of second priority in early September.

Mill Creek

The maximum flow in Mill Creek this year was 61 cfs, declining to 1.5 cfs near the end of September. The stream flow was at the middle of the third priority level on April 1, increasing to above the full priority rate later in April. The flow remained above full priority until early June, declining to the third priority level in mid June, to the second priority near the end of July, and to the first priority flow rate by the end of August.

Soldier Creek

The maximum flow in Soldier Creek this season was 47 cfs, lowering to 1.0 cfs near the end of September. With the exception of lower flows at the beginning of April, full priority water was available until the end of May. The creek flow declined to near the third priority level on June 19, when the rotation period ended. The flow lowered to the second priority rate at the end of June and to the first priority level at the end of August.

Pine Creek

The maximum flow in Pine Creek this irrigation season was 24 cfs. The creek did not become dry this year but was flowing at only 0.1 cfs, measured at the head of the Cressler Ditch, during most of August and September. Three and one-half rotations of water use were completed before the creek flow declined to 4 cfs on May 29 and flow was directed to Tracts 68 and 70 on the North Channel. On June 8, the flow had decreased to 1.6 cfs and was diverted to the Cressler Ditch. A new diversion structure at the junction of the North and South Channels was constructed since the last irrigation season.

Cedar Creek

The maximum flow in Cedar Creek this year was 40 cfs, decreasing to 0.3 cfs early in September and rising to 0.6 cfs at the end of September. The diversion from Thoms Creek to Cedar Creek was activated on April 22 at 3.0 cfs. The diversion rate gradually decreased as the Thoms Creek flow receded, with the diversion from Thoms Creek ending in early July. The water users along lower Cedar Creek diverted water until mid-June.

Deep Creek

The maximum flow in North Deep Creek this season was 22 cfs, decreasing to 0.6 cfs in September. Full priority water was available until the first of June, declining to one half of full priority at the end of June, and to 10 percent of full priority near the end of August.

A new diversion structure was constructed in September and was nearly complete at the end of the month. The old structure was undermined by the creek flow in the spring

of 1995. A temporary diversion ditch was used during the last and current seasons. There were no diversions from the creek in September while the new structure was under construction.

The maximum flow in South Deep Creek this year was 19 cfs, decreasing to 0.6 cfs in September. Full priority water was not available this season. The creek flow decreased to the first priority level in mid-June and to 20 percent of first priority in mid-August.

Cottonwood Creek

The maximum flow in Cottonwood Creek this season was 64 cfs, decreasing to 1.8 cfs in September. Water rotation between tracts 243, 245, 246, and 109 started on May 14 and was completed on July 7, with a double rotation of six days.

Owl Creek

The maximum flow in Owl Creek this year was 65 cfs, lowering to 1.8 cfs in September. The Allen - Arreche Ditch diversion was in service intermittently during May and June when creek flows permitted; a number of washouts of the ditch banks limited its use. Full priority water was available until mid-June, ninth priority until near the end of July, seventh priority until mid-August, and fourth priority water was available until early September.

Rader Creek

The maximum flow in Rader Creek this season was 52 cfs, lowering to 1.4 cfs in September. Water was diverted into the Cockrell Ditch from May 20 until August 18, when the flow no longer reached the place of use. Full priority water was available from mid-May through mid-June, the flow lowering to third priority in early July, and to second priority in mid-September.

Eagle Creek

The maximum flow in Eagle Creek this year was 73 cfs, receding to 3.1 cfs in September. Full priority water was available from the first of May to the middle of July. The flow lowered to third priority later in July, and to second priority in mid-September.

Emerson Creek

The maximum flow in Emerson Creek this season was 42 cfs, lowering to 3.0 cfs in mid September and increasing 3.5 cfs at the end of the month. Full priority water was available from mid-May through mid-June. The flow decreased to second priority at the end of June and to one-fourth of second priority at the end of July.

TABLE 36

DECREES AND RELATED DATA - SURPRISE VALLEY STREAMS

Stream	Modoc County Superior Court Decree No.	Date	Type[a]	Service Area Created	No. of Water Right Owners	Total Cfs	Remarks
Bidwell	6420	01-13-60	S	03-16-60[b]	46	63.74	(Schedule 3) 3 priorities March 15-July 9. (Schedule 4) 5 priorities July 10-September 30. If no water passing diversion No. 23 September 30-March 14, 1st priority provisions of Schedule 4 apply.
Mill	3024	12-19-31	CR	12-30-31	38	37.13	One priority on Brown Creek, tributary to Rutherford Creek, 7 priorities on Rutherford Creek, tributary to Mill Creek, 1st and 2nd for year-round use, 3rd and 4th April through September.
Soldier	2045	11-28-28	CR	09-11-29	13 4[c]	33.50 4.37	Starting March 19 each year, lower users receive water for 4 13-day periods alternating with upper users who receive water for 4 10-day periods, ending June 19. 7 priorities during lower users periods, 8 during upper users periods and 12 for rest of the year. Appropriative License 1566,1613, 1648, and 1850.
Pine near Cedarville	3391	12-07-36	CR	01-13-37	5 1[c]	[d] 0.08	One full rotation totaling 693 AF. Rotation continues until flow decreases to 4 cfs, then all water goes to tracts 68 and 70 until flow decreases to 1.60 cfs then all water goes to the R. Bordwell Ranch.
Cedar	1206 2343[d]	05-22-01 02-15-23	CA CA	06-19-26	12	28.90[d]	Water rights established by these two decrees and an agreement signed by all users. No. 1206 set 1st and 2nd priorities; No. 2443 3rd priority and agreement the 4th. 28.90 cfs includes 5.00 cfs imported from Thoms Creek on west slope of Warner Mountains.
Deep	3101	01-25-34	CR	12-29-34	11	29.37	Schedule 2 establishes 5 priorities, year-round.
Cottonwood	6903	12-01-64	CA	07-01-77[b]	8	[d]	Water rights based on a percentage of flow in an equal priority.
Owl	2410	04-29-29	CA	09-11-29	8	41.70	21 priorities; all year round but 8th priority, under which each of 3 owners receives his allotment for an 8-day period. Appropriative License No. 2842, 3.54 cfs.
Rader	3626	06-04-37	CR	06-12-37	6	21.00	7 priorities. 7th is for surplus water. Diversions No. 1, 3, 6, and 7 have seasonal limitations.
Eagle	2304 3284	04-05-26 11-05-37	CA CR	01-10-39	36	30.57	Decree No. 3284 added rights in all priority classes, and established 4 classes. 4.50 cfs right of White Pine Lumber Co. is for use March 1 to July 1. Eagleville 'town users', Schedule 2 may divert through Gee & Grider ditches March 15 to October 15 each year. Set 1st priority rights of Gee & Grider ditches, Par. XVII & XVIII, for use April 15 to October 1.
Emerson	2840	03-25-30	CR	4-11-30	10	24.65	4 priorities, 1st is for year-round use, others April 1 to September 30.

a/ S-Statutory, CR-Court Reference, CA-Court Adjudication, A-Agreement
b/ Added to existing Surprise Valley service area.
c/ Appropriative rights junior to the decreed rights.
d/ See remarks.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 37

1996 Daily Mean Discharge
(In cubic feet per second)

BIDWELL CREEK NEAR FORT BIDWELL

DAY	APR	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	32	56	46	22	9.6	4.8
2	31	60	47	21	8.3	4.6
3	30	58	51	21	8.0	4.4
4	28	52	55	20	8.7	4.6
5	29	50	52	19	9.0	5.0
6	33	47	50	21	8.3	4.8
7	38	49	51	21	8.0	4.6
8	45	47	49	21	7.7	4.4
9	50	46	46	20	8.0	4.4
10	49	45	45	19	7.4	4.2
11	45	50	42	19	7.1	4.2
12	44	58	40	18	6.7	4.0
13	42	66	39	19	7.1	4.4
14	40	88	38	19	7.4	4.8
15	41	111	38	18	7.1	8.7
16	42	108	36	17	6.4	6.4
17	41	90	35	16	6.1	5.5
18	39	82	33	15	5.8	5.2
19	38	71	32	16	7.4	5.2
20	35	63	30	15	6.7	5.0
21	33	58	28	14	6.1	5.0
22	33	55	28	13	5.8	4.8
23	33	52	27	14	5.5	4.8
24	37	50	28	14	6.7	4.6
25	40	47	25	13	6.1	4.8
26	44	49	24	12	5.8	4.6
27	45	51	35	11	5.5	4.6
28	44	50	30	11	5.2	4.4
29	43	49	25	11	5.5	4.2
30	46	47	23	10	5.2	4.4
31	—	46	—	10	5.0	—
MEAN	39.0	59.7	37.6	16.4	6.9	4.8
AC-FT	2320	3670	2240	1010	423	288

1) No record before April 1

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 38

1996 Daily Mean Discharge
(In cubic feet per second)

MILL CREEK ABOVE ALL DIVERSIONS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	16 [1/]	43	29	10	4.2	1.6
2	18	46	26	9.0	4.0	1.7
3	17	44	25	8.5	4.2	1.8
4	15	42	26	7.5	4.0	1.7
5	14	44	28	6.7	3.4	2.2
6	16	42	29	6.3	3.7	2.0
7	21	41	32	6.7	3.4	1.8
8	28	39	31	6.3	3.2	1.8
9	31	38	28	5.7	3.4	1.8
10	32	37	26	5.3	3.2	1.8
11	31	39	25	6.3	3.0	1.7
12	28	43	22	8.0	2.8	1.8
13	25	48	21	7.1	3.0	2.4
14	21	55	19	7.5	3.4	2.2
15	24	57	18	8.5	3.0	3.7
16	25	61	16	7.1	3.0	3.0
17	24	55	16	6.3	2.8	2.6
18	22	50	15	5.7	2.8	2.4
19	19	48	15	5.0	2.6	2.2
20	18	46	16	4.7	2.6	2.0
21	16	44	16	4.4	2.4	1.8
22	19	45	15	4.7	2.2	1.7
23	24	42	14	5.0	2.0	1.7
24	31	38	13	4.4	2.2	1.6
25	38	34	12	4.2	2.0	1.7
26	42	32	11	4.0	2.0	1.6
27	44	33	19	4.2	2.2	1.5
28	39	32	15	4.4	2.2	1.6
29	38	31	13	4.7	2.0	1.7
30	45	29	11	4.4	1.8	1.8
31	—	28	—	4.2	1.7	—
MEAN	26.0	42.1	20.1	7.6	2.8	2.0
AC-FT	1550	2590	1190	470	175	117

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 39

1996 Daily Mean Discharge
(In cubic feet per second)

SOLDIER CREEK ABOVE ALL DIVERSIONS

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		16	47	16	4.3	2.3	1.4
2		14	32	16	4.0	2.2	1.3
3		13	29	15	3.9	2.1	1.2
4		13	27	17	3.7	2.0	1.2
5		13	23	15	3.7	1.9	1.3
6		16	25	13	3.5	2.0	1.4
7		19	26	13	3.4	1.9	1.6
8		25	24	13	3.4	1.8	1.4
9		46	23	11	3.2	1.8	1.3
10		21	25	10	3.1	1.7	1.2
11		18	33	9.4	2.9	1.8	1.2
12		18	35	8.8	2.8	1.8	1.1
13		18	36	8.6	3.1	3.7	1.2
14		19	41	8.1	3.2	6.3	1.3
15		23	37	7.4	4.0	6.2	3.1
16		25	40	7.0	3.7	5.8	1.7
17		21	35	6.6	3.4	14	1.4
18	[1]	19	39	6.4	3.1	13	1.1
19	7.8	16	40	6.3	2.9	2.1	1.2
20	7.4	14	33	6.2	2.8	1.9	1.3
21	7.0	13	31	6.2	2.8	2.0	1.4
22	7.4	15	33	6.0	2.7	1.8	1.3
23	7.8	18	25	5.6	2.6	1.7	1.2
24	8.5	31	20	6.2	2.7	1.8	1.2
25	9.6	27	26	5.4	2.4	1.9	1.1
26	10	35	22	5.6	2.3	1.8	1.2
27	9.6	25	18	9.8	2.1	2.0	1.0
28	9.8	20	16	6.2	2.2	1.9	1.1
29	10	26	24	5.2	2.3	1.9	1.2
30	11	39	28	4.6	2.2	1.8	1.3
31	12	—	16	—	2.2	1.7	—
MEAN	9.1	21.2	29.3	9.2	3.0	3.2	1.3
AC-FT	234	1260	1800	545	188	195	79

[1] No record before March 19

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 40

1996 Daily Mean Discharge
(In cubic feet per second)

PINE CREEK NEAR CEDARVILLE
AT THE DIVISION OF THE NORTH AND SOUTH CHANNELS

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEPT
1	NR	9.8	18	3.1	0.7	0.2	0.1
2	NR	12	15	2.7	0.7	0.2	0.1
3	NR	13	12	2.5	0.6	0.1	0.1
4	NR	12	10	2.3	0.6	0.1	0.1
5	NR	13	9.8	2.1	0.6	0.1	0.1
6	NR	14	8.8	1.9	0.6	0.1	0.1
7	NR	18	8.2	1.7	0.6	0.1	0.1
8	NR	23	7.9	1.6	0.5	0.1	0.1
9	NR	23	7.6	1.5	0.5	0.1	0.1
10	NR	20	7.3	1.5	0.5	0.1	0.1
11	NR	17	7.0	1.4	0.5	0.1	0.1
12	NR	16	7.3	1.4	0.5	0.1	0.1
13	NR	13	7.0	1.3	0.5	0.3	0.1
14	NR	12	8.8	1.3	0.5	0.5	0.1
15	NR	14	7.9	1.2	0.5	0.4	0.3
16	NR	16	10	1.2	0.5	0.3	0.2
17	NR	14	10	1.1	0.5	0.3	0.2
18	NR	12	14	1.1	0.5	0.2	0.2
19	NR	11	16	1.1	0.5	0.2	0.2
20	19	10	10	1.1	0.5	0.2	0.1
21	17	9.8	10	1.1	0.4	0.2	0.1
22	14	12	11	1.0	0.4	0.2	0.1
23	11	16	8.5	1.0	0.4	0.2	0.1
24	9.1	24	7.3	1.0	0.4	0.2	0.1
25	8.2	22	6.7	1.0	0.3	0.1	0.1
26	7.3	20	6.1	1.0	0.3	0.1	0.1
27	7.6	16	5.6	0.9	0.3	0.1	0.1
28	7.6	14	4.8	0.9	0.2	0.1	0.1
29	7.9	14	4.3	0.8	0.2	0.1	0.1
30	7.9	16	3.8	0.8	0.2	0.1	0.1
31	8.2	—	3.6	—	0.2	0.1	—
MEAN	10.4	15.2	8.8	1.4	0.5	0.2	0.1
AC-FT	248	906	544	84	28	10	7

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 41

1996 Daily Mean Discharge
(In cubic feet per second)

CEDAR CREEK AT CEDARVILLE

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	21[1]	29	14	3.6	0.9	0.7
2	23	28	13	3.2	0.9	0.5
3	25	27	13	3.0	0.9	0.3
4	23	26	12	2.9	0.9	0.3
5	23	25	11	2.8	0.8	0.3
6	26	25	11	2.8	0.8	0.4
7	31	23	10	2.7	0.8	0.3
8	39	22	9.4	2.5	0.7	0.3
9	38	21	8.7	2.4	0.7	0.3
10	40	20	9.2	2.3	0.6	0.3
11	36	19	8.5	2.2	0.5	0.4
12	34	20	7.8	2.1	0.5	0.3
13	29	19	7.2	2.0	0.7	0.3
14	26	21	6.7	2.0	0.9	0.4
15	29	20	6.4	2.3	0.7	0.9
16	34	23	6.1	2.4	0.6	0.9
17	32	23	5.8	1.9	0.5	0.7
18	29	27	5.5	1.8	0.5	0.6
19	28	29	4.9	1.9	0.6	0.6
20	29	24	4.7	1.8	0.6	0.5
21	27	26	4.7	1.7	0.7	0.5
22	28	28	4.5	1.6	0.6	0.4
23	29	27	4.7	1.5	0.6	0.4
24	34	23	4.5	1.4	0.5	0.5
25	33	21	4.5	1.3	0.4	0.4
26	34	19	4.9	1.1	0.5	0.3
27	31	18	6.7	1.1	0.5	0.4
28	28	17	4.7	1.1	0.7	0.4
29	26	16	3.9	1.0	0.5	0.5
30	32	15	8.7	2.0	0.8	0.6
31	—	14	—	0.9	0.5	—
MEAN	29.8	22.4	7.4	2.0	0.6	0.4
AC-FT	1770	1380	442	124	40	27

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 42

1996 Daily Mean Discharge
(In cubic feet per second)

NORTH DEEP CREEK ABOVE ALL DIVERSIONS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	11[1/]	18	8.5	3.2	0.6	1.1
2	14	16	8.1	2.9	0.8	1.0
3	12	17	7.1	2.6	1.0	1.1
4	11	17	7.8	2.5	0.8	1.3
5	10	16	7.0	2.4	0.7	1.1
6	11	15	7.5	2.6	1.0	1.0
7	12	17	7.6	2.5	1.1	0.8
8	13	16	7.2	2.6	1.0	0.7
9	16	15	6.8	2.4	0.8	0.6
10	15	16	6.4	2.1	1.0	0.7
11	14	17	6.8	1.9	1.1	0.7
12	14	17	6.0	1.8	1.4	0.6
13	13	18	6.4	1.7	1.6	0.7
14	12	19	5.8	1.6	2.6	1.3
15	14	20	5.4	1.7	1.4	3.8
16	13	22	4.6	1.9	1.0	1.9
17	14	21	4.2	1.6	0.9	1.3
18	13	20	4.1	1.7	1.0	0.9
19	14	18	3.6	1.6	1.1	0.8
20	13	17	3.5	1.5	1.0	1.0
21	12	15	3.9	1.4	0.8	0.9
22	13	19	3.5	1.2	0.9	0.8
23	15	17	3.8	1.1	1.0	0.8
24	18	15	4.5	1.3	0.9	0.7
25	19	13	4.8	1.2	0.8	0.6
26	20	13	5.0	1.1	0.8	0.5
27	18	11	5.8	0.9	0.9	0.6
28	15	12	4.7	0.8	0.7	0.7
29	16	10	4.0	0.7	0.6	0.7
30	17	9.5	3.6	0.6	0.8	0.8
31	—	9.2	—	0.7	1.0	—
MEAN	14.1	16.9	5.6	1.7	1.0	1.0
AC-FT	837	983	333	107	62	58

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 43

1996 Daily Mean Discharge
(In cubic feet per second)

SOUTH DEEP CREEK BELOW DIVERSION NO. 2

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	12	27	40	22	4.3	2.3
2	13	32	42	21	4.1	2.2
3	13	30	46	22	3.8	2.1
4	12	35	51	20	3.3	2.1
5	11	31	55	19	3.0	2.8
6	12	33	57	18	3.3	2.6
7	14	36	58	17	3.6	2.8
8	16	39	56	18	3.1	2.3
9	17	42	53	18	2.6	2.1
10	18	49	56	17	2.3	1.9
11	20	56	57	18	2.6	1.8
12	21	60	60	20	2.8	1.9
13	23	64	57	22	2.3	2.0
14	22	61	52	53	2.6	2.1
15	20	60	49	71	3.3	3.1
16	15	50	43	56	3.8	3.8
17	14	45	39	30	3.3	4.9
18	16	40	35	13	3.0	2.6
19	19	37	39	12	2.6	2.3
20	23	42	40	11	2.1	2.3
21	26	33	33	8.9	2.6	2.1
22	22	31	35	7.3	2.3	2.3
23	26	33	31	6.5	2.6	2.6
24	30	35	27	6.0	3.0	3.0
25	33	31	31	5.0	2.6	2.6
26	36	33	30	4.7	2.3	1.9
27	41	39	28	4.9	2.3	1.6
28	43	42	27	4.9	2.6	
29	13	10	4.0	0.7	0.7	0.7
30	15	9.1	3.6	0.6	0.8	0.8
31		8.7		0.7	1.0	
MEAN	10.9	14.4	5.2	1.5	1.0	1.0
AC-FT	648	884	310	89	63	60

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 44

1996 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK FLUME BELOW PAGE DITCH

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	12	27	40	22	4.3	2.3
2	13	32	42	21	4.1	2.2
3	13	30	46	22	3.8	2.1
4	12	35	51	20	3.3	2.1
5	11	31	55	19	3.0	2.8
6	12	33	57	18	3.3	2.6
7	14	36	58	17	3.6	2.8
8	16	39	56	18	3.1	2.3
9	17	42	53	18	2.6	2.1
10	18	49	56	17	2.3	1.9
11	20	56	57	18	2.6	1.8
12	21	60	60	20	2.8	1.9
13	23	64	57	22	2.3	2.0
14	22	61	52	53	2.6	2.1
15	20	60	49	71	3.3	3.1
16	15	50	43	56	3.8	3.8
17	14	45	39	30	3.3	4.9
18	16	40	35	13	3.0	2.6
19	19	37	39	12	2.6	2.3
20	23	42	40	11	2.1	2.3
21	26	33	33	8.9	2.6	2.1
22	22	31	35	7.3	2.3	2.3
23	26	33	31	6.5	2.6	2.6
24	30	35	27	6.0	3.0	3.0
25	33	31	31	5.0	2.6	2.6
26	36	33	30	4.7	2.3	1.9
27	41	39	28	4.9	2.3	1.6
28	43	42	27	4.9	2.6	1.6
29	37	37	26	4.7	2.5	1.8
30	28	41	25	4.7	2.4	1.8
31		43		4.5	2.3	
MEAN	21.8	40.9	42.6	18.1	2.9	2.4
AC-FT	1300	2510	2530	1110	177	141

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 45

1996 Daily Mean Discharge
(In cubic feet per second)

OWL CREEK BELOW ALLEN-ARRECHE DITCH

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	13	34	35	25	6.0	2.4
2	11	35	42	26	5.7	2.2
3	9.5	33	46	26	5.4	2.1
4	8.0	30	53	24	5.0	2.8
5	8.7	30	63	23	5.0	2.8
6	11	30	63	21	5.4	2.4
7	20	30	64	19	5.4	2.0
8	30	31	63	18	5.0	2.1
9	29	30	58	17	5.4	2.1
10	27	33	50	17	5.0	2.0
11	23	35	52	16	4.7	1.9
12	18	40	48	14	4.7	2.1
13	14	52	46	13	5.0	2.2
14	12	65	49	18	4.4	2.6
15	11	63	47	30	4.0	4.0
16	11	62	46	26	3.5	3.2
17	10	64	41	16	3.2	2.4
18	9.5	45	33	10	3.0	2.2
19	10	41	29	9.5	3.0	2.0
20	11	38	26	8.7	2.8	1.9
21	12	39	24	9.0	2.8	2.0
22	13	38	24	8.3	2.6	1.8
23	26	33	26	7.6	2.4	1.8
24	23	29	23	6.8	2.2	1.9
25	26	32	19	7.2	2.4	2.0
26	28	33	22	6.8	2.4	1.8
27	27	33	35	6.4	2.2	1.7
28	24	35	27	6.8	2.1	1.6
29	26	35	25	6.0	2.0	1.7
30	29	35	24	6.4	2.1	1.8
31		34		6.0	2.2	
MEAN	17.7	38.6	40.1	14.7	3.8	2.2
AC-FT	1050	2370	2390	901	232	128

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 46

1996 Daily Mean Discharge
(In cubic feet per second)

RADER CREEK BELOW COCKRELL DIVERSION

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	16	30	21	3.7	2.4
2	8.4	16	32	18	3.0	2.1
3	7.8	16	37	17	3.4	1.9
4	7.5	16	42	18	3.7	2.7
5	7.2	15	46	16	3.4	2.7
6	8.1	15	48	15	3.0	2.4
7	9.8	15	49	14	3.0	2.1
8	11	16	37	10	2.7	1.9
9	12	16	34	11	2.7	1.4
10	11	15	37	12	2.1	1.6
11	11	16	38	14	2.4	1.9
12	10	20	41	16	2.7	2.1
13	9.5	22	38	17	3.0	2.4
14	9.2	39	33	42	3.7	3.0
15	9.8	52	30	56	4.0	4.2
16	10	47	24	47	3.4	3.4
17	9.5	43	20	34	3.7	3.0
18	9.2	41	24	24	3.4	2.4
19	8.8	37	25	15	3.4	2.1
20	8.1	33	26	12	3.0	1.9
21	7.8	22	23	10	2.7	1.6
22	6.9	20	19	7.8	2.7	1.4
23	7.5	22	16	7.2	2.4	1.9
24	12	23	19	6.5	2.1	1.6
25	11	19	13	6.0	1.9	2.1
26	12	21	16	5.6	2.1	1.6
27	13	26	15	3.0	2.4	1.4
28	12	29	14	4.0	2.1	1.6
30	14	22	15	4.0	2.4	1.6
31	—	24	—	3.7	2.1	—
MEAN	9.8	24.5	28.5	15.8	2.8	2.1
AC-FT	584	1510	1690	974	175	125

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 47

1996 Daily Mean Discharge
(In cubic feet per second)

EAGLE CREEK NEAR EAGLEVILLE

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	27	38	32	11	3.9
2	10	28	41	34	9.2	3.8
3	9.0	25	47	35	7.8	3.9
4	8.5	21	50	36	7.3	3.8
5	7.8	20	54	32	7.0	4.2
6	8.8	21	52	29	6.3	3.9
7	11	22	56	28	5.8	3.8
8	13	25	62	29	5.6	3.6
9	14	25	67	27	5.8	3.5
10	15	27	62	28	5.6	3.8
11	17	32	58	29	5.4	3.6
12	15	38	55	28	5.2	3.5
13	13	50	53	29	5.1	3.6
14	12	66	49	28	7.3	3.9
15	13	73	40	26	5.2	7.0
16	13	56	36	26	5.4	5.1
17	13	50	35	24	5.2	4.7
18	12	46	34	21	5.1	4.2
19	11	40	33	20	5.0	3.9
20	10	36	29	18	4.8	3.6
21	10	39	32	16	4.7	3.3
22	11	38	31	15	4.6	3.2
23	12	35	29	14	4.4	3.2
24	14	37	30	13	4.6	3.1
25	16	40	28	13	4.4	3.2
26	20	43	30	12	4.2	2.9
27	17	44	29	13	4.2	3.1
28	16	42	28	13	4.4	3.1
29	19	38	27	13	4.2	2.9
30	23	35	26	12	4.0	3.2
31	—	34	—	11	4.2	—
MEAN	13.1	37.2	41.4	22.7	5.6	3.8
AC-FT	780	2290	2460	1400	343	223

[1] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 48

1996 Daily Mean Discharge
(In cubic feet per second)

EMERSON CREEK ABOVE ALL DIVERSIONS

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	15	18	22	9.5	4.6	3.5
2	14	19	24	9.1	4.8	3.5
3	13	18	27	8.6	4.8	3.5
4	13	16	32	8.6	4.6	3.3
5	12	16	32	8.3	4.4	3.3
6	13	17	30	8.0	4.4	3.5
7	15	16	28	8.0	.77	3.5
8	16	16	29	7.7	4.2	3.3
9	17	16	26	7.4	4.2	3.3
10	16	17	22	7.1	4.2	3.1
11	15	19	19	6.8	4.0	3.1
12	15	25	19	6.5	4.2	3.0
13	14	31	17	6.3	5.0	3.0
14	13	37	17	6.8	4.6	3.1
15	14	42	16	6.5	4.2	4.4
16	15	40	15	6.3	4.0	4.0
17	14	36	15	6.5	4.0	4.2
18	13	37	14	6.3	4.2	3.8
19	13	34	13	6.3	4.4	3.6
20	12	30	13	6.1	4.2	3.5
21	11	31	13	5.9	4.2	3.3
22	12	37	12	5.9	4.0	3.6
23	13	29	11	5.7	4.0	3.8
24	15	27	12	5.5	3.8	3.6
25	16	26	11	5.3	3.8	3.5
26	17	26	12	5.5	3.8	3.6
27	16	33	13	5.5	3.6	3.5
28	16	30	11	5.3	3.6	3.3
29	16	29	10	5.3	3.6	3.3
30	17	25	10	5.2	3.5	3.5
31						
MEAN	14.4	26.3	18.2	6.7	4.2	3.5
AC-FT	855	1620	1080	410	255	207

SUSAN RIVER WATERMASTER SERVICE AREA

SUSAN RIVER WATERMASTER SERVICE AREA

The Susan River service area is in the southern Lassen County near Susanville. The main area of water use is in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a stretch of about 25 miles. The valley floor is at an elevation of about 4,000 feet. Water comes from three stream systems and their respective tributaries: Susan River, Baxter Creek, Parker Creek.

The Susan River originates in the Cascade Range just east of Lassen National Park at a elevation of about 7,900 feet. It runs east from Silver Lake through McCoy Flat Reservoir, the town of Susanville, and then to Honey Lake.

The river has four major tributaries: Piute Creek, entering from the north at Susanvillle; Gold Run and Lassen creeks, entering from the south between Susanville and Johnstonville; and Willow Creek, entering from the north above Standish. Gold Run and Lassen creeks rise on the north slope of Diamond Mountain at an elevation of about 7,600 feet. The watersheds of Piute and Willow creeks are on the south slopes of Round Valley Mountain at lower elevations.

The Susan River divides into three channels a short distance below its confluence with Willow Creek. The channels are Tanner Slough Channel on the north, Old Channel in the middle, and Dill Slough Channel on the south. Hartson Slough and Whitehead Slough divert from Dill Slough on its south bank further downstream.

The Baxter Creek stream system is in Honey Lake Valley on the east side of the Sierra Nevada, about 10 miles southeast of Susanville. The main creeks in the system are Baxter Creek, which rises on the west side of the basin and flows east, and Elysian, Sloss, and Bankhead creeks, tributaries of Baxter Creek from the south.

Parker Creek is also in Honey Lake Valley on the east slope of the Sierra Nevada, about 15 miles southeast of Susanville. It rises on the east side of Diamond Mountain and flows east for about 5 miles into Honey Lake.

Basis of Service

The water of Susan River and its tributaries is distributed according to the water rights defined in Decree No. 4573, Lassen County Superior Court, entered on April 18, 1940. Schedule 3 of the decree defines the rights to the use of water from Willow Creek in Willow Creek Valley, Lower Willow Creek, and the Susan River delta below the Colony Dam. Schedule 4 of the decree defines the rights to the use of water from Gold Run, Piute, Hills, Holtzclaw, and Lassen creeks above their confluence with the Susan River.

Schedules 5 and 6 of the decree define the rights to the use of water from the Susan River, exclusive of its tributaries. The decree establishes three priority classes each on Susan River and Gold Run Creek, two on Willow Creek, and one each on Piute and Hills creeks. The water of Baxter Creek and its tributaries is distributed according to the water rights defined in the statutory adjudication as set forth in Decree No. 8174, Lassen County Superior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Baxter and Elesian creeks. The Baxter Creek rights are divided into five priority classes.

The water of Parker Creek and its tributaries is distributed according to the water rights defined by a statutory adjudication as set forth in Decree No. 8175, Lassen County Supersior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Parker Creek, with four priority classes.

The Susan River watermaster service area was created by order of the Division of Water Resources on November 10, 1941. The Baxter and Parker creek stream systems were added to the Susan River service area on February 16, 1956.

Water Supply

Water in the Susan River service area comes from two major sources: snowmelt runoff and springs. Snowpack in the Willow Creek Valley and Piute Creek watersheds, which contain more than half the Susan River stream system, melts early in the spring and is usually depleted by May 1. Irrigation requirements from this part of the stream system are then almost entirely dependent on the flow of springs that are relatively constant throughout the year.

Under average flow conditions, Lassen, Gold Run, Baxter, and Parker creeks and the Susan River above Susanville are sustained by snowmelt runoff until early June. The flow from perennial springs in this portion of the system is comparatively small.

The Lassen Irrigation Company stores supplemental water in Hog Flat and McCoy Flat reservoirs, on the headwaters of the Susan River. This stored water is released into the Susan River channel and joins the natural flow, usually during June and July. However, the facilities for releasing water stored in Lake Leavett was destroyed early in the season causing all of the winter stored water to be lost. A temporary Coffer Dam enabled the company to satisfy it's shareholders through the season. The facility was repaired in October and November.

Records of daily mean discharge of the several stream gaging stations in the service area are presented in Tables 49 through 56.

Method of Distribution

A major portion of the irrigation in the Susan River service area is done by flooding. Water is supplied to the area from the Susan River, tributaries to the river, and other minor streams. The distribution of water is provided by a system of diversion dams, canals and ditches. Included in the operation of the service area are three reserviors owned and operated by the Lassen Irrigation Company which are McCoy Flat Reservoir, Hog Flat Reservoir, and Lake Leavitt.

1996 Distribution

This is the 55th annual report on watermaster service in the Susan River watermaster service area and covers the period of distribution beginning March 1 and continuing until November 1. Virgil D. Buechler, Water Resources Engineering Associate, was the watermaster.

Streamflow conditions for 1996 were better than average.

Parker Creek

First priority water rights were served through the summer.

Baxter

Upper Baxter Creek had a surplus of 22 cfs past Highway 395 on June 5 and maintained 1.5 cfs or more past the Long Ditch through July 28 and then dried up.

Hills Creek

The water supply in Hills Creek filled Emerson Lake and spilled through July

Gold Run Creek

On May 29 the flow was in excess of 30 cfs decreasing to 75 percent of all rights on June 24 hitting a low for the season on August 30 at 2.0 cfs.

Piute Creek

Piute Creek was at 10 cfs on April 5. The spring-fed water supply was sufficient to satisfy all allotments for the summer.

Susan River

The lower Susan River experienced flooding until July 1. The flows dropped to 4.6 cfs by July 24 and decreased to a minimum of 1.5 cfs September 19. Susan River never got below 15 cfs through September 9 and then started to increase. There was no problem with stock water.

Lassen Irrigation Company Reservoirs

McCoy Reservoir was full and spilled prior to Lassen Irrigation Company releasing water June 20 through July 24. Hog Flat Reservoir did not fill before releases were made June 17 through July 5.

Lassen and Holtzslaw Creek

Lassen Creek had surplus of water past Highway 395 at the end of the season on November 1.

Willow Creek

Willow Creek was flooded until early summer and never got below 15 cfs through September 9 and then started to increase. There was no problem with stock water.

SUSAN RIVER WATER MASTER SERVICE AREA

TABLE 49

1996 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER AT SUSANVILLE

DAY	APR	MAY	JUNE	JUL	AUG	SEPT
1	556	230	190	87	65	6.8
2	555	231	132	87	64	6.4
3	503	188	85	87	67	7.3
4	457	170	82	86	66	6.9
5	425	173	75	85	63	6.8
6	413	191	70	90	25	7.8
7	432	199	67	92	15	8.6
8	405	177	63	92	13	6.9
9	461	162	59	91	12	6.7
10	619	153	57	89	12	7.1
11	585	133	55	88	12	6.5
12	520	135	52	87	12	6.6
13	434	137	49	91	13	6.7
14	321	158	47	93	12	7.3
15	327	222	45	89	11	8.9
16	579	434	44	88	11	9.9
17	631	1240E	42	86	9.8	9.0
18	532	1720E	93	86	9.4	9.9
19	446	1460E	102	85	9.4	9.6
20	386	715	101	84	9.1	9.5
21	349	349	99	83	8.8	9.6
22	330	362	99	82	8.1	8.4
23	302	355	101	82	7.8	7.6
24	337	220	94	81	8.0	8.0
25	356	177	98	79	8.3	8.1
26	363	140	103	82	7.8	8.0
27	319	169	100	72	8.3	7.8
28	291	148	97	71	8.0	7.2
29	226	171	93	74	7.7	6.8
30	225	194	90	70	6.7	7.3
31	----	198	----	67	6.6	----
MEAN	423	346	82.8	84.1	19.3	7.8
AC FT	25160	21240	4927	5169	1184	464

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 50

1996 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER AT COLONY DAM

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	NR	18	4.6	2.2
2	NR	NR	NR	16	3.7	2.2
3	NR	NR	NR	13	3.7	2.2
4	NR	NR	NR	10	3.9	2.2
5	NR	NR	37	9.8	4.9	2.4
6	NR	NR	16	9.5	5.6	2.4
7	NR	NR	17	9.5	5.9	2.4
8	NR	NR	16	8.8	7.9	2.4
9	NR	NR	16	7.9	4.6	2.4
10	NR	NR	15	7.0	4.4	2.4
11	NR	NR	11	7.3	3.9	2.4
12	NR	NR	11	6.7	3.9	2.4
13	NR	NR	16	5.9	3.9	2.4
14	NR	NR	20	5.4	3.9	2.4
15	NR	NR	15	6.2	3.9	2.4
16	NR	NR	13	6.2	3.4	2.4
17	NR	NR	14	5.4	3.4	2.4
18	NR	NR	13	5.9	3.4	2.4
19	NR	NR	13	5.9	2.8	2.4
20	NR	NR	14	5.9	2.8	2.0
21	NR	NR	15	7.3	2.4	2.8
22	NR	NR	18	7.3	2.4	3.0
23	NR	NR	17	5.1	2.4	3.2
24	NR	NR	17	5.6	2.4	3.2
25	NR	NR	17	5.9	2.4	3.4
26	NR	NR	18	5.9	2.4	3.4
27	NR	NR	19	6.2	2.4	2.4
28	NR	NR	21	5.1	2.4	1.5
29	NR	NR	21	5.1	2.2	1.5
30	NR	NR	19	5.1	2.2	1.7
31	NR	NR	---	4.9	2.2	---
MEAN	NR	NR	NR	7.5	3.6	2.4
AC FT	NR	NR	NR	464	219	145

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 52

1996 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK (ABOVE MAPES BIG SPRINGS) NEAR SUSANVILLE

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	NR	NR	NR	3.8
2	NR	NR	NR	NR	NR	4.7
3	NR	NR	NR	NR	NR	4.8
4	NR	NR	NR	NR	NR	5.0
5	NR	NR	NR	NR	NR	5.0
6	NR	NR	NR	NR	NR	5.0
7	NR	NR	NR	NR	NR	5.2
8	NR	NR	NR	NR	NR	5.2
9	NR	NR	NR	NR	NR	5.2
10	NR	NR	NR	NR	NR	5.2
11	NR	NR	NR	NR	3.4	5.4
12	NR	NR	NR	NR	3.4	5.4
13	NR	NR	NR	NR	3.4	5.4
14	NR	NR	NR	NR	3.4	5.2
15	NR	NR	NR	NR	3.4	5.2
16	NR	NR	NR	NR	4.7	5.2
17	NR	NR	NR	NR	5.6	5.0
18	NR	NR	NR	NR	5.6	5.0
19	NR	NR	NR	NR	5.6	5.0
20	NR	NR	NR	NR	4.1	4.8
21	NR	NR	NR	NR	2.9	4.8
22	NR	NR	NR	NR	2.9	5.2
23	NR	NR	NR	NR	2.9	5.6
24	NR	NR	NR	NR	2.9	6.0
25	NR	NR	NR	NR	2.9	6.6
26	NR	NR	NR	NR	2.9	9.6
27	NR	NR	NR	NR	2.9	9.6
28	NR	NR	NR	NR	2.9	9.6
29	NR	NR	NR	NR	2.9	9.6
30	NR	NR	NR	NR	2.9	9.6
31	NR	NR	NR	NR	2.9	NR
MEAN					NR	5.9
AC-FT					NR	350

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 53

1996 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK AT THE CONFLUENCE OF THE SUSAN RIVER

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	NR	NR	40	25	10	16
2	NR	NR	37	21	10	16
3	NR	NR	36	21	10	16
4	NR	NR	33	20	10	17
5	NR	NR	29	19	10	18
6	NR	NR	20	19	10	18
7	NR	NR	20	16	10	18
8	NR	NR	19	13	10	18
9	NR	NR	18	13	10	18
10	NR	61	18	13	10	18
11	NR	61	17	13	11	17
12	NR	58	16	13	12	17
13	NR	55	23	13	12	17
14	NR	52	22	13	13	17
15	NR	52	22	13	12	17
16	NR	52	22	12	12	17
17	NR	55	22	12	12	17
18	NR	55	22	12	12	17
19	NR	58	22	11	12	17
20	NR	58	22	10	12	17
21	NR	58	23	10	12	17
22	NR	61	23	10	12	17
23	NR	61	25	10	11	17
24	NR	61	24	10	11	17
25	NR	61	24	10	10	17
26	NR	61	24	10	11	17
27	NR	61	24	10	11	17
28	NR	61	24	10	11	17
29	NR	55	24	10	11	17
30	NR	49	24	10	15	17
31	NR	43	----	10	16	----
MEAN	NR	NR	24.0	13.3	11.4	17.1
AC-FT	NR	NR	1426	817	698	1018

TABLE 55

1996 Daily Mean Discharge
(In cubic feet per second)

OPERATION OF MCCOY AND HOG FLAT RESERVOIRS

DAY	McCoy Flat Reservoir Inflow from Susan River			McCoy Flat Reservoir Release to Susan River			Hog Flat Reservoir Release to Susan River		
	MAY	JUN	JUL	JUN	JUL	AUG	JUL	AUG	SEP
1	NR	22	N	0.0	58	N	60	59	N
2	NR	22		0.0	63		60	60	
3	NR	20	O	0.0	61	O	60	60	O
4	NR	20		0.0	60		60	59	
5	NR	20		0.0	58		NR	20	
6	68	18	F	0.0	70	F	NR	N	F
7	65	17		0.0	69		NR		
8	61	12	L	0.0	69	L	NR	O	L
9	59	9.8		0.0	68		NR		
10	53	7.3	O	0.0	68	O	NR		O
11	48	5.9	W	0.0	67	W	NR	F	W
12	52	4.9		0.0	69		NR		
13	65	2.8		0.0	71		NR	L	
14	70	2.4		0.0	71		NR		
15	78	1.5		0.0	71		NR	O	
16	114	0.8		0.0	69		NR	W	
17	140	0.1		0.0	69		NR		
18	188			0.0	68		NR		
19	140			0.0	68		NR		
20	98	N		1.2	68		NR		
21	77	O		11	67		NR		
22	102			39	67		NR		
23	72			42	66		NR		
24	54			61	64		NR		
25	40	F		61	0.3		61		
26	44	L		61	0.0		60		
27	55			61	0.0		58		
28	46	O		60	0.0		60		
29	49			59	0.0		61		
30	52	W		58	0.0		59		
31	37			---	0.0		59		
MEAN	6.2	0.0		17.1	51.6	0.0	NR	8.3	0.0
AC-FT	370	0.0		1020	3174	0.0	NR	17	0.0

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 56

1996 Daily Mean Discharge
(In cubic feet per second)

A AND B CANAL ABOVE LAKE LEAVITT

DAY	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	58	63	63	40	N
2	3.4	68	43	57	30	
3	5.9	88	29	60	24	O
4	7.9	85	32	57	24	
5	5.1	98	32	53	35	F
6	5.1	99	55	57	37	L
7	5.1	98	52	60	7.5	
8	5.1	90	45	54		O
9	5.1	86	49	54		
10	32	77	40	60		W
11	30	72	35	60	N	
12	20	75	32	56		
13	25	82	22	54	O	
14	15	94	18	63		
15	13	98	12	65	F	
16	32	68	10	65	L	
17	16	55	7.9	68		
18	16	42	19	68	O	
19	16	35	55	68		
20	25	35	56	63	W	
21	24	46	58	61		
22	29	58	55	60		
23	40	68	54	60		
24	58	75	46	58		
25	61	72	44	53		
26	61	74	51	51		
27	60	82	60	52		
28	52	77	65	50		
29	36	77	64	58		
30	40	80	64	58		
31	____	72	____	56		
MEAN	24.9	73.7	42.3	58.8	6.4	0.0
AC-FT	1482	4530	2515	3614	392	0.0