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

WATERMASTER SERVICE IN NORTHERN CALIFORNIA

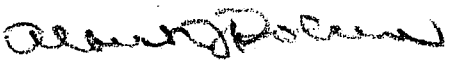
1978 Season

DECEMBER 1979

FOREWORD

This report discusses the watermaster service provided by the Department of Water Resources to areas in Northern California during the 1978 watermaster season. Authority for its preparation is described in the California Water Code, Division 2, Part 4, Chapter 7.

Data are presented in two parts: the first contains general information about the water rights, water supply service areas, and watermaster duties. The second contains sections describing the 21 active service areas, 19 in the Department's Northern District and 2 in the Central District. Each of these 21 sections includes descriptions of the general area, the basis of watermaster service, water supply, method of distribution, 1978 distribution, and other significant information for each area.



Albert J. Dolcini, Chief
Northern District

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

NORTHERN DISTRICT

Albert J. Dolcini . . . . . Chief
Wayne S. Gentry . . . . . Chief of Planning

Activities covered by this report were under the supervision

of

Robert A. Steel . . . . . Chief of Watermaster Service & Hydrology Section
Thomas C. Mackey, former Chief (retired December 1978
Kenneth E. Morgan . . . . . Assistant Supervising Watermaster

assisted by

Linwood L. Bates . . . . . Watermaster
Eldon E. Rinehart . . . . . Watermaster
Seth K. Barrett . . . . . Deputy Watermaster
Virgil D. Buechler . . . . . Deputy Watermaster
Charles G. Hodge . . . . . Deputy Watermaster
James C. Scheler . . . . . Deputy Watermaster
Lester L. Lighthall . . . . . Deputy Watermaster
Mitchell Clogg . . . . . Research Writer
Clifford D. Maxwell . . . . . Senior Delineator
Ken Lengtat . . . . . Engineering Aide

Report data and text on the Indian Creek and Middle Fork Feather River Watermaster Service Areas were furnished by the Central District

by

H. Joe Nessler . . . . . Supervising Watermaster
Earl Stower . . . . . Deputy Watermaster
Conrad Lahr . . . . . Deputy Watermaster

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Campbell Lake	Shackleford Creek	107,108			16	109
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Cedar Creek	Cow Creek	32			6	34
Cedar Creek	S.F. Pit River				18	133
Cedar Creek	Surprise Valley	139,141	46	145	19,19e	149,157
Center Canal	S.F. Pit River				18	133
Cliff Lake	Shackleford Creek	107			16	109
Clover Creek	Cow Creek	31,32			6,6c	34,38
S. Clover Creek	Cow Creek				6c	38
Cold Stream	M.F. Feather River	67			13,13e	70,75

* Big Sage Reservoir serves Hot Springs Valley I.D., upstream of Big Valley, but has considerable effect on the water supply to Big Valley.

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Cottonwood Creek	N.F. Cottonwood Cr.	83			14	85
N.F. Cottonwood	N.F. Cottonwood Cr.	83	19	84	14	85
Cottonwood Creek	N.F. Pit River	87,88	22	90	15,15a	95,96
Couch Creek	N.F. Pit River				15e	100
Cow Creek	Cow Creek	31			6	34
N. Cow Creek	Cow Creek	31	12	33	6	34
S. Cow Creek	Cow Creek				6	34
Dale Creek	Shasta River	111			17,17a	119,121
Davis Creek	N.F. Pit River	87,88	23	91	15,15b	95,97
DeSabla Reservoir	Butte Creek	25				
Deep Creek	Surprise Valley	139,140			19,19f	149,158
N. Deep Creek	Surprise Valley	141	47	145	19,19f	149,158
S. Deep Creek	Surprise Valley	141	48	146	19,19f	149,158
Dicen Slough	M.F. Feather River				13,13b	70,72
Digger Creek	Digger Creek	39	13	40	7	41
Dill Slough	Susan River	163			20,20c	173,179
Doby Creek	N.F. Cottonwood Cr.				14	85
Dorris Reservoir	S.F. Pit River				18a	134
Duck Lake Creek	French Creek	47,48	14	48	9	49
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Edgar Slough	Butte Creek				5	29
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Emerson Creek	Surprise Valley	139,141	153	148A	19,19k	149,163
Evans Creek	Shackleford Creek	107				
Eyster Slough	Surprise Valley				19j	162
Fall River	Fall River	43			7	45
Feather River						
Middle Fork	M.F. Feather River	67,68	18	69	13	70
West Branch	Butte Creek (Import)	25				
Fitzhugh Creek	S.F. Pit River	129,130	39	132	18,18b	133,135
N.F. Fitzhugh Cr.	S.F. Pit River	129			18,18b	133,135
S.F. Fitzhugh Cr.	S.F. Pit River	129			18,18b	133,135
M.F. Fitzhugh Cr.	S.F. Pit River				18b	135
Fletcher Creek	M.F. Feather River	67,68			13,13k	70,81
Franklin Creek	N.F. Pit River	87,88	25	92	15,15d	95,99
French Creek	French Creek	47,48	14	48	9	49
North Fork	French Creek	47,48			9	49
French Reservoir	S.F. Pit River	129			18,18b	133,135
Frenchman Reservoir	M.F. Feather River	67				
Gleason Creek	N.F. Pit River				15,15g	95,103
Gold Run Creek	Susan River	163-165	55	169	20,20a	173,175
Hahn Channel	Hat Creek				10	55
Hamlin Creek	M.F. Feather River	68			13,13j	70,80
Hamlin Slough	Butte Creek	25			5	29
Hartson Slough	Susan River	163			20,20c	173,179
Hat Creek	Hat Creek	53	15	54	10-10c	55-58
Hendricks Canal (Also known as Toadtown Canal, Import)	Butte Creek	25	10	27		
Hills Creek	Susan River	163,165			20a	175
Hog Flat Reservoir	Susan River	164	58	171		

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Horse Range Creek	French Creek	47			9	49
Indian Creek	Indian Creek	59,60	16	60	11,a,b,c,	61-64
Iverson Reservoir	Big Valley	15,16			3	19
Jackson Creek	Shasta River	111				
Jerusalem Creek	N.F. Cottonwood	83			14	85
Joseph Creek	N.F. Pit River	87,88	26	92	15,15e	95,100
Juniper Creek	Big Valley	16			3	19
Juniper Creek	Juniper Creek	65			12	66
Lake Leavitt	Susan River	164,165	59	171	20,20f	173,182
Lake Margaret	Goose Valley	51				
Lake Shastina	Shasta River (See Dwinnell Reservoir)				17d	124
Lassen Creek	Susan River	163,165			20,20a	173,175
Lassen Irrigation Company Reservoir	Susan River	164,165				
Last Chance Creek	M.F. Feather River (See Little Last Chance Creek)					
Lights Creek	Indian Creek	59,60			11,b,c.	61,63,64
Linville Creek	N.F. Pit River	87,88	24	91	15,15c	95,98
Little Cow Creek	Cow Creek (See Cow Creek, North)				6b	37
Little Last Chance	M.F. Feather River	67,68			13,13a	70,71
East Channel	M.F. Feather River				13b	72
North Channel	M.F. Feather River				13b	72
Little Shasta River (See Shasta River)						
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Little Truckee R.	M.F. Feather River (Import)	67,68				
Lower Shasta River	Shasta River (See Shasta River)					
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McCoy Flat Res	Susan River	163,164	58	171		
Meeks Meadow Creek	French Creek				9	49

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M.F. Feather River	M.F. Feather River (See Feather River)					
M.F. Fitzhugh Creek	S.F. Pit River (See Fitzhugh Creek)				18b	135
Mile Creek	N.F. Pit River				15f	101
Milkhouse Creek	M.F. Feather River				13j	81
Mill Creek	Cow Creek				6a	35
Mill Creek	Shackleford Creek	107			16	109
Mill Creek	S.F. Pit River	129			18	133
Mill Creek	Surprise Valley	139,140	43	143	19,19b	149,153
Miller Creek	M.F. Feather River				13,13j	70,80
Miners Creek	French Creek	47,48			9	49
Moon Creek	N.F. Cottonwood Creek	83			14	85
Morris Slough	M.F. Feather River				13,13b	70,72
Murphy-Estep Branch	Cow Creek				6a	35
Negro Creek	N.F. Pit River				15h	105
New Pine Creek	N.F. Pit River	87,88	21	90	15,15a	95,96
North Canyon Creek	Indian Creek				11a	62
North Channel	N.F. Pit River (See Franklin Creek)				15d	99
North Channel	M.F. Feather River (See Little Last Chance Cr.)				13a	71
North Cow Creek	Cow Creek (See Cow Creek)				6	34
North Deep Creek	Surprise Valley (See Deep Creek)					
N.F. Cottonwood Cr.	N.F. Cottonwood Creek (See Cottonwood Creek)					
N.F. Davis Creek	N.F. Pit River (See Davis Creek)				15b	97
N.F. Feather River	Indian Creek	59			11,11b	61,63
N.F. French Creek	French Creek (See French Creek)					
N.F. Pit River	N.F. Pit River (See Pit River)					
Oak Run Creek	Cow Creek	33,34			6,6a,6c	34,35,38
Old Channel	Hat Creek				10a	56
Old Channel	Surprise Valley				19j	162
Old Channel	Susan River	163			20a	165
Onion Creek	M.F. Feather River	67			11e	75

Watermaster Service Areas in Northern California

Source Name	Service Area	References: Text Page	Flow Data: Table	Flow Data: Page	Map: Figure	Map: Page
Owl Creek	Surprise Valley	139-141	50	147	19,19h	149,160
Parker Creek	Susan River	163-165			20,20b	173,177
Parker Creek	N.F. Pit River	87,88	29	94	15,g&h	95,103,05
Parks Creek	Shasta River	111,112	33	115	17,17c	119,123
Payne Reservoir	S.F. Pit River	129			18,18b	133,135
Paynes Lake Creek	French Creek	47			9	49
Perry Creek	M.F. Feather River				13e,13f	75,76
Peters Creek	Indian Creek				11,11b	61,63
Pine Creek	S.F. Pit River	129	40	132	18	133
Pine Creek	Surprise Valley	139,140	45	144	19,19d	149,156
Pine Creek Reservoir	S.F. Pit River	129			18	133
Pine Creek, New	N.F. Pit River	(See New Pine Creek)			15	95
Pit River	Big Valley	15,16	7	17	3	19
North Fork	N.F. Pit River	87,88	27	93	15,c,f,i	95,98,101, 106
South Fork	S.F. Pit River	129,130	37	131	18,c&d	133,36,37
Piute Creek	Susan River	163-165			20,20e	173,181
Plum Canyon Res.	N.F. Pit River				15h	105
Plum Creek	N.F. Pit River				15h	105
Porter Reservoir	N.F. Pit River				15h	105
Radar Creek	Surprise Valley	139,141	51	147	19,19i	149,161
Rainbow Lake	N.F. Cottonwood Cr.	83			14	85
Rising River	Hat Creek	53			10a	56
Roberts Reservoir	Big Valley	15,16			3	19
Rock Canyon Creek	Digger Creek				7	41
Round Valley Res.	Indian Creek				11,11a	61,62
Rush Creek	Ash Creek	11,12			2	13
Rutherford Creek	Surprise Valley				19,19b	149,153
Shackleford Creek	Shackleford Creek	107			16	109
Shasta River	Shasta River	111-113	31,32,36	114,15,17	17,a, 17c,d,f,g	119,121 123,24, 127,128

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Source Name	Service Area	References: Text Page	Flow Data: Table	Flow Data: Page	Map: Figure	Map: Page
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Little Shasta R.	Shasta River	111-113	35	117	17,f&g	119,27,28
Lower Shasta River	Shasta River	111-113				
Upper Shasta River	Shasta River	112				
Shields Creek	N.F. Pit River	88	30	94	15h	105
Silver Creek	Cow Creek				6c	38
Slaughter Pole Cr.	Cow Creek				6c	38
Sloss Creek	Susan River	163			20	173
Smithneck Creek	M.F. Feather River	67,68			13,b&c	70, ,73
East Channel	M.F. Feather River				13a&d	71,74
Middle Channel					13d	74
West Channel	M.F. Feather River				13a	74
Soldier Creek	Surprise Valley	139,140	44	144	19,19c	149,155
South Channel	N.F. Pit River (See Davis Creek and Franklin Creek)				15d	99
South Clover Creek	Cow Creek (See Clover Creek)				6c	38
South Deep Creek	Surprise Valley (See Deep Creek)					
S.F. Davis Creek	N.F. Pit River (See Davis Creek)					
S.F. Digger Creek	Digger Creek (See Digger Creek)					
S.F. Pit River (See Pit River)						
Spring Brook	M.F. Feather River				13,13j	70,80
Spring Channel	M.F. Feather River	67,68			13,13k	70,81
Stony Canyon Creek	N.F. Pit River				15f	101
Susan River	Susan River	163-165	54,56	169,170	20,a,e,f	173,175 181,182
Tanner Slough	Susan River	163			20,20c	173,179
Thoms Creek	N.F. Pit River	87,88	27	93	15f&i	101,106
Toadtown Canal	Butte Creek (See Hendricks Canal)		11	27		
Town Creek	M.F. Feather River				13e&f	75,76
Truck River, Little	M.F. Feather River, Import (See Little Truck Diversion)					
Tule River, Little	Fall River	43			7	45

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Source Name	Service Area	References: Text Page	Flow Data: Table	Flow Data: Page	Map: Figure	Map: Page
Turner Canyon	M.F. Feather River				13,13j	70,80
Turner Creek	M.F. Feather River	68			13j	80
Webber Creek	M.F. Feather River	67,68			13,13e	70,75
W. Br. Feather River	Butte Creek, Import	(See Feather River)				
W. Fork Parker Cr.	Susan River	(See Parker Creek)				
West Channel	M. F. Feather River	(See Smithneck Creek)			13d	74
West Side Canal	M.F. Feather River	67,68			13,h&i	70,78,79
West Side Canal	S. F. Pit River				18,18d	133,137
West Valley Creek	S.F. Pit River	129	38	131		
West Valley Res.	S.F. Pit River	129,130	38	131	18,18c	133,136
West Valley Res.	Big Valley	15,16				
Whitehead Slough	Susan River	165			20c	179
Wildcat Creek	Cow Creek				6c	38
Willow Creek	Ash Creek	11,12			2	13
Willow Creek	Susan River	163,165	57	170	20,20d	173,180
Willow Creek	Willow Creek	183			21	184
Windham Creek	Cow Creek				6c	38
Wolf Creek	Indian Creek	59,60			11,11a	61,62

TABLE 1

CONVERSION FACTORS

Metric to Customary System of Measurement

Quantity	Metric Unit	Multiply by	To get customary equivalent
Length	millimetres (mm)	0.03937	inches (in)
	centimetres (cm) for snow depth	0.3937	inches (in)
	metres (m)	3.2808	feet (ft)
	kilometres (km)	0.62139	miles (m)
Area	square millimetres (mm^2)	0.00155	square inches (in^2)
	square metres (m^2)	10.764	square feet (ft^2)
	hectares (ha)	2.4710	acres (ac)
	square kilometres (km^2)	0.3861	square miles (mi^2)
Volume	litres (l)	0.26417	gallons (gal)
	megalitres	0.26417	million gallons (10^6 gal)
	cubic metres (m^3)	35.315	cubic feet (ft^3)
	cubic metres (m^3)	1.308	cubic yards (yd^3)
	cubic metres (m^3)	0.0008107	acre-feet (ac-ft)
	cubic dekametres (dam^3)	0.8107	acre-feet (ac-ft)
	cubic hectometres (hm^3)	0.8107	thousands of acre-feet
	cubic kilometres (km^3)	0.8107	millions of acre-feet
Flow	cubic metres per second (m^3/s)	35.315	cubic feet per second (ft^3/s)
	litres per minute (l/min)	0.26417	gallons per minute (gal/min)
	litres per day (l/day)	0.26417	gallons per day)(gal/day)
	megalitres per day (Ml/day)	0.26417	million gallons per day (mgd)
	cubic metres per day (m^3/day)	0.0008107	acre-feet per day
Mass	kilograms (kg)	2.2046	pounds (lb)
	tonne (t)	1.1023	tons (short, 2,000 lb)
Velocity	metres per second (m/s)	3.2808	feet per second (ft/s)
Power	kilowatts (kW)	1.3405	horsepower (hp)
Pressure	kilopascals (kPa)	0.145054	pounds per square inch (psi)
	kilopascals (kPa)	0.33456	feet head of water
Specific capacity	litres per minute per metre drawdown	0.08052	gallons per minute per foot drawdown
Concentration	milligrams per litre (mg/l)	1.0	parts per million
Electrical conductivity	microsiemens per centimetre (μS/cm)	1.0	micromho per centimetre
Temperature	degrees Celsius (°C)	(1.8 × °C) + 32	degree Fahrenheit (°F)

1978

DECREED WATER RIGHTS

	Service Area	Number of Decreed Water Users	Total Decreed Water Rights m^3/sec.	cfs
1.	Ash Creek	59	3.501	123.65
2.	Big Valley	52	6.542	231.03
3.	Burney Creek	11	.937	33.09
4.	Butte Creek	40	11.958	422.30
5.	Cow Creek	86	1.596	56.367
6.	Digger Creek	79	.657	23.225
7.	Fall River	2 1/		
8.	French Creek	36	.854	30.17
9.	Goose Creek	1 1/		
10.	Hat Creek	57	3.838	135.545
11.	Indian Creek	47	3.738	96.715
12.	Juniper Creek	3 1/		
13.	M. F. Feather River	105	10.536	372.079
14.	N. F. Cottonwood Creek	13	.858	30.30
15.	N. F. Pit River	101	6.075	214.195
16.	Shackleford Creek	45	1.832	64.73
17.	Shasta River	130	17.055	602.292
18.	S. F. Pit River	39	9.938	355.150
19.	Surprise Valley	174	9.458	334.02
20.	Susan River	204	9.972	352.182
21.	Willow Creek	3		2/

1/ Does not include Pacific Gas and Electric Company, who is a participant.

2/ Water based on percentage of flow in Willow Creek.

INTRODUCTION

Purpose and Benefits

The primary purpose of watermaster service is to distribute water in accordance with established water rights. This is accomplished by apportioning to the rightful users the available supplies in streams which have had water right determinations.

Distribution of water in watermaster service areas is a continuing statutory function of the Department of Water Resources as provided in Part 4 of Division 2 of the California Water Code.

A major benefit of watermaster service to water users and the State is that court litigation and physical violence, which in past years occurred quite frequently, are essentially eliminated.

Under watermaster service each water right owner is assured that his rights are being protected without his having to take legal action against other users. Another important benefit results from increased use of available supplies through reduction of waste.

Because both the water right owners and the State receive benefits from watermaster service, the costs of performing the service are shared. The State general tax fund pays half the cost of operating each service area. The water right owners 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.

Determination of Water Rights

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

Water rights determinations necessary for establishing watermaster service areas may be accomplished by "statutory adjudication", "court adjudication", "court reference", permit of license to appropriate, or agreement.

Statutory Adjudications

The California Water Code (Sections 2500-2900) prescribes a procedure whereby water users on any stream may petition the State Water Resources Control Board, Division of Water Rights, to make a legal determination of all water rights on that stream. If the Board finds that such a determination is in the best public interest, it proceeds with a statutory adjudication. This adjudication ultimately results in a court decree which defines all water rights on the stream.

Court Adjudications

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 owners and persons claiming riparian or appropriative rights which were not specified in the decree.

Court Reference

The "court reference" type of adjudication arises when a civil action as discussed, is referred to the State Water Resources Control Board for a determination under authority contained in Sections 2000-2076 of the Water Code. The Board's report becomes the basis of the court's decision. As in court adjudications, a court reference determines only the water rights of the parties involved in the action. The number of decreed owners and amounts of water rights for each service area are shown on page xv.

Watermaster Service Areas

Formation

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 Water Resources 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. Prior to 1929, some watermaster service was provided in accordance with the Water Commission Act of 1913. There are now about 50 streams in Northern California which are under state watermaster service. The three newest service areas were created in 1975.

The counties and principal water sources of the various service areas in Northern California are listed in Table 5. Of these 21 areas, 19 are in the Department's Northern District, and two in the Central District. In 1977, two service areas in the Northern District, Seiad Creek in Siskiyou County and Pine Creek in Butte and Tehama Counties, were inactive.

Description of Region

The service areas are primarily 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 a considerable amount of land is used exclusively for pasturing livestock. Most irrigation is accomplished 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.

A map of this region showing the 21 service areas is presented in Figure 1.

Watermaster Responsibilities

Authority

To assure the proper distribution of water within his service area, each watermaster must ascertain the amount of water available and distribute it both by amount and priority in accordance with established water rights. To accomplish his responsibility, the watermaster is provided authority both by the Water Code and by provisions of pertinent court decrees or voluntary agreements to physically regulate the various streams in the service area. He is

further authorized to supervise the design, construction, operation, and maintenance of diversion dams, headgates, and measuring devices.

Each watermaster supervises water distribution at approximately 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 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, since once they are built, conflicts among water users almost always stop. Also, the watermaster's ability to check and set each diversion regularly is greatly facilitated by good structures.

Interpretation of Decrees

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

Water Supply

Water supply in the watermaster service areas is derived principally 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 ground water pumping are used in some areas to supplement natural streamflow. However, State watermasters do not supervise the use of ground water 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 manpower needed. The Department'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.

Data collected at representative snow courses showing the snowpack as of April 1, 1978, on all courses and the snowpack on May 1 at selected courses, are presented in Table 3 . This information was obtained from the Department's basic data files.

Table 2 reports the quantity of precipitation at selected stations in the service areas during the 1977-78 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.

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 the United States Geological Survey

		October		November		December		January		February		March	
		(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
Fort Jones Ranger Station	Siskiyou	13 / 41	0.52 / 1.62	116 / 77	4.58 / 3.02	157 / 111	6.17 / 4.37	101 / 117	3.99 / 4.60	53 / 64	2.09 / 2.53	72 / 44	2.84 / 1.75
Happy Camp Ranger Station	Siskiyou	50 / 110	1.96 / 4.33	273 / 216	10.76 / 8.52	311 / 283	12.25 / 11.15	258 / 299	10.16 / 11.77	221 / 186	8.69 / 7.32	107 / 155	4.23 / 6.09
Yreka	Siskiyou	13 / 38	0.51 / 1.48	103 / 60	4.06 / 2.38	160 / 100	6.30 / 3.92	72 / 89	2.85 / 3.52	44 / 53	1.73 / 2.07	67 / 36	2.64 / 1.43
Redding Fire Station No. 2	Shasta	19 / 58	0.74 / 2.28	103 / 136	4.04 / 5.35	254 / 189	10.00 / 7.43	396 / 212	15.59 / 8.38	159 / 149	6.26 / 5.87	312 / 116	12.28 / 4.56
Hat Creek Power House No. 1	Shasta	3.0 / 33	0.12 / 1.30	34 / 56	1.34 / 2.19	109 / 83	4.29 / 3.28	112 / 80	4.41 / 3.16	86 / 62	3.37 / 2.45	86 / 50	3.37 / 1.98
Lookout 3WSW	Lassen	7 / 28	0.26 / 1.09	39 / 77	1.53 / 3.02	118 / 101	4.65 / 3.96	76 / 106	2.99 / 4.18	61 / 52	2.40 / 2.03	81 / 55	3.20 / 2.15
Lakeview, Oregon (So. Central Sec.)	Lake	11 / 34	0.45 / 1.32	48 / 45	1.90 / 1.79	76 / 55	3.01 / 2.17	43 / 58	1.69 / 2.29	16 / 38	0.63 / 1.51	22 / 18	0.87 / 0.69
Alturas Ranger Station	Modoc	4.3 / 28	0.17 / 1.09	25 / 39	0.97 / 1.52	45 / 42	1.76 / 1.65	18 / 43	0.70 / 1.71	22 / 32	0.88 / 1.25	36 / 30	1.43 / 1.19
Jess Valley	Modoc	19 / 35	0.75 / 1.37	41 / 49	1.63 / 1.91	72 / 52	2.85 / 2.05	33 / 50	1.29 / 1.95	26 / 43	1.01 / 1.71	65 / 43	2.57 / 1.69
Cedarville	Modoc	5.3 / 32	0.21 / 1.27	49 / 43	1.93 / 1.69	89 / 70	3.49 / 2.77	51 / 46	2.01 / 1.82	25 / 33	1.00 / 1.31	27 / 30	1.06 / 1.18
Susanville Airport	Lassen	12 / 29	0.46 / 1.15	16 / 43	0.64 / 1.70	106 / 67	4.16 / 2.64	147 / 71	5.80 / 2.78	43 / 51	1.69 / 1.99	63 / 32	2.47 / 1.26
Greenville Ranger Station	Plumas	10 / 65	0.38 / 2.57	80 / 128	3.15 / 5.04	263 / 167	10.35 / 6.59	458 / 190	18.03 / 7.50	161 / 150	6.34 / 5.91	181 / 131	7.14 / 5.16
Sierraville Ranger Station	Sierra	3.3 / 54	0.13 / 2.14	106 / 92	4.19 / 3.62	199 / 124	7.83 / 4.89	226 / 135	8.88 / 5.31	94 / 97	3.71 / 3.83	71 / 72	2.80 / 2.85
Vinton	Plumas	20 / 25	0.77 / 0.97	29 / 42	1.13 / 1.67	93 / 57	3.65 / 2.23	121 / 62	4.76 / 2.45	34 / 42	1.33 / 1.67	59 / 34	2.34 / 1.34

Note: Figures above line are for current season; below line are long-term averages.

as part of a federal-state program 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 the watermaster in selected diversion ditches to further assist him in proper distribution of the various water right allotments.

Table 4 presents runoff data at selected stream gaging stations in or near the service areas.

TABLE 2

PRECIPITATION AT SELECTED STATIONS - 1977-78 SEASON
(in millimetres and inches)

April		May		June		July		August		September		Total		Percent of Mean
(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	
43 25	1.72 0.99	6.1 26	0.24 1.01	38 20	1.50 0.80	23 8.6	0.90 0.34	32 11	1.24 0.43	62 9.1	2.39 0.36	716 554	28.18 21.82	129
72 74	2.87 2.91	22 51	0.82 2.00	5.8 23	0.23 0.92	2.5 11	0.10 0.43	21 8.9	0.79 0.35	69 69	2.73 2.73	1 412 1 486	55.59 58.52	95
39 22	1.52 0.87	4.6 25	0.18 0.98	31 23	1.21 0.91	32 7.9	1.26 0.31	34 14	1.35 0.56	81 10	3.19 0.41	681 478	26.80 18.84	142
195 78	7.69 3.09	2.8 42	0.11 1.64	8.9 27	0.35 1.07	0.0 1.5	0.00 0.06	4.3 6.6	0.17 0.26	68 15	2.68 0.56	1 522 1 030	59.91 40.55	148
107 35	4.21 1.36	23 32	0.92 1.25	9.4 26	0.37 1.01	0.3 5.8	0.01 0.23	8.1 6.9	0.32 0.27	22 10	0.90 0.40	600 480	23.63 18.88	125
122 75	4.80 2.96	31 27	1.24 1.08	1.3 30	0.05 1.18	2.3 6.1	0.09 0.24	14 14	0.55 0.57	29 18	1.15 0.74	582 589	22.91 23.20	99
57 13	2.23 0.53	11 26	0.43 1.04	32 43	1.25 1.70	23 4.8	0.89 0.19	5.3 9.4	0.21 0.37	21 14	0.81 0.50	365 358	14.37 14.10	102
76 25	2.98 1.00	12 38	0.47 1.49	1.0 34	0.04 1.34	2.3 7.4	0.09 0.29	7.9 10	0.31 0.41	15 8.4	0.60 0.33	264 337	10.40 13.27	78
124 42	4.89 1.65	6.1 57	0.24 2.25	4.8 49	0.19 1.93	2.0 8.6	0.08 0.34	13 12	0.52 0.47	31 14	1.19 0.55	437 454	17.21 17.87	96
51 25	2.02 0.97	18 30	0.70 1.15	1.5 28	0.06 1.11	3.0 8.4	0.12 0.33	5.6 7.4	0.22 0.29	17 7.9	0.63 0.31	342 361	13.45 14.20	95
20 19	0.79 0.73	21 19	0.84 0.77	6.4 19	0.25 0.77	4.8 5.8	0.19 0.23	2.8 3.8	0.11 0.15	10 8.1	0.41 0.32	452 368	17.81 14.49	123
118 71	4.65 2.80	55 40	2.18 1.56	19 22	0.75 0.85	3.8 6.9	0.15 0.27	4.3 10	0.17 0.41	52 14	2.05 0.51	1 405 995	55.34 39.17	141
13 43	0.51 1.70	26 34	1.04 1.35	6.1 18	0.24 0.67	5.8 7.4	0.23 0.29	0.5 6.4	0.02 0.25	47 9.9	1.84 0.39	798 693	31.42 27.29	115
11 23	0.45 0.90	19 25	0.75 0.97	11 18	0.43 0.72	12 7.9	0.48 0.31	15 6.1	0.58 0.24	18 7.1	0.75 0.28	442 349	17.42 13.75	127

* In Millimetres and Inches

TABLE 3

SNOWPACK AS OF APRIL 1 AND MAY 1, 1978 AT REPRESENTATIVE SNOW COURSES

Watermaster Service Areas (Grouped Geographically)**	Snow Courses** Relation to Each Group	Elevation (in metres)	Elevation (in feet)	WATER CONTENT OF SNOW April 1 Average (in mm*)	April 1 Average (in inches)	April 1, 1978*** In mm*	In inches	In Percent of April 1 Average	May 1, 1978 In mm*	In inches	In Percent of April 1 Average
French Creek	Parks Creek	2 042	6,700	914	36.0	1 255	49.4	137			
Shackleford Creek	Middle Boulder No. 1	2 012	6,600	707	31.0	1 222	48.1	155	1 372	54.0	174
Shasta River	Little Shasta	1 890	6,200	508	20.0	295	11.6	58			
Ash Creek	Blue Lake Ranch	2 073	6,800	305	12.0	239	9.4	78			
Big Valley	Eagle Peak	2 195	7,200	381	15.0	259	10.2	68			
North Fork Pit River	Cedar Pass	2 164	7,100	432	17.0	340	13.4	79	424	16.7	98
South Fork Pit River	Adin Mountain	1 935	6,350	330	13.0	208	8.2	63	168	6.6	51
Surprise Valley											
Burney Creek	Thousand Lakes	1 981	6,500	965	38.0	940	37.0	97	1 052	41.4	109
Cow Creek	New Manzanita Lake	1 798	5,900	203	8.0	51	2.0	25	8	0.3	4
Digger Creek	Burney Springs	1 433	4,700	51	2.0	0	0.0	0			
Hat Creek											
Butte Creek	Humbug Summit	1 478	4,850	305	12.0	470	18.5	154	0	0.0	0
Susan River	Silver Lake Meadows	1 966	6,450	762	30.0	1 092	43.0	143	973	38.3	128
	Fredonyer Pass No. 1	1 753	5,750	203	8.0	0	0.0	0			
Indian Creek	Independence Lake	2 576	8,450	1 041	41.0	1 473	58.0	141	1 572	61.9	151
	Mount Dyer No. 1	2 164	7,100	635	25.0	1 006	39.6	158	843	33.2	133
Middle Fork Feather River	Rowland Creek	2 042	6,700	457	18.0	1 295	51.0	283	457	18.0	100
	Yuba Pass	2 042	6,700	787	31.0	1 067	42.0	135	925	36.4	117

* Millimetres
** Snow Courses are listed in order of elevation within each geographical group of watermaster service areas.
*** Data collected only at stations listed.

TABLE 4

RUNOFF AT SELECTED STATIONS - 1977-78 (CUBIC DEKAMETRES AND ACRE-FEET)

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Total	1/ Average	Percent Average
Shasta River near Yreka	8 857 7,180	11 370 9,220	23 210 18,820	33 080 26,820	20 460 16,590	26 080 21,140	25 770 20,890	10 070 8,160	7 376 5,980	5 889 4,774	5 378 4,360	13 380 10,850	190 900 154,800	167 100 135,500	114
Hat Creek near Hat Creek	9 399 7,620	8 894 7,210	10 040 8,140	9 584 7,770	8 277 6,710	9 473 7,680	9 868 8,000	14 370 11,650	17 080 13,850	13 100 10,620	10 040 8,140	9 461 7,670	129 600 105,100	125 100 101,400	104
Pit River near Canby	3 034 2,460	4 798 3,890	10 200 8,270	20 720 16,800	9 720 7,880	17 080 13,850	41 780 33,870	29 940 24,270	3 318 2,690	2 677 2,170	3 626 2,940	5 982 4,850	152 800 123,900	218 100 176,800	70
South Fork Pit River near Likely	1 863 1,510	1 382 1,120	918 744	734 595	279 226	1 357 1,100	5 427 4,400	12 680 10,280	9 153 7,420	9 646 7,820	10 480 8,500	5 847 4,740	59 770 48,460	70 330 57,020	85
Susan River at Susanville	382 310	599 486	1 752 1,420	7 327 5,940	6 365 5,160	18 220 14,770	12 250 9,930	13 140 10,650	7 216 5,850	7 820 6,340	4 539 3,680	407 330	80 020 64,870	85 340 69,190	94
Indian Creek near Crescent Mills	1 002 812	2 899 2,350	13 520 10,960	89 610 72,650	54 470 44,160	154 100 124,900	83 480 67,680	70 800 57,400	26 460 21,450	4 872 3,950	2 097 1,700	3 960 3,210	507 300 411,200	487 100 394,900	104
Middle Fork Feather River near Clio	1 127 914	2 504 2,030	12 750 10,340	62 530 50,690	39 410 31,950	58 500 47,430	26 370 21,380	16 490 13,370	10 530 8,540	4 132 3,350	1 826 1,480	2 738 2,220	238 900 193,700	256 400 207,900	93
Butte Creek near Chico	2 367 1,919	7 445 6,036	24 990 20,260	118 500 96,090	77 200 62,600	120 200 97,440	75 790 61,440	40 670 32,970	13 770 11,160	3 570 2,894	2 259 1,831	4 206 3,410	491 000 398,000	361 900 293,400	136

1/ Long-term average.

NOTE: Figures above line are in cubic dekametres; (below are acre-feet).

TABLE 5

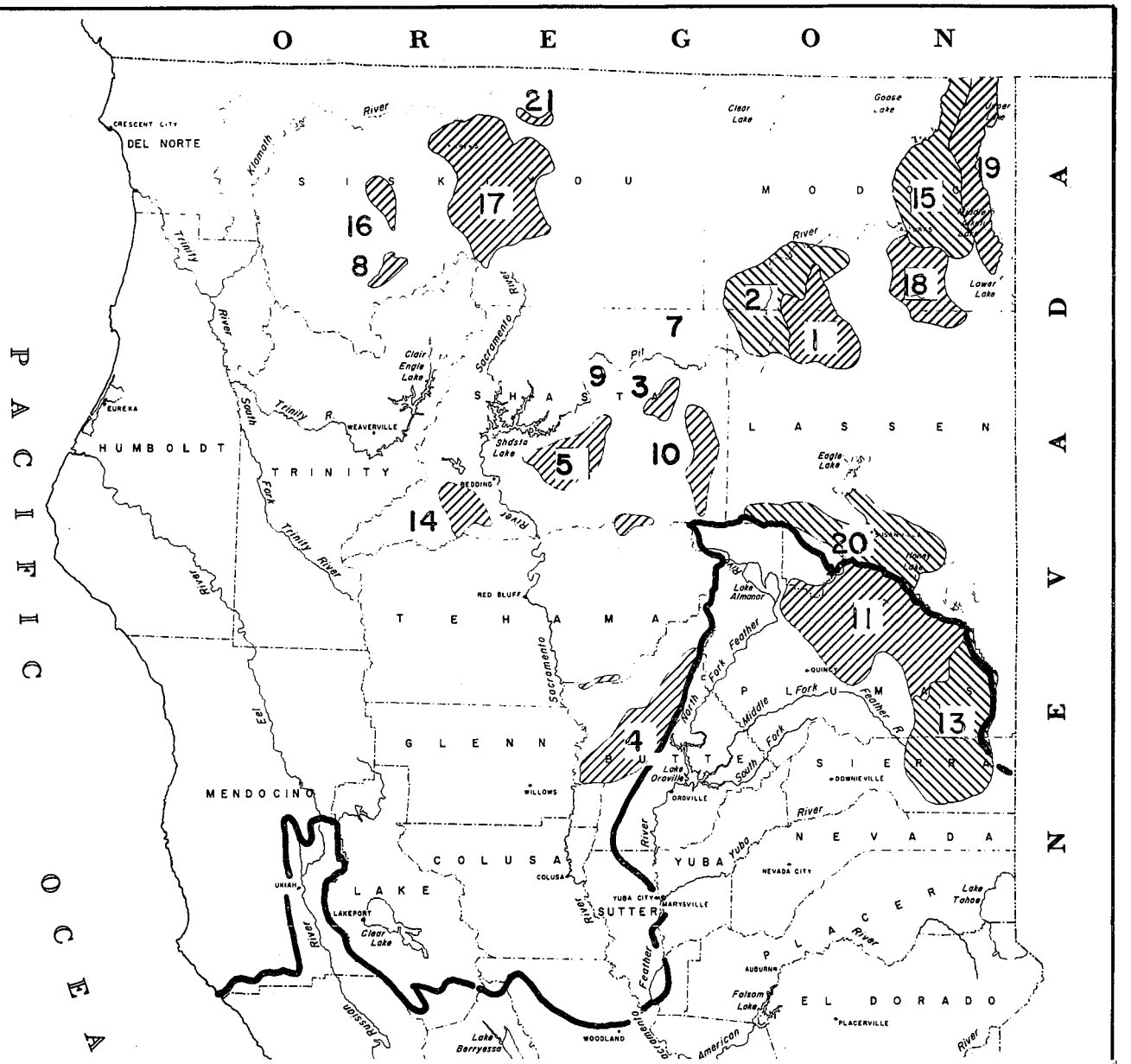
WATERMASTER SERVICE AREAS AND STREAM SYSTEMS

Service Area	County	Principal Water Sources: MAJOR STREAM and Tributaries[a]	Principal Water Sources: Reservoirs and Nontributary Streams
Ash Creek	Lassen, Modoc	ASH CREEK	
Big Valley	Lassen, Modoc	PIT RIVER	Roberts Reservoir
Burney Creek	Shasta	BURNEY CREEK	
Butte Creek	Butte	BUTTE CREEK	W. Branch Feather River
Cow Creek	Shasta	COW CREEK[b] N. Cow, Clover, Oak Run Creeks	
Digger Creek	Shasta, Tehama	DIGGER CREEK	
Fall River	Shasta	FALL RIVER	
French Creek	Siskiyou	FRENCH CREEK Miners Creek	Duck Lake, Paynes Lake
Goose Creek	Shasta	GOOSE CREEK	Lake Margaret
Hat Creek	Shasta	HAT CREEK	
Indian Creek	Plumas	INDIAN CREEK Lights Creek, Wolf Creek	
Juniper Creek	Lassen	JUNIPER CREEK	Iverson Reservoir
Middle Fork Feather River	Plumas, Sierra	M. FORK FEATHER RIVER Little Last Chance, Smithneck, Webber and Fletcher Creeks; Spring Channels, Westside Canal	Little Truckee River
N. Fork Cottonwood Creek	Shasta	N. FORK COTTONWOOD CREEK	Rainbow Lake
North Fork Pit River	Modoc	N. FORK PIT RIVER Parker Creek	Pine, Cottonwood, Davis Creeks
Shackleford Creek	Siskiyou	SHACKLEFORD CREEK Mill Creek	Campbell and Cliff Lakes
Shasta River	Siskiyou	SHASTA RIVER Little Shasta River	Dwinnell Reservoir (Lake Shastina)
South Fork Pit River	Modoc	S. FORK PIT RIVER Pine and Fitzhugh Creeks	West Valley Reservoir
Surprise Valley	Modoc	NONE (All creeks listed at right, are unconnected)	Bidwell, Mill, Soldier, Pine, Cedar, Deep, Owl, Rader, Eagle and Emerson Creeks
Susan River	Lassen	SUSAN RIVER Willow Creek	Lake Leavitt, Hog Flat, McCoy Flat Reservoirs; Baxter and Parker Creeks
Willow Creek	Siskiyou	WILLOW CREEK	

a/ Major tributaries only. A complete listing is given in "Index to Water Sources" page vi.

b/ Cow Creek proper not in service area.

Figure 1



INDEX TO SERVICE AREAS

1 Ash Creek
2 Big Valley
3 Burney Creek
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21 Willow Creek

Watermaster Service Areas in Northern California

SERVICE AREA DESCRIPTIONS AND 1978 NARRATIVES

This portion of the report consists of 21 sections, one for each service area active in 1978, presented in alphabetical order.

Each of these sections begins with a description of the particular service area, including location, geography, and general characteristics. Following this is a section entitled "Basis of Service". Under this heading are presented such data as the case number, date, and type of decrees; a brief summary of the decree or agreement which defines the water rights; the date the service area was created; and other related information.

These sections of the bulletin also present data on the water supply, methods of distribution, significant events of the watermaster season, and daily streamflow records. A map or schematic sketch of the stream system, including diversion locations, roads, etc., is also included for each service area.

A noticeable trend in recent years is the increasing number of water right owners in many areas, due to subdividing or "splitting" of property. This trend not only causes more work for the individual watermasters, but makes it difficult to maintain up-to-date records of all ownerships and their respective water rights. The water right ownerships are updated as of March 1 each year from County Assessors' records. Changes not on record by March 1 are therefore not reflected on the service area maps included in the various sections.

Since the purpose of this bulletin is to report the activities of the watermaster service, and because of the difficulty in keeping the data current, nothing herein should be construed as a determination of water rights. Furthermore, in some service areas there are diversions which may have been active but are not shown on the maps because they did not require the watermaster's attention during 1978.

As in previous years, watermaster service was begun 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 decree. Service was continued in all areas through the growing season and was concluded by October 15, 1978.

The date service was started in each service area and the name of the watermaster in charge are listed on the following page.

Service Area	Date Service Began in 1978	Watermaster
Ash Creek	May 1	L. L. Bates
Big Valley	May 1	James C. Scheler
Burney Creek	June 1	Seth K. Barrett
Butte Creek	April 1	Kenneth E. Morgan
Cow Creek	May 1	Seth K. Barrett
Digger Creek	June 1	Seth K. Barrett
Fall River	Mar. 15 to Oct. 15	James C. Scheler
French Creek	April 1	Lester L. Lighthall
Goose Creek	Nov. 1 to June 1	Kenneth E. Morgan
Hat Creek	May 1	James C. Scheler
Indian Creek*	May 30	Earl Stowar
Juniper Creek	Nov. 1 to May 1	Kenneth E. Morgan
M. F. Feather River*	March 15	Joe Nessler Conrad Lahr
N. F. Cottonwood Creek	June 1	Seth K. Barrett
N. F. Pit River	April 1	Eldon E. Rinehart
Shackleford Creek	April 1	Lester L. Lighthall
Shasta River	April 1	Lester L. Lighthall
S. F. Pit River	March 17	L. L. Bates
Surprise Valley	March 19	Charles G. Hodge
Susan River	April 11	Virgil D. Buechler
Willow Creek	April 1	Lester L. Lighthall

* Within Central District; all others in Northern District.

ASH CREEK WATERMASTER SERVICE AREA

The Ash Creek service area is situated in Modoc and Lassen Counties near the town of Adin, about 160 kilometres (100 miles) northeast of Redding via Highway 299. Figure 2, page 13, shows the Ash Creek stream system and diversions, plus the roads in the area.

The major sources 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 30 km (18 miles) to its confluence with Rush Creek, then southwesterly to the town of Adin, and then westerly to Ash Creek Swamp and the 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. It meets Willow Creek about 5 km (3 miles) farther west, near the head of Ash Creek Swamp. The valley floor elevation in this vicinity is approximately 1 300 metres (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 watermaster service area was created April 3, 1958.

Approximately 85 percent of the water rights in the service area are in Big Valley, west of the town of Adin. The remaining water rights are along the upstream tributaries, and in Ash Valley, east of the town of Adin. The portion of Big Valley served is approximately 16 km (10 miles) long by 10 km (6 miles) wide, extending from the town of 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 is derived primarily from snowmelt, since most of the watershed is between 1 500 and 1 800 m (5,000 and 6,000 feet) in elevation. Willow Creek and Butte Creek receive substantial portions of their water from springs. These creeks normally have sufficient water to satisfy demands until about June 1, after which the supply decreases rapidly. By the latter part of June, Ash Creek normally has receded to about 0.6 m^3 per second (20 cubic feet per second), and Butte Creek to less than .03 m^3/s (1 cfs). The flow of these creeks then remains nearly constant for the rest of the season.

Method of Distribution

Irrigation from Ash Creek and its tributaries is accomplished by using numerous small dams to divert the flow into systems of ditches. The ditches deliver the water to the various fields for spreading. Wild flooding is the method most used; however, some ranchers have checks and borders and some use pumps to operate sprinklers or to lift water to higher spreader ditches. In some cases, runoff water is captured and reused before it returns to the stream.

1978 Distribution

Watermaster service began May 1 and continued until September 30. L. L. Bates, Water Resources Engineering Associate, was watermaster.

Ash Creek. The supply was sufficient to meet all five priorities until mid-June. The flow receded rapidly until July. It then stabilized at approximately 60 percent of first rights until the end of the season.

Rush Creek. The supply satisfied the one priority until August 1, then receded to 70 percent and leveled out by September 1.

Willow Creek. The supply covered four priorities until July 15, two until August 15. From August 16 until the end of the season, all first and a decreasing amount of seconds were satisfied.

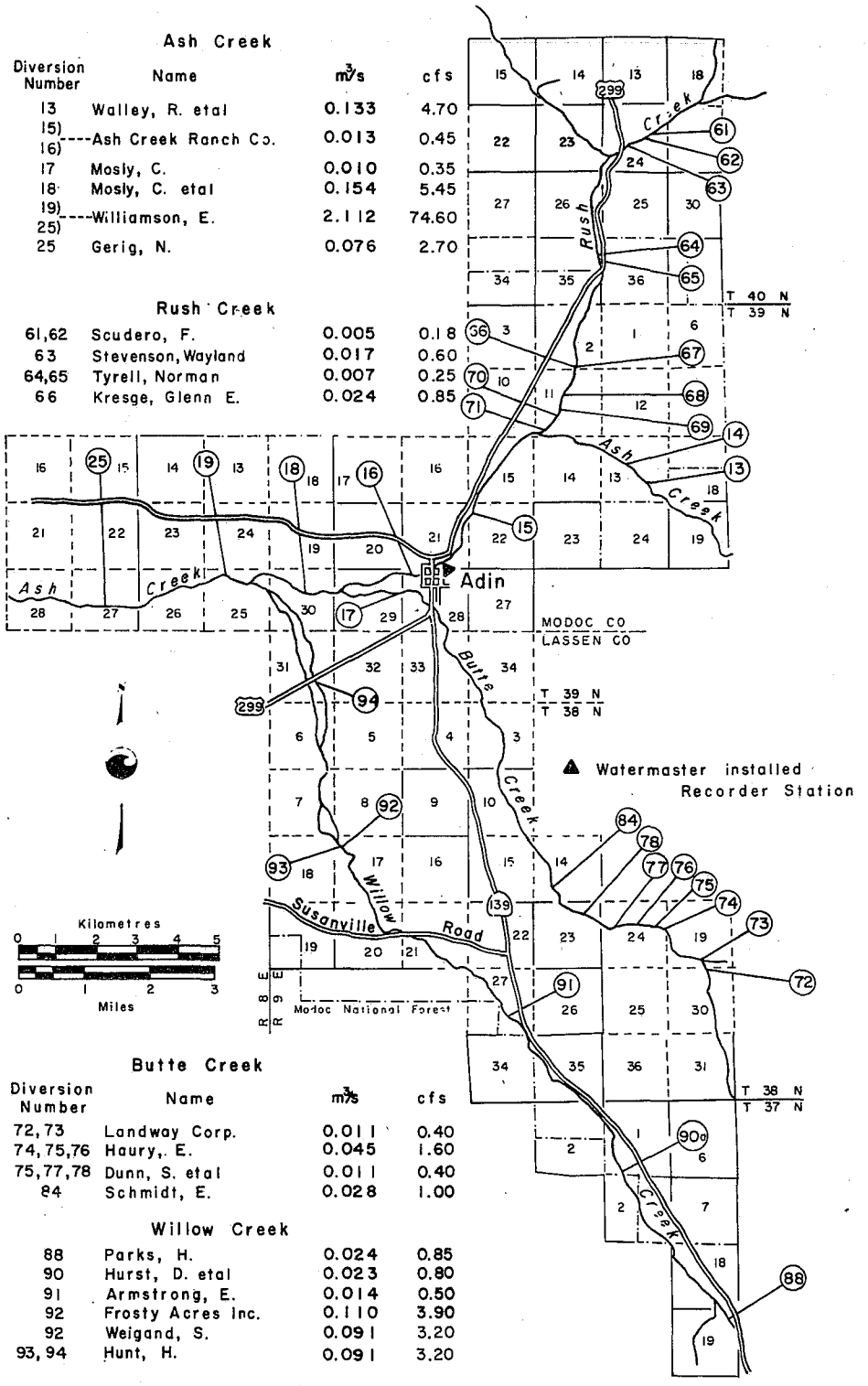
Butte Creek. Butte Creek flowed enough for both priorities until June 15, from then until the end of the season, all first and a portion of seconds were covered.

ASH CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 6
ASH CREEK AT ADIN

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			13.480*	476.0	7.590	268.0	.680	24.0	.736	26.0	.651	23.0	.481	17.0	1
2			9.969	352.0	5.324	188.0	.708	25.0	.708	25.0	.510	18.0	.246	8.7	2
3			6.202	219.0	4.588	162.0	.651	23.0	.736	26.0	.538	19.0	.229	8.1	3
4			5.437	192.0	4.078	144.0	.623	22.0	.793	28.0	.510	18.0	.241	8.5	4
5			4.729	167.0	3.710	131.0	.566	20.0	.708	25.0	.510	18.0	.312	11.0	5
6			8.468	299.0	3.370	119.0	.481	17.0	.538	19.0	.510	18.0	.481	17.0	6
7			7.533	266.0	3.115	110.0	.453	16.0	.595	21.0	.481	17.0	.425	15.0	7
8			5.211	184.0	2.860	101.0	.425	15.0	.510	18.0	.481	17.0	.425	15.0	8
9			4.305	152.0	2.605	92.0	.425	15.0	.481	17.0	.481	17.0	.453	16.0	9
10			3.908	138.0	2.605	92.0	.510	18.0	.453	16.0	.481	17.0	.595	21.0	10
11			3.682	130.0	2.379	84.0	.566	20.0	.396	14.0	.481	17.0	.708	25.0	11
12			3.398	120.0	2.237	79.0	.595	21.0	.396	14.0	.538	19.0	.623	22.0	12
13			3.144	111.0	2.067	73.0	.595	21.0	.396	14.0	.623	22.0	.538	19.0	13
14			4.276	151.0	1.869	66.0	.538	19.0	.368	13.0	.595	21.0	.651	23.0	14
15			3.852	136.0	2.322	82.0	.538	19.0	.312	11.0	.595	21.0	.538	19.0	15
16			4.560	161.0	2.464	87.0	.708	25.0	.368	13.0	.651	23.0	.481	17.0	16
17			3.936	139.0	2.011	71.0	.793	28.0	.368	13.0	.623	22.0	.481	17.0	17
18			3.455	122.0	1.728	61.0	.793	28.0	.312	11.0	.623	22.0	.510	18.0	18
19			3.285	116.0	1.558	55.0	.680	24.0	.312	11.0	.623	22.0	.510	18.0	19
20			5.579	197.0	1.303	46.0	.510	18.0	.283	10.0	.481	17.0	.481	17.0	20
21			4.673	165.0	1.076	38.0	.538	19.0	.312	11.0	.510	18.0	.510	18.0	21
22			3.767	133.0	.963	34.0	.481	17.0	.312	11.0	.680	24.0	.510	18.0	22
23			3.398	120.0	1.104	39.0	.425	15.0	.312	11.0	.566	20.0	.538	19.0	23
24			3.285	116.0	1.529	54.0	.453	16.0	.312	11.0	.538	19.0	.595	21.0	24
25			4.220	149.0	1.586	56.0	.510	18.0	.280	9.9	.312	11.0	.651	23.0	25
26			10.932	386.0	1.388	49.0	.566	20.0	.312	11.0	.147	5.2	.765	27.0	26
27			13.084	462.0	1.133	40.0	.595	21.0	.595	21.0	.232	8.2	.623	22.0	27
28			9.289	328.0	.991	35.0	.651	23.0	.396	14.0	.368	13.0	.623	22.0	28
29			7.222	255.0	.821	29.0	.878	31.0	.368	13.0	.396	14.0	.623	22.0	29
30			9.232	326.0	.708	25.0	.765	27.0	.396	14.0	.425	15.0	.651	23.0	30
31					.708	25.0			.566	20.0	.510	18.0			31
MEAN			5.917	208.9	2.316	81.8	.590	20.8	.449	15.9	.506	17.9	.517	18.2	MEAN
DAM^3			15326.		6198.		1528.		1203.		1353.		1338.		DAM^3
AF				12425.		5025.		1239.		975.		1097.		1085.	AF

* Beginning of Record



Ash Creek

Diversion Number	Name	m^3/s	cfs
13	Walley, R. etal	0.133	4.70
15) 16)	Ash Creek Ranch Co.	0.013	0.45
17	Mosly, C.	0.010	0.35
18	Mosly, C. etal	0.154	5.45
19) 25)	Williamson, E.	2.112	74.60
25	Gerig, N.	0.076	2.70

Rush Creek

61,62	Scudero, F.	0.005	0.18
63	Stevenson, Wayland	0.017	0.60
64,65	Tyrell, Norman	0.007	0.25
66	Kresge, Glenn E.	0.024	0.85

Butte Creek

Diversion Number	Name	m^3/s	cfs
72,73	Landway Corp.	0.011	0.40
74,75,76	Haury, E.	0.045	1.60
75,77,78	Dunn, S. etal	0.011	0.40
84	Schmidt, E.	0.028	1.00

Willow Creek

88	Parks, H.	0.024	0.85
90	Hurst, D. etal	0.023	0.80
91	Armstrong, E.	0.014	0.50
92	Frosty Acres Inc.	0.110	3.90
92	Weigand, S.	0.091	3.20
93,94	Hunt, H.	0.091	3.20

DIVERSIONS FROM ASH CREEK 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 145 kilometres (90 miles) northeast of Redding via State Route 299.

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 21 km (13 miles) of valley floor, up to 10 km (6 miles) wide, along the Pit River at an approximate elevation of 1 280 metres (4,200 feet).

A map of the Big Valley stream system with towns, roads, and diversions is shown in Figure 3, pages 18 and 19.

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 (a.f.) for each cubic foot per second (cfs) of right allocated by the decree has been adopted. The watermaster estimates the amount of water probably available for the next 15 to 30 days and chooses the appropriate a.f./cfs ratio with a view to completing the rotation through the valley in not more than 30 days.

The users employing pumps and sprinklers have elected to receive their water on a more or less continuous flow basis. Over the years, different watermasters have used different ways to insure that their 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 mostly from direct runoff, mainly snowmelt, and return flow from irrigation water released from West Valley and Big Sage Reservoirs above South Fork Pit River and Hot Springs Valley, respectively.

The available water supply in the Pit River as it flows through Big Valley is ordinarily adequate to satisfy all demands until about June 1. The irrigation practices in Hot Springs Valley, about 32 km (20 miles) upstream from Big Valley, have a significant effect on the available water supply in Big Valley for the rest of the season. Water users in Hot Springs Valley divert most of the flow of the Pit River for 2- or 3-week periods. Natural flow for use in Big Valley at these times is often less than 566 litres per second (20 cfs). Periodic releases from channel storage in the lower end of Hot Springs Valley sometimes increase the flow to as much as 5.7 to 8.5 m^3/s (200 to 300 cfs) for relatively short periods. Consequently, equitable water distribution in Big Valley is very difficult to attain.

Roberts Reservoir, which stores runoff of a minor tributary of 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.

Iverson Reservoir stores runoff of East Juniper Creek, a tributary to the Pit River at the lower end of Big Valley. This reservoir was completed in 1969 to provide a supplemental water supply for the McArthur, Britten and Mitchell ranches.

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. Much of the runoff is recaptured for use by downstream lands, resulting in a relatively high irrigation efficiency for the valley.

1978 Distribution

Watermaster service began on May 1 and ended September 30, with James C. Scheler, Assistant Engineer, Water Resources, as watermaster.

Because of the wet spring, demand for irrigation water was light until early June and users applied amounts as desired. Large flows in the Pit River during May made river dams unnecessary until later than usual. Rickets and Bieber dams were installed May 27, Gerig Dam May 31, Lookout and 3-Corners dams June 4, and Kramer dam (Fulcher) on June 30. By June 6, the flow had dropped to 1.0 m^3/s (38 cfs), and it remained at that rate or less until July 20, yielding two rotations at the rate of 436 dam^3 per m^3/s (10 a.f./cfs) of water right.

From July 20 to August 12, the Pit River flow supplied only enough for stockwater and channel storage allotments. On August 12 the river flow increased so that the third rotation was initiated with 218 dam^3 per m^3/s (5 a.f./cfs) of water right. Roberts Reservoir water was released to augment the river allotments to several reservoir shareholders. The third rotation was completed on August 23, at which time the flow was adequate to sustain a fourth rotation at the rate of 545 dam^3 per m^3/s (12.5 a.f./cfs) of water right.

The fifth rotation was started on September 7 with unrestricted amounts, and the rotation was completed on September 25. The sixth rotation was begun on September 27 and was still in progress at the close of the watermaster season on September 30.

Releases from Roberts Reservoir were delivered to shareholders in estimated quantities as follows:

Month	dam^3	Acre-feet
June	117	95
August	828	671
	945	766

Special Occurrences

A new contracted weir was built just downstream from 3-Corners Dam before the start of this season so that diversions through the 3-Corners system can be accurately measured.

A new diversion dam below Fulcher Pipe was operated for the first time this season. It proved to be of entirely satisfactory design and of great benefit. It provides at least three major advantages not previously available: 1) higher head on Fulcher Pipe, for much greater irrigation efficiency for the users; 2) independence from the operation of the downstream Gerig Dam; and 3) increased channel storage capacity.

BIG VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

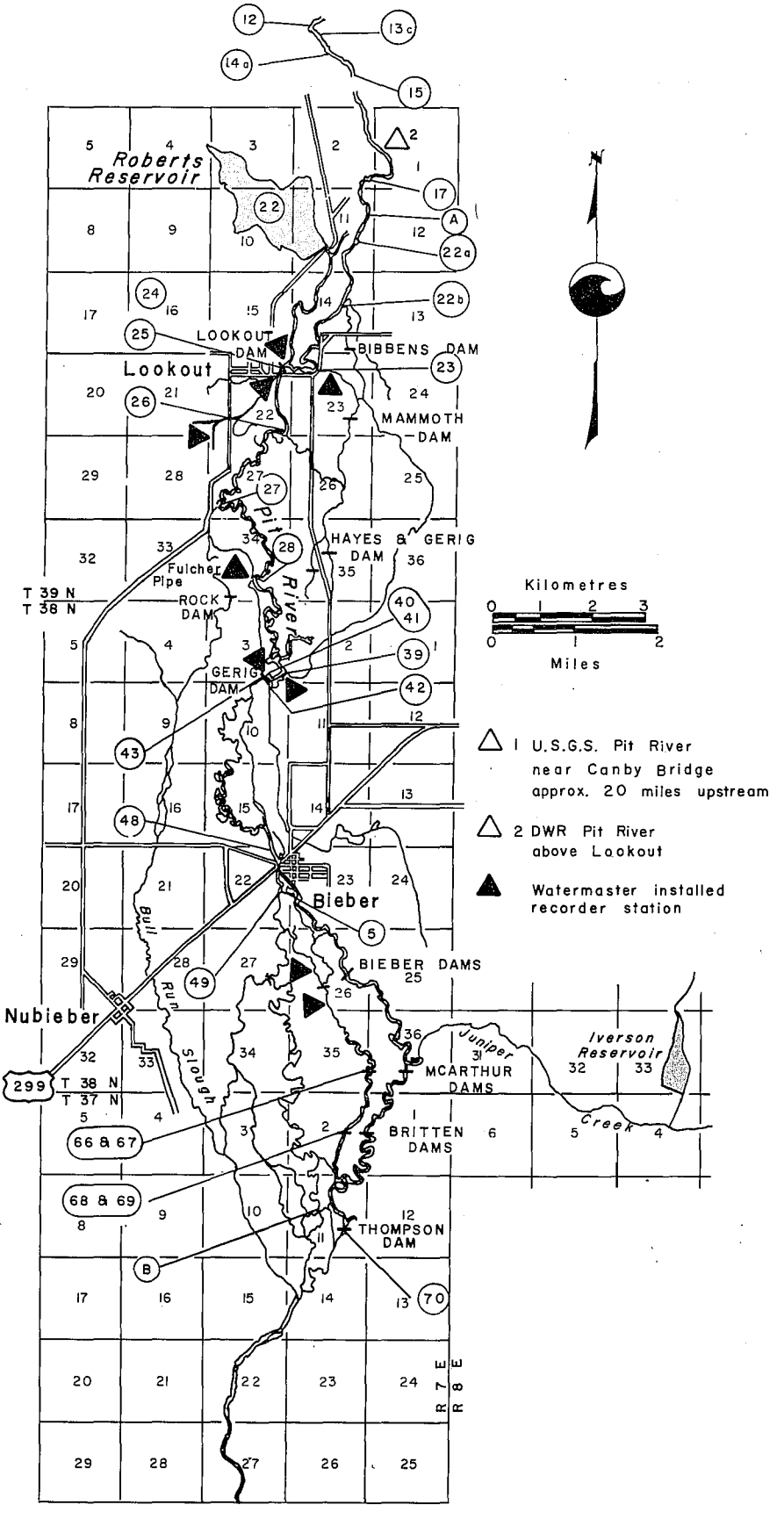
TABLE 7
PIT RIVER NEAR CANBY

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1	3.965	140.0	6.032	213.0	33.701	1190.0	2.407	85.0	1.982	70.0	.312	11.0	2.436	86.0	1
2	3.597	127.0	13.395	473.0	29.170	1030.0	1.218	43.0	1.303	46.0	.963	34.0	2.889	102.0	2
3	4.021	142.0	25.884	914.0	25.290	893.0	.963	34.0	1.331	47.0	.510	18.0	2.407	85.0	3
4	6.259	221.0	26.224	926.0	20.900	738.0	.680	24.0	1.303	46.0	.187	6.6	2.322	82.0	4
5	15.256	538.0	18.181	642.0	17.360	613.0	1.048	37.0	1.331	47.0	.113	4.0	2.181	77.0	5
6	19.739	697.0	15.746	556.0	15.378	543.0	1.841	65.0	1.359	48.0	.051	1.8	1.954	69.0	6
7	14.840	524.0	17.219	608.0	14.160	500.0	2.011	71.0	1.388	49.0	.113	4.0	1.897	67.0	7
8	10.705	378.0	23.222	820.0	12.716	449.0	2.294	81.0	1.331	47.0	.102	3.6	2.096	74.0	8
9	8.184	289.0	24.780	875.0	11.356	401.0	2.662	94.0	1.303	46.0	.793	28.0	2.209	78.0	9
10	6.797	240.0	16.539	584.0	9.770	345.0	1.841	65.0	1.359	48.0	1.189	42.0	3.200	113.0	10
11	6.202	219.0	12.829	453.0	8.751	309.0	1.388	49.0	1.303	46.0	2.719	96.0	3.965	140.0	11
12	5.721	202.0	12.036	425.0	8.128	287.0	1.218	43.0	1.246	44.0	2.492	88.0	4.276	151.0	12
13	5.466	193.0	10.478	370.0	7.646	270.0	1.359	48.0	1.303	46.0	1.728	61.0	4.050	143.0	13
14	5.466	193.0	11.385	402.0	6.910	244.0	1.104	39.0	1.444	51.0	1.954	69.0	3.597	127.0	14
15	4.814	170.0	12.772	451.0	8.015	283.0	.765	27.0	1.303	46.0	2.237	79.0	2.690	95.0	15
16	4.248	150.0	12.574	444.0	8.864	313.0	.680	24.0	1.161	41.0	2.209	78.0	2.067	73.0	16
17	3.710	131.0	11.611	410.0	10.365	366.0	.595	21.0	1.104	39.0	1.728	61.0	1.586	56.0	17
18	3.483	123.0	11.186	395.0	10.677	377.0	.623	22.0	.850	30.0	1.161	41.0	1.501	53.0	18
19	3.342	118.0	9.544	337.0	9.544	337.0	.623	22.0	.283	10.0	1.020	36.0	1.728	61.0	19
20	3.342	118.0	9.685	342.0	8.411	297.0	1.104	39.0	.481	17.0	1.048	37.0	1.812	64.0	20
21	3.455	122.0	11.271	398.0	6.570	232.0	1.303	46.0	.538	19.0	1.161	41.0	2.322	82.0	21
22	4.333	153.0	12.517	442.0	7.137	252.0	.991	35.0	.368	13.0	1.473	52.0	2.067	73.0	22
23	6.287	222.0	10.733	379.0	6.457	228.0	.906	32.0	.425	15.0	1.671	59.0	2.124	75.0	23
24	8.638	305.0	9.487	335.0	6.542	231.0	.935	33.0	2.096	74.0	1.728	61.0	2.520	89.0	24
25	7.307	258.0	9.034	319.0	8.213	290.0	.878	31.0	.906	32.0	1.869	66.0	2.152	76.0	25
26	6.145	217.0	9.969	352.0	8.383	296.0	.821	29.0	.187	6.6	2.011	71.0	1.841	65.0	26
27	5.296	187.0	17.247	609.0	8.581	303.0	.991	35.0	.125	4.4	1.897	67.0	1.586	56.0	27
28	4.843	171.0	25.205	890.0	6.740	238.0	1.529	54.0	.680	24.0	1.869	66.0	1.359	48.0	28
29	4.644	164.0	36.533	1290.0	4.928	174.0	1.756	62.0	.566	20.0	1.784	63.0	1.246	44.0	29
30	4.106	145.0	40.214	1420.0	3.257	115.0	1.869	66.0	.278	9.8	1.812	64.0	1.189	42.0	30
31	3.512	124.0			2.605	92.0			.368	13.0	2.011	71.0			31
MEAN	6.377	225.2	16.118	569.1	11.178	394.7	1.280	45.2	1.000	35.3	1.352	47.7	2.309	81.5	MEAN
DAM³	17070.		41749.		29919.		3316.		2677.		3619.		5981.		DAM³
AF		13838.		33846.		24255.		2688.		2170.		2934.		4849.	AF

Diversion Number	Name			m^3/s	Cfs
	First priority for the entire river is to maintain channel storage and stock water.			0.425	15.00
2	Mohr, K. *			0.015	0.53
3	Bushey, R. *			0.061	2.17
13c	Duncan, J. *			0.081	2.86
14a	Gould, K. *			0.034	1.20
17	Viso, J. *			0.198	6.98
22	Roberts Reservoir - Total 6 784 dam^3 (5500 Ac. Ft.)				
	Gerig, N.	5 shares			
	Gerig, O.	3 shares			
	Babcock, D.	3 shares			
	Kramer, C.	2 shares			
	Williamson, E.	2 shares			
	Graham, W.	1 share			
	Mamath, C.	1 share			
	Hawkins, C.	1 share			
	Monchamp, L.	1 share			
	Amen, G. et al	1 share			
24	Joiner, W. *			0.031	1.11
24	Lennon, J. *			0.040	1.43
22a	Monchamp, L. *			0.049	1.73
22b	Bibbens, R.			0.116	4.10
23	Three Corners Diversion		Total	0.661	23.34
	Mamath, C.			0.246	8.70
	Williamson, E.			0.178	6.30
	Hayes, H.			0.095	3.37
	Gerig, O.			0.141	4.97
24	Lookout Dam				
25	Oilar Ditch		Total	0.504	17.80
	Amen, G. et al			0.321	11.34
	Leventon, D. **			0.183	6.46
26	Ash Valley Land & Investment Co., Inc.			0.216	7.62
27	Oney, T. *			0.127	4.50
28	Fulcher Pipe		Total	0.679	23.98
	Kramer, C.			0.259	9.15
	Johnson, C.			0.229	8.10
	Knox Ranch (Gerig, N.)			0.109	3.83
	Wing, E.			0.059	2.08
	Murphy, R.			0.006	0.21
	Babcock, A.			0.017	0.61
39	Ash Creek Pipe				
40	Gerig, N.			0.260	9.20
42	Watson Ditch		Total	0.172	6.08
	Babcock, D.			0.126	4.46
	Hawkins, C.			0.046	1.62
43	Gerig Dam				
48	Graham Pipe			0.013	0.47
49	Babcock Pipes		Total	0.824	29.10
	Cox, R.			0.078	2.74
	Weigand, S.			0.071	2.51
	McArthur, J.			0.129	4.56
	Babcock Brothers			0.423	14.95
	Thompson, W.			0.123	4.34
50	Drewry, W. *			0.077	2.72
50	Bieber Dam				
66 & 67	McArthur Dams			0.481	17.00
68 & 69	Britten Dams			0.354	12.50
70	Thompson Dam			0.326	11.50

* Pump
** Pump & Flooding

NOTE: Tabulation indicates currently active diversions only.



DIVERSIONS FROM PIT RIVER
BIG VALLEY 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. Figure 4, page 23 shows the Burney Creek stream system including the diversions and roads.

The source of water supply 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 portion of the valley served by this stream is approximately 18 kilometres (11 miles) long and 3 km (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 old Water Commission Act. The service area was created, along with some others, on September 11, 1929, under a new law passed in that year.

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 in accordance with 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 1 200 and 2 300 metres (4,000 and (7,500 feet) on the northeast slopes of Burney Mountain. The creek normally has sufficient water to supply all demands until about the middle of June. The supply then gradually decreases until the end of July. For the remainder of the irrigation season, runoff from perennial springs keeps the flow nearly constant at approximately 40 percent of allotments.

The daily mean discharge of Burney Creek near Burney is presented in Table 8, page 22. The stream gaging station on Burney Creek is downstream from four points of diversion; consequently, 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 which convey it to the place of use. Lateral ditches are then used to irrigate the land.

1978 Distribution

Seth Barrett, Water Resources Technician II was the watermaster. Watermaster service began June 1 and there was surplus water for the entire month. In July the supply dropped to 75 percent of water rights by the end of the first week. July's very hot weather reduced the supply to 35 percent of water rights by the end of the month.

Cooler weather in August permitted some increase in the flow, and later showers added to the supply for an increase to 50 percent. With the continued cooler weather and additional rains, the supply remained at 50 percent through September 30.

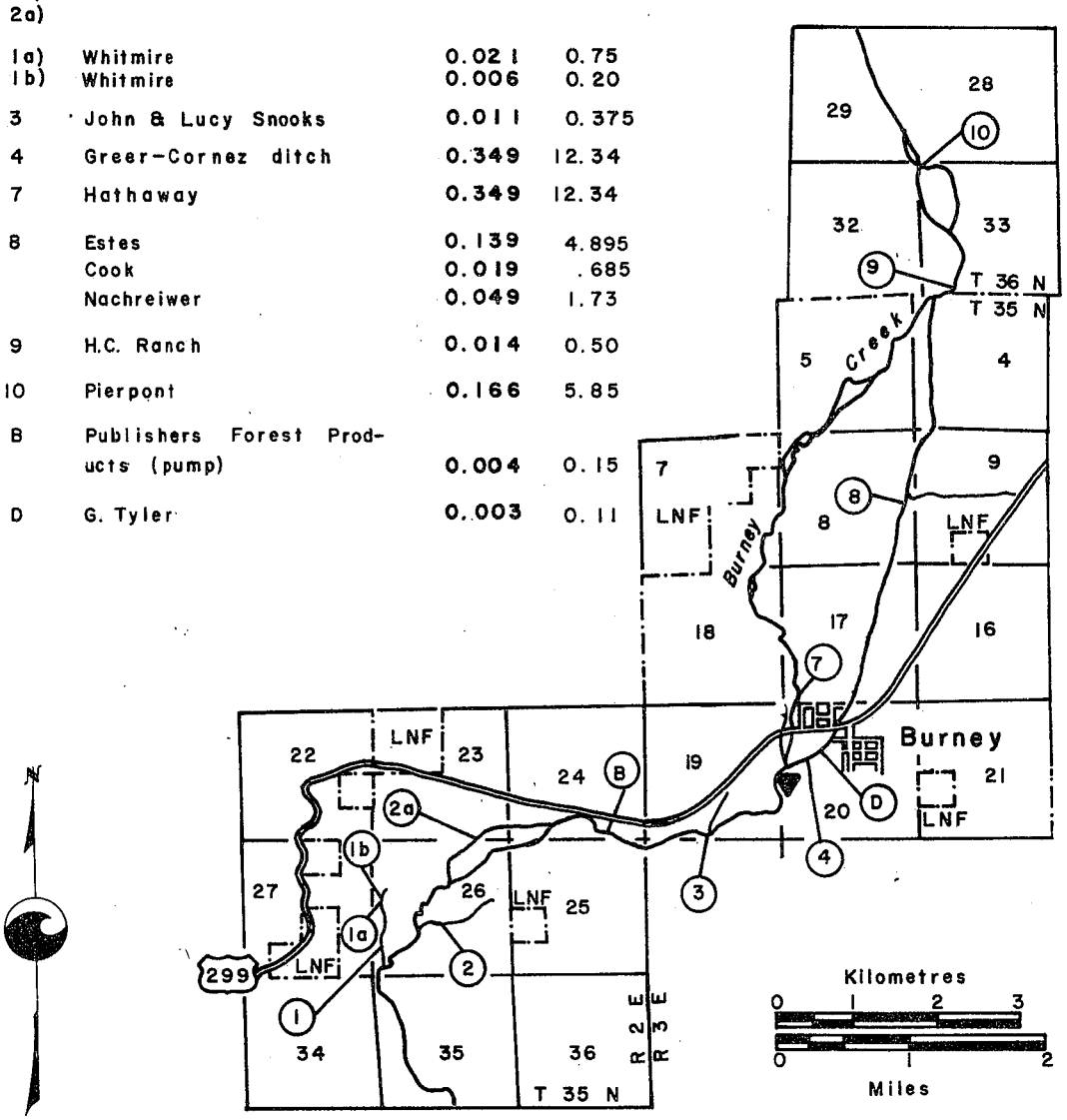
BURNEY CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 8
BURNEY CREEK NEAR BURNEY

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			8.411*	297.0	4.220	149.0	1.643	58.0	.566	20.0	.283	10.0	.312	11.0	1
2			6.825	241.0	4.078	144.0	1.558	55.0	.566	20.0	.275	9.7	.312	11.0	2
3			5.466	193.0	3.908	138.0	1.643	58.0	.538	19.0	.255	9.0	.312	11.0	3
4			5.296	187.0	3.682	130.0	1.784	63.0	.538	19.0	.269	9.5	.312	11.0	4
5			4.956	175.0	3.455	122.0	1.699	60.0	.510	18.0	.232	8.2	.312	11.0	5
6			5.862	207.0	3.313	117.0	1.643	58.0	.510	18.0	.187	6.6	.340	12.0	6
7			5.239	185.0	3.200	113.0	1.586	56.0	.481	17.0	.198	7.0	.312	11.0	7
8			4.729	167.0	3.115	110.0	1.529	54.0	.481	17.0	.210	7.4	.312	11.0	8
9			4.616	163.0	3.144	111.0	1.473	52.0	.453	16.0	.229	8.1	.396	14.0	9
10			4.644	164.0	3.172	112.0	1.388	49.0	.425	15.0	.241	8.5	.453	16.0	10
11			4.560	161.0	3.115	110.0	1.303	46.0	.425	15.0	.261	9.2	.368	13.0	11
12			4.276	151.0	2.974	105.0	1.218	43.0	.425	15.0	.283	10.0	.340	12.0	12
13			4.078	144.0	2.974	105.0	1.133	40.0	.425	15.0	.312	11.0	.340	12.0	13
14			4.843	171.0	3.144	111.0	1.076	38.0	.396	14.0	.340	12.0	.340	12.0	14
15			4.220	149.0	4.928	174.0	.991	35.0	.396	14.0	.340	12.0	.340	12.0	15
16			4.220	149.0	4.644	164.0	1.020	36.0	.425	15.0	.340	12.0	.340	12.0	16
17			4.050	143.0	3.936	139.0	.963	34.0	.510	18.0	.368	13.0	.340	12.0	17
18			3.710	131.0	3.455	122.0	.906	32.0	.481	17.0	.368	13.0	.368	13.0	18
19			4.191	148.0	3.144	111.0	.821	29.0	.453	16.0	.368	13.0	.425	15.0	19
20			6.004	212.0	2.974	105.0	.793	28.0	.425	15.0	.368	13.0	.396	14.0	20
21			4.984	176.0	2.889	102.0	.765	27.0	.425	15.0	.368	13.0	.396	14.0	21
22			4.503	159.0	2.804	99.0	.736	26.0	.396	14.0	.396	14.0	.396	14.0	22
23			4.361	154.0	2.804	99.0	.708	25.0	.396	14.0	.368	13.0	.396	14.0	23
24			4.191	148.0	2.747	97.0	.651	23.0	.368	13.0	.340	12.0	.425	15.0	24
25			5.239	185.0	2.605	92.0	.623	22.0	.340	12.0	.340	12.0	.425	15.0	25
26			5.041	178.0	2.436	86.0	.623	22.0	.340	12.0	.340	12.0	.425	15.0	26
27			4.560	161.0	2.294	81.0	.595	21.0	.312	11.0	.340	12.0	.425	15.0	27
28			4.361	154.0	2.181	77.0	.623	22.0	.312	11.0	.340	12.0	.453	16.0	28
29			4.135	146.0	2.152	76.0	.595	21.0	.312	11.0	.312	11.0	.453	16.0	29
30			3.993	141.0	2.096	74.0	.595	21.0	.312	11.0	.340	12.0	.481	17.0	30
31					1.982	70.0			.283	10.0	.340	12.0			31
MEAN			4.852	171.3	3.147	111.1	1.089	38.5	.427	15.1	.308	10.9	.375	13.2	MEAN
DAM^3			12568.		8424.		2822.		1142.		825.		971.		DAM^3
AF				10189.		6829.		2288.		926.		668.		787.	AF

* Beginning of Record

Diversion Number	Name	m^3/s	cfs
1)			
2)	Whitmire	0.166	5.88
2a)			
1a)	Whitmire	0.021	0.75
1b)	Whitmire	0.006	0.20
3	John & Lucy Snooks	0.011	0.375
4	Greer-Cornez ditch	0.349	12.34
7	Hathaway	0.349	12.34
8	Estes	0.139	4.895
	Cook	0.019	.685
	Nachreiwer	0.049	1.73
9	H.C. Ranch	0.014	0.50
10	Pierpont	0.166	5.85
B	Publishers Forest Products (pump)	0.004	0.15
D	G. Tyler	0.003	0.11



▲ Permanent recorder station DWR Burney Creek near Burney

DIVERSIONS FROM BURNEY CREEK WATERMASTER SERVICE AREA

BUTTE CREEK WATERMASTER SERVICE AREA

The Butte Creek service area is situated in Butte County a few miles southeast of the City of Chico. The watermaster service area extends for about 18 kilometres (11 miles) along Butte Creek, commencing approximately 6 km (4 miles) east of Chico and extending downstream to the crossing of the Western Canal. It contains about 8 100 hectares (20,000 acres) of valley floor lands at an average elevation of 45 metres (150 feet).

A map of the Butte Creek stream system is presented in Figure 5, pages 28 and 29.

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 Feather River.

The Water Resources Control Board, on September 18, 1969, granted permits for the following applications to appropriate water from Butte Creek: application 22321, Gorrill Land Company; 22534, Garrison Patrick; and 22564, Louis C. Camenzind, Jr. These appropriative rights are also under control of the watermaster.

Water Supply

Butte Creek, the major source of water, drains approximately 390 square kilometres (150 square miles) of the western slope of the Sierra Nevada Mountains in the northeasterly portion of Butte County above the watermaster service area. The maximum elevation in the watershed is about 2 100 m (7,000 feet).

Normally, snowmelt produces sustained high flows in the creek until about the end of June, after which perennial springs continue to produce flows of more than 1 100 m^3/s (40 cubic feet per second). 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 9, 10 and 11, pages 26 and 27.

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 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.

1978 Distribution

Watermaster service began April 1, 1978, in Butte Creek service area and continued until September 30, with Kenneth E. Morgan, Water Resources Engineering Associate as watermaster.

The water supply from Butte Creek in 1978 was far above average. Some water was available for surplus class users throughout the season. This is unusual.

BUTTE CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 9
BUTTE CREEK NEAR CHICO

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1	14.19	501.0	32.00	1130.0	25.32	894.0	14.98	529.0	7.99	282.0	4.45	157.0	1.95	69.0	1
2	40.50	1430.0	29.45	1040.0	23.59	833.0	14.39	508.0	7.87	278.0	4.64	164.0	1.90	67.0	2
3	64.85	2290.0	23.76	839.0	22.74	803.0	14.10	498.0	8.04	284.0	4.53	160.0	1.87	66.0	3
4	141.60	5000.0	29.74	1050.0	21.44	757.0	13.54	478.0	7.96	281.0	4.56	161.0	1.90	67.0	4
5	160.57	5670.0	27.24	962.0	20.67	730.0	14.02	495.0	7.67	271.0	4.59	162.0	1.90	67.0	5
6	108.75	3840.0	48.43	1710.0	19.97	705.0	14.02	495.0	7.53	266.0	4.73	167.0	2.41	85.0	6
7	67.12	2370.0	36.82	1300.0	19.17	677.0	14.13	499.0	7.45	263.0	4.81	170.0	2.35	83.0	7
8	52.11	1840.0	29.45	1040.0	18.86	666.0	13.88	490.0	7.42	262.0	4.81	170.0	2.29	81.0	8
9	51.26	1810.0	26.73	944.0	19.00	671.0	13.59	480.0	7.16	253.0	4.81	170.0	2.41	85.0	9
10	42.48	1500.0	25.80	911.0	19.26	680.0	13.28	469.0	6.97	246.0	4.93	174.0	4.36	154.0	10
11	36.53	1290.0	25.09	886.0	18.69	660.0	12.52	442.0	6.97	246.0	5.01	177.0	2.86	101.0	11
12	32.57	1150.0	23.90	844.0	18.44	651.0	11.95	422.0	6.85	242.0	4.93	174.0	3.60	127.0	12
13	28.32	1000.0	22.71	802.0	18.32	647.0	11.72	414.0	6.77	239.0	4.93	174.0	3.37	119.0	13
14	25.54	902.0	21.81	770.0	18.46	652.0	11.41	403.0	6.49	229.0	5.01	177.0	3.37	119.0	14
15	23.48	829.0	24.47	864.0	20.56	726.0	10.93	386.0	6.26	221.0	4.93	174.0	3.29	116.0	15
16	21.10	745.0	25.49	900.0	18.63	658.0	10.79	381.0	6.17	218.0	4.93	174.0	3.23	114.0	16
17	20.11	710.0	22.77	804.0	17.36	613.0	10.34	365.0	6.00	212.0	4.93	174.0	3.14	111.0	17
18	19.68	695.0	21.16	747.0	17.22	608.0	10.00	353.0	5.89	208.0	4.93	174.0	2.86	101.0	18
19	19.06	673.0	20.70	731.0	17.11	604.0	9.77	345.0	5.72	202.0	4.93	174.0	2.55	90.0	19
20	18.58	656.0	23.14	817.0	16.68	589.0	9.52	336.0	5.52	195.0	4.93	174.0	2.55	90.0	20
21	19.29	681.0	22.15	782.0	16.77	592.0	9.23	326.0	5.30	187.0	5.01	177.0	2.41	85.0	21
22	19.46	687.0	20.67	730.0	16.88	596.0	8.89	314.0	5.13	181.0	5.13	181.0	2.66	94.0	22
23	19.88	702.0	19.65	694.0	17.78	628.0	9.09	321.0	5.07	179.0	5.32	188.0	4.70	166.0	23
24	20.08	709.0	19.68	695.0	16.65	588.0	8.58	303.0	4.87	172.0	5.21	184.0	4.30	152.0	24
25	18.52	654.0	44.75	1580.0	16.34	577.0	8.47	299.0	4.73	167.0	5.13	181.0	4.76	168.0	25
26	17.84	630.0	41.63	1470.0	15.83	559.0	8.44	298.0	4.56	161.0	5.01	177.0	4.73	167.0	26
27	17.56	620.0	32.57	1150.0	15.15	535.0	8.41	297.0	4.81	170.0	4.81	170.0	4.70	166.0	27
28	17.50	618.0	28.60	1010.0	15.32	541.0	8.55	302.0	4.79	169.0	3.60	127.0	4.62	163.0	28
29	17.47	617.0	27.24	962.0	15.52	548.0	8.81	311.0	4.47	158.0	2.01	71.0	4.64	164.0	29
30	17.47	617.0	26.51	936.0	15.58	550.0	8.24	291.0	4.30	152.0	1.95	69.0	4.79	169.0	30
31	19.71	696.0			15.38	543.0			3.65	129.0	1.95	69.0			31
MEAN	49.72	1755.5	27.47	970.0	18.34	647.8	11.19	395.0	6.14	216.9	4.56	161.1	4.82	170.3	MEAN
DAM^3	103020.		71154.		49101.		28975.		16439.		12214.		8328.		DAM^3
AF		83518.		57685.		39807.		23490.		13327.		9902.		6752.	AF

BUTTE CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 10
BUTTE CREEK NEAR DURHAM

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs
1	16.14	570.0	33.98	1200.0	28.60	1010.0	8.47	299.0	2.07	73.0	.48	17.0	.96	34.0
2	47.86	1690.0	32.57	1150.0	26.48	935.0	7.48	264.0	1.95	69.0	.51	18.0	.93	33.0
3	76.18	2690.0	25.37	896.0	25.37	896.0	7.00	247.0	2.21	78.0	.40	14.0	.99	35.0
4	176.72	6240.0	31.44	1110.0	22.83	806.0	6.57	232.0	2.15	76.0	.37	13.0	1.02	36.0
5	189.46	6690.0	29.17	1030.0	21.69	766.0	7.14	252.0	1.95	69.0	.74	26.0	1.02	36.0
6	123.19	4350.0	50.98	1800.0	19.74	697.0	7.39	261.0	1.81	64.0	1.05	37.0	1.16	41.0
7	78.16	2760.0	39.93	1410.0	18.10	639.0	7.84	277.0	1.73	61.0	.93	33.0	1.16	41.0
8	63.15	2230.0	31.72	1120.0	17.78	628.0	7.87	278.0	1.61	57.0	.85	30.0	1.16	41.0
9	62.30	2200.0	28.29	999.0	17.64	623.0	7.59	268.0	1.50	53.0	.88	31.0	1.33	47.0
10	51.83	1830.0	27.33	965.0	16.23	573.0	7.28	257.0	1.39	49.0	.85	30.0	2.78	98.0
11	45.03	1590.0	26.45	934.0	15.09	533.0	6.63	234.0	1.76	62.0	.68	24.0	1.87	66.0
12	40.21	1420.0	24.78	875.0	14.53	513.0	6.20	219.0	1.93	68.0	.71	25.0	2.24	79.0
13	34.83	1230.0	23.28	822.0	14.47	511.0	6.00	212.0	1.87	66.0	.74	26.0	2.24	79.0
14	30.87	1090.0	22.09	780.0	15.26	539.0	5.95	210.0	1.70	60.0	.76	27.0	2.18	77.0
15	27.90	985.0	24.98	882.0	18.10	639.0	5.58	197.0	1.56	55.0	.76	27.0	2.04	72.0
16	24.50	865.0	27.27	963.0	14.81	523.0	5.66	200.0	1.50	53.0	.79	28.0	1.78	63.0
17	23.08	815.0	23.65	835.0	12.66	447.0	5.38	190.0	1.36	48.0	.82	29.0	1.78	63.0
18	22.37	790.0	21.49	759.0	12.09	427.0	5.07	179.0	1.22	43.0	.88	31.0	1.67	59.0
19	21.24	750.0	20.90	738.0	11.75	415.0	4.47	158.0	1.16	41.0	.88	31.0	1.39	49.0
20	20.45	722.0	23.96	846.0	11.02	389.0	3.96	140.0	1.10	39.0	.99	35.0	1.16	41.0
21	21.41	756.0	22.85	807.0	11.16	394.0	3.74	132.0	.93	33.0	.99	35.0	1.02	36.0
22	21.47	758.0	21.01	742.0	11.33	400.0	3.65	129.0	.82	29.0	.99	35.0	.88	31.0
23	21.81	770.0	19.88	702.0	12.89	455.0	3.65	129.0	.82	29.0	1.05	37.0	1.87	66.0
24	22.00	777.0	20.08	709.0	11.19	395.0	3.12	110.0	.76	27.0	1.05	37.0	1.93	68.0
25	19.77	698.0	48.14	1700.0	10.70	378.0	2.80	99.0	.76	27.0	1.05	37.0	2.29	81.0
26	18.83	665.0	46.16	1630.0	9.91	350.0	2.63	93.0	.79	28.0	1.08	38.0	2.18	77.0
27	18.15	641.0	36.53	1290.0	9.63	340.0	2.49	88.0	.74	26.0	1.02	36.0	2.12	75.0
28	17.64	623.0	32.28	1140.0	10.14	358.0	2.63	93.0	.65	23.0	.93	33.0	2.01	71.0
29	17.36	613.0	30.59	1080.0	10.37	366.0	2.78	98.0	.57	20.0	.91	32.0	1.67	59.0
30	17.22	608.0	30.02	1060.0	10.11	357.0	2.27	80.0	.51	18.0	.99	35.0	1.84	65.0
31	20.11	710.0			9.09	321.0			.42	15.0	1.02	36.0		
MEAN	57.97	2046.9	29.24	1032.5	15.19	536.2	5.31	187.5	1.33	47.1	.84	29.8	2.43	86.0
DAM³	120121.		75737.		40646.		13754.		3567.		2257.		4203.	
AF		97382.		61400.		32952.		11150.		2892.		1830.		3408.

BUTTE CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 11
TOADTOWN CANAL ABOVE BUTTE CANAL

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs
1			3.370*	119.0	3.342	118.0	3.313	117.0	3.115	110.0	2.152	76.0	.000	.0
2			3.455	122.0	3.144	111.0	3.228	114.0	3.115	110.0	2.294	81.0	.000	.0
3			3.398	120.0	3.370	119.0	3.285	116.0	3.087	109.0	2.067	73.0	.000	.0
4			3.370	119.0	3.285	116.0	3.228	114.0	3.115	110.0	2.181	77.0	.000	.0
5			3.370	119.0	3.370	119.0	3.257	115.0	3.200	113.0	2.152	76.0	.000	.0
6			3.455	122.0	3.370	119.0	3.313	117.0	3.172	112.0	2.379	84.0	.000	.0
7			3.342	118.0	3.370	119.0	3.313	117.0	3.172	112.0	2.379	84.0	.000	.0
8			3.313	117.0	3.313	117.0	3.257	115.0	3.200	113.0	2.407	85.0	.000	.0
9			3.342	118.0	3.285	116.0	3.313	117.0	3.172	112.0	2.549	90.0	.000	.0
10			3.342	118.0	3.285	116.0	3.313	117.0	3.172	112.0	2.520	89.0	.000	.0
11			3.342	118.0	3.285	116.0	3.257	115.0	3.144	111.0	2.520	89.0	.000	.0
12			3.398	120.0	3.285	116.0	3.257	115.0	3.257	115.0	2.520	89.0	1.218	43.0
13			3.398	120.0	3.257	115.0	3.257	115.0	3.115	110.0	2.520	89.0	1.133	40.0
14			3.370	119.0	3.285	116.0	3.228	114.0	2.860	101.0	2.492	88.0	1.133	40.0
15			3.398	120.0	3.200	113.0	3.257	115.0	2.775	98.0	2.464	87.0	1.104	39.0
16			3.115	110.0	3.228	114.0	3.285	116.0	2.747	97.0	2.464	87.0	1.104	39.0
17			3.285	116.0	3.285	116.0	3.257	115.0	2.605	92.0	2.662	94.0	1.076	38.0
18			3.342	118.0	3.285	116.0	3.257	115.0	2.549	90.0	2.605	92.0	.566	20.0
19			3.370	119.0	3.257	115.0	3.257	115.0	2.492	88.0	2.577	91.0	.566	20.0
20			3.455	122.0	3.257	115.0	3.257	115.0	2.379	84.0	2.549	90.0	.566	20.0
21			3.398	120.0	3.342	118.0	3.257	115.0	2.181	77.0	2.549	90.0	.566	20.0
22			3.427	121.0	3.427	121.0	3.228	114.0	2.124	75.0	2.634	93.0	2.124	75.0
23			3.370	119.0	3.200	113.0	3.200	113.0	2.067	73.0	2.605	92.0	2.690	95.0
24			3.398	120.0	3.398	120.0	3.228	114.0	2.011	71.0	2.775	98.0	2.634	93.0
25			2.832	100.0	3.370	119.0	3.228	114.0	1.897	67.0	2.605	92.0	2.634	93.0
26			3.285	116.0	3.370	119.0	3.228	114.0	1.784	63.0	2.605	92.0	2.605	92.0
27			3.285	116.0	3.370	119.0	3.228	114.0	2.181	77.0	2.577	91.0	2.634	93.0
28			3.285	116.0	3.370	119.0	3.228	114.0	1.869	66.0	.850	30.0	2.520	89.0
29			3.313	117.0	3.342	118.0	3.115	110.0	1.728	61.0	.000	.0	2.520	89.0
30			3.370	119.0	3.342	118.0	3.115	110.0	1.643	58.0	.000	.0	2.520	89.0
31					3.342	118.0			1.586	56.0	.000	.0		
MEAN			3.340	117.9	3.311	116.9	3.248	114.7	2.597	91.7	2.182	77.1	1.064	37.6
DAM³			8651.		8861.		8414.		6952.		5842.		2756.	
AF				7013.		7184.		6821.		5636.		4736.		2234.

* Beginning of Record

Diversion Number	Water Right Owner	Priority 1st m³/s	1st Cfs	2nd m³/s	2nd Cfs	3rd m³/s	3rd Cfs	Surplus m³/s	Surplus Cfs	Import m³/s	Import Cfs	Application Permit m³/s	Application Permit Cfs
Butte Creek													
50	M. & T. Incorporated							0.708	25.00	1.510	53.33*		
	Parrott Ranch Company							0.708	25.00	1.510	53.33*		
	McClain et al	0.085	3.00										
	Dayton Mutual Water Co.	0.453	16.00							0.094	3.33*		
	* Water imported by PGandE from West Branch Feather River via Hendricks Canal and released into Butte Creek, less 5% for conveyance losses.												
53[2]	U.S. Dept. of Agriculture	0.057	2.00										
54	Patrick	0.142	5.00									0.368	13.00[1]
55	Camenzind et al	0.142	5.00									0.184	6.50[1]
56	Durham Mutual Water Co.	1.266	44.70										
	Butte Creek Country Club	0.057	2.00										
	Geiger	0.014	0.48										
	Bell	0.011	0.39										
	Domom Brothers	0.019	0.67										
	Logan	0.001	0.01										
	Vernoga	0.041	1.447										
	Konyn - Amerio	0.011	0.40										
	Bebich	0.013	0.446										
	Jugum	0.013	0.447										
	Whelock	0.007	0.26										
	Total	1.451	51.25										
57[2]	Coats	0.110	3.89										
58[2]	Wakefield	0.012	0.43										
58A[2]	Hansen							0.071	2.50				
58B[2]	Lewis	0.057	2.00										
59B[2]	Brandt	0.011	0.39										
60	Newhall Land & Farming Co.			0.170	6.00	0.021	0.75	0.602	21.25			4.248	150.00[3]
60A[2]	Keeney et al	0.019	0.66										
61	Gorrill Land Company[4]					0.283	1.00[5]	0.586	20.70[5]			2.124	75.00[3]
62[2]	White, Mead, McAlister, & Ryon					0.283	1.00	0.269	9.50				
Hamlin Slough													
	Newhall Land & Farming Co.	0.470	16.60										
	Gorrill Land Company	0.614	21.70[5]										

1/ March 1 - June 30

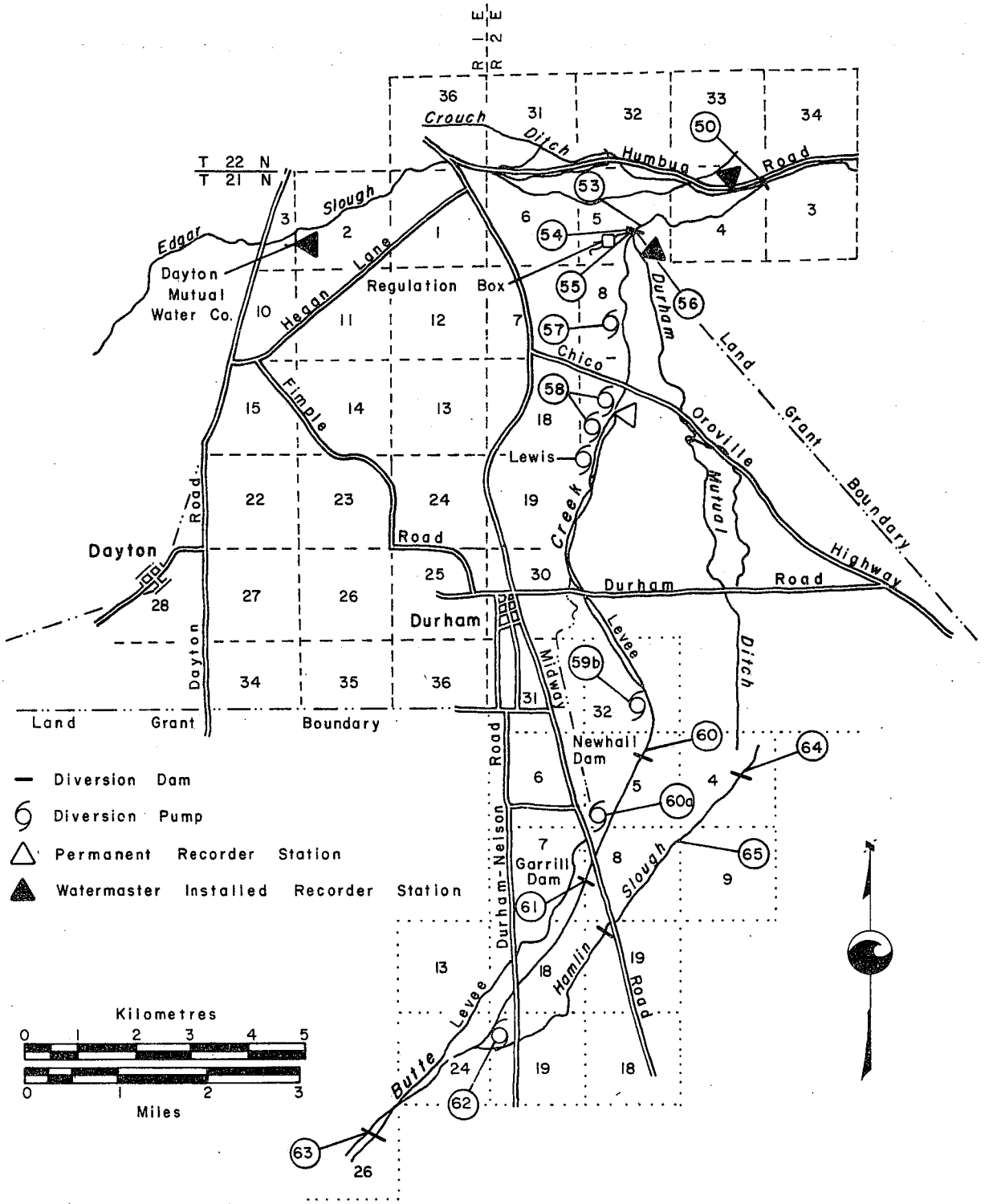
2/ Pumps

3/ March 15 - June 15

4/ See Hamlin Slough

5/ Total diversions from Butte Creek and Hamlin Slough not to exceed 0.615 m^3/s (21.70 cfs).

Figure 5



DIVERSIONS FROM BUTTE CREEK
BUTTE 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. Figures 6 through 6c, pages 34 through 38, show the Cow Creek stream system, including the diversions and major access roads.

The source of water supply for this service area consists of 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 in a westerly direction to their confluence in the Millville-Palo Cedro area and thence 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 sets forth a rotation schedule of distribution. The water users, however, 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

The water supply for this service area is derived mostly from springs and seepage, with some early snowmelt runoff. The watershed varies in elevation from 200 to 1 500 metres (500 to 5,000 feet) and consists primarily of low brushy hills which do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter months 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 daily mean discharge of North Cow Creek near Ingot is presented in Table 12, page 33. The stream gaging station on North Cow Creek is downstream of many of the diversions and is used by the watermaster primarily 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 which 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.

1978 Distribution

Watermaster service began May 1 in the Cow Creek service area and continued until September 30, with Seth Barrett,

Water Resources Technician II as the watermaster.

There was surplus water in all streams of the service area for the first month of the season, and the supply was generally good throughout the season.

Cedar Creek. There was adequate-to-surplus supply throughout the season.

North Cow Creek. There was surplus water passing the lowest diverter until the middle of July. From July 15 on, all available water was used and generally more than 100 percent of water rights were being diverted by the users. By the third week in July, hot weather reduced the supply to a regulated 90 percent. By the last of July, when temperatures moderated and some showers fell in the watershed, the supply increased and continuing favorable weather afforded adequate water the rest of the season.

Clover Creek. There was surplus water below the lowest diverter until mid-July. Beginning July 15, all of the available water was being used and generally more than 100 percent of water rights were diverted by the users. By the third week in July, hot weather forced regulation to 85 percent for two weeks. Favorable weather conditions, with some showers, then permitted return to 100 percent. From the latter part of August through the end of the season, the supply remained at or above 100 percent.

Oak Run Creek. The supply to the Oak Run Creek diverters was good throughout the season, with some surplus below the lowest diverter most of the time.

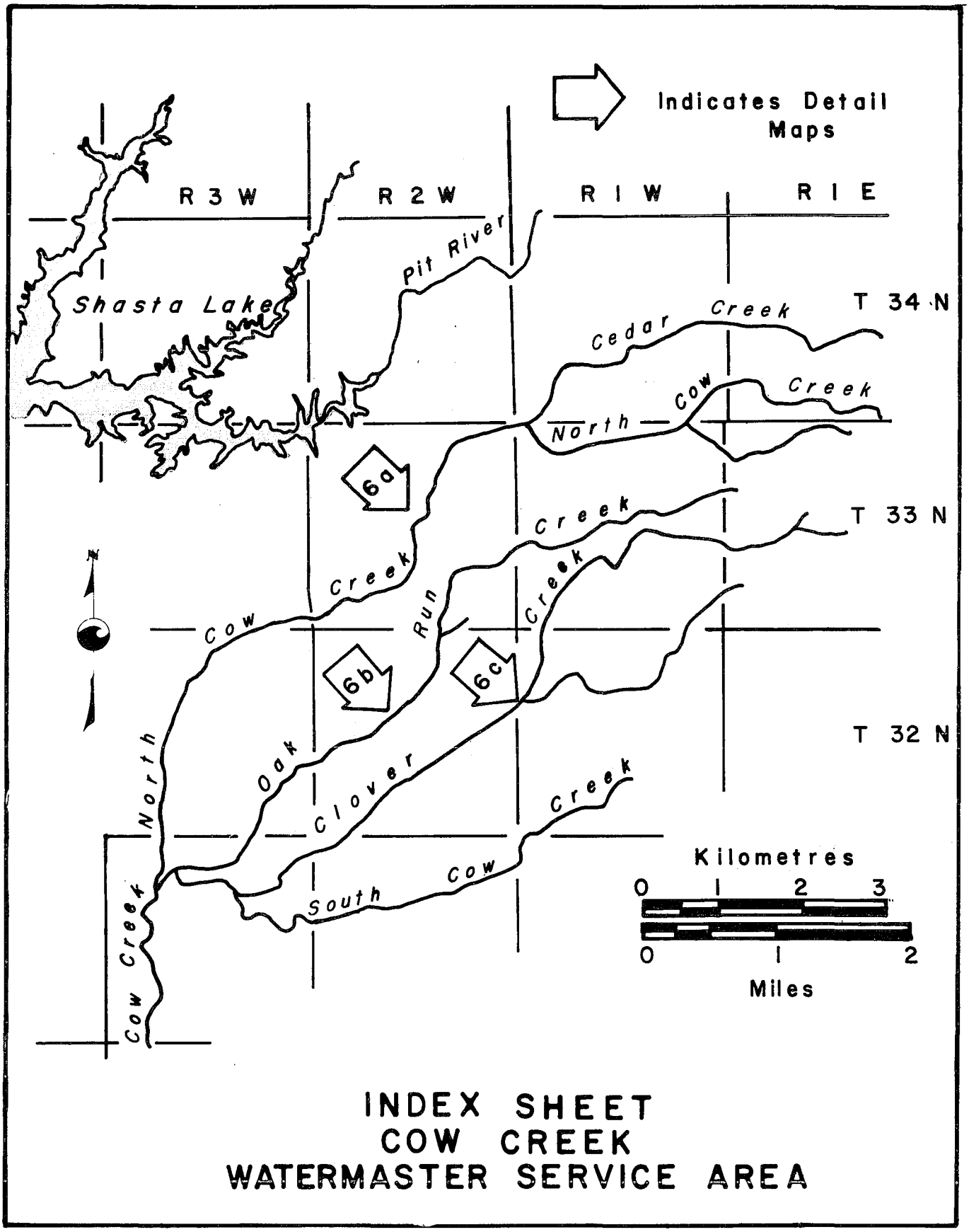
COW CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 12
NORTH COW CREEK NEAR TNGOT

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1							2.152*	76.0	.566	20.0	.269	9.5	.312	11.0	1
2							2.067	73.0	.510	18.0	.269	9.5	.312	11.0	2
3							1.982	70.0	.510	18.0	.283	10.0	.283	10.0	3
4							1.954	69.0	.566	20.0	.312	11.0	.283	10.0	4
5							1.982	70.0	.566	20.0	.312	11.0	.283	10.0	5
6							2.039	72.0	.453	16.0	.312	11.0	.368	13.0	6
7							2.039	72.0	.453	16.0	.283	10.0	.340	12.0	7
8							1.869	66.0	.510	18.0	.283	10.0	.312	11.0	8
9							1.812	64.0	.510	18.0	.269	9.5	.453	16.0	9
10							1.671	59.0	.453	16.0	.255	9.0	.850	30.0	10
11							1.473	52.0	.425	15.0	.278	9.8	.595	21.0	11
12							1.388	49.0	.453	16.0	.278	9.8	.425	15.0	12
13							1.331	47.0	.453	16.0	.249	8.8	.396	14.0	13
14							1.274	45.0	.453	16.0	.255	9.0	.396	14.0	14
15							1.246	44.0	.425	15.0	.255	9.0	.396	14.0	15
16							1.133	40.0	.396	14.0	.278	9.8	.368	13.0	16
17							1.104	39.0	.425	15.0	.255	9.0	.340	12.0	17
18							1.020	36.0	.396	14.0	.255	9.0	.312	11.0	18
19							.906	32.0	.425	15.0	.255	9.0	.283	10.0	19
20							.793	28.0	.340	12.0	.249	8.8	.283	10.0	20
21							.765	27.0	.396	14.0	.278	9.8	.312	11.0	21
22							.765	27.0	.396	14.0	.340	12.0	.340	12.0	22
23							.736	26.0	.312	11.0	.283	10.0	.340	12.0	23
24							.708	25.0	.340	12.0	.283	10.0	.283	10.0	24
25							.708	25.0	.368	13.0	.283	10.0	.283	10.0	25
26							.708	25.0	.396	14.0	.283	10.0	.283	10.0	26
27							.623	22.0	.396	14.0	.283	10.0	.283	10.0	27
28							.623	22.0	.425	15.0	.283	10.0	.283	10.0	28
29							.651	23.0	.368	13.0	.283	10.0	.283	10.0	29
30							.595	21.0	.312	11.0	.283	10.0	.283	10.0	30
31									.283	10.0	.312	11.0			31
MEAN							1.271	44.9	.428	15.1	.279	9.8	.352	12.4	MEAN
DAM^3							3291.		1147.		747.		912.		DAM^3
AF								2668.		930.		605.		739.	AF

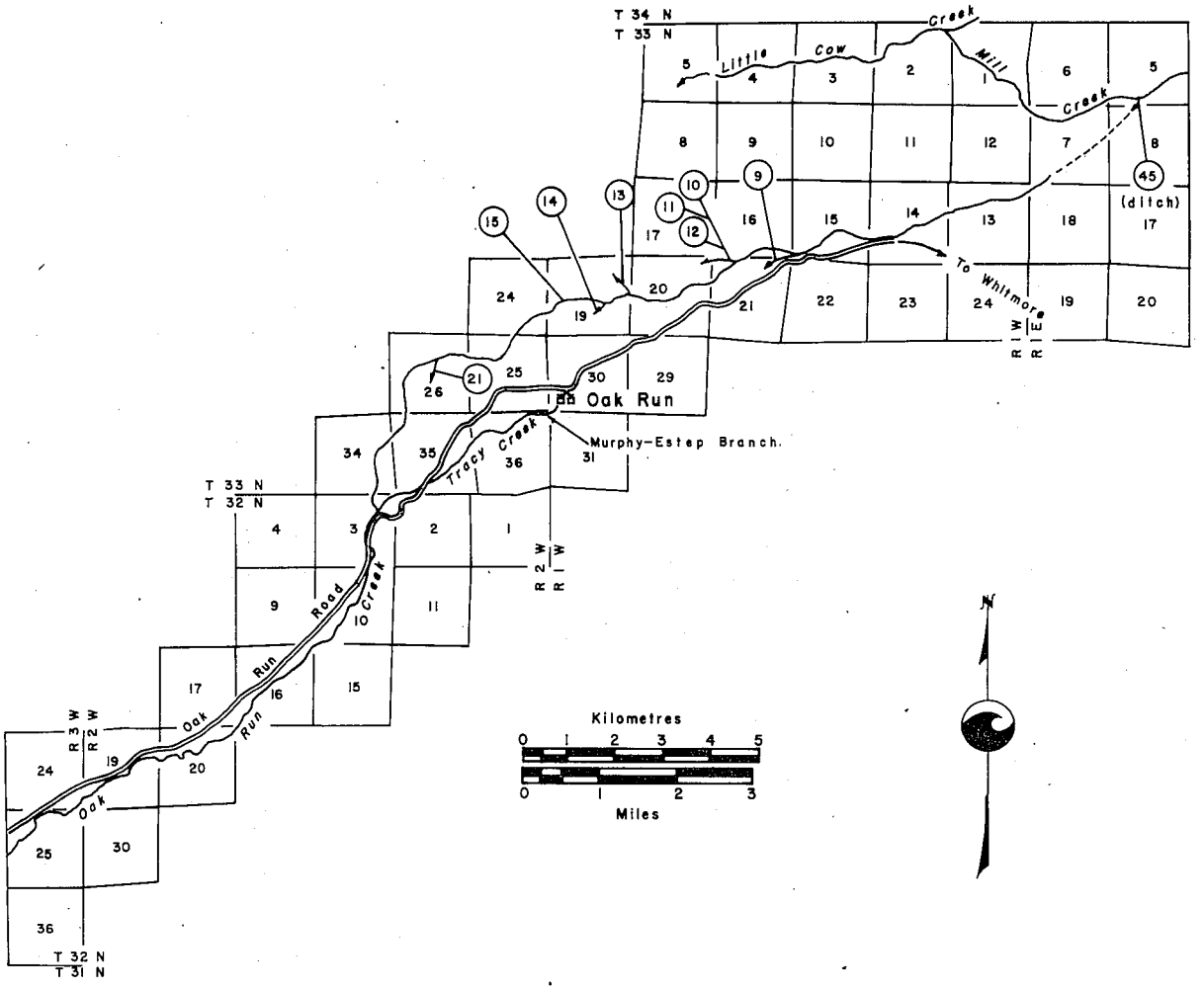
* Beginning of Record

Figure 6



INDEX SHEET
COW CREEK
WATERMASTER SERVICE AREA

Figure 6a



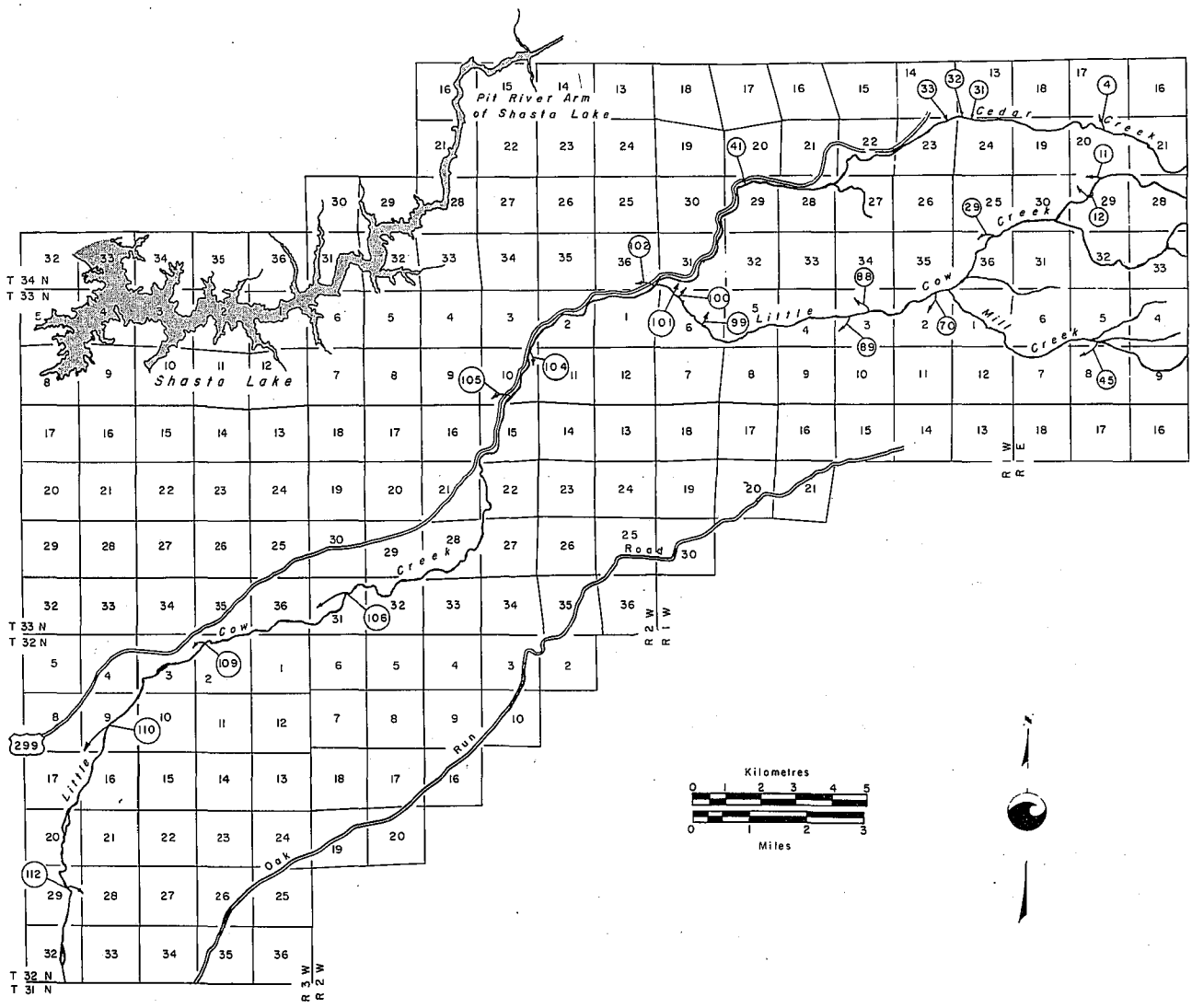
Diversion Number	Ditch	m³/s	cfs
45	Welsh-Strayer ditch from Mill Creek to Oak Run Creek	0.142	5.00
9	Welsh-Strayer Rediversion	0.065	2.30*
10	Pedmore Upper)		
11	Pedmore Lower)----	0.007	0.25
12	Pedmore South)		

Diversion Number	Ditch	m³/s	cfs
13	Alpaugh	0.018	0.65
14	Pedmore	0.018	0.65
15	Kerkendahl	0.018	0.65
21	Winters (Surplus)	0.011	0.395

* When flow of Oak Run Creek at diversion 9 is less than 0.153 m³/s (5.40 cfs) including foreign water from Mill Creek, the flow at diversion 9 will be divided 43% into diversion 9 and 57% to Oak Run Creek.

DIVERSIONS FROM OAK RUN CREEK
COW CREEK WATERMASTER SERVICE AREA

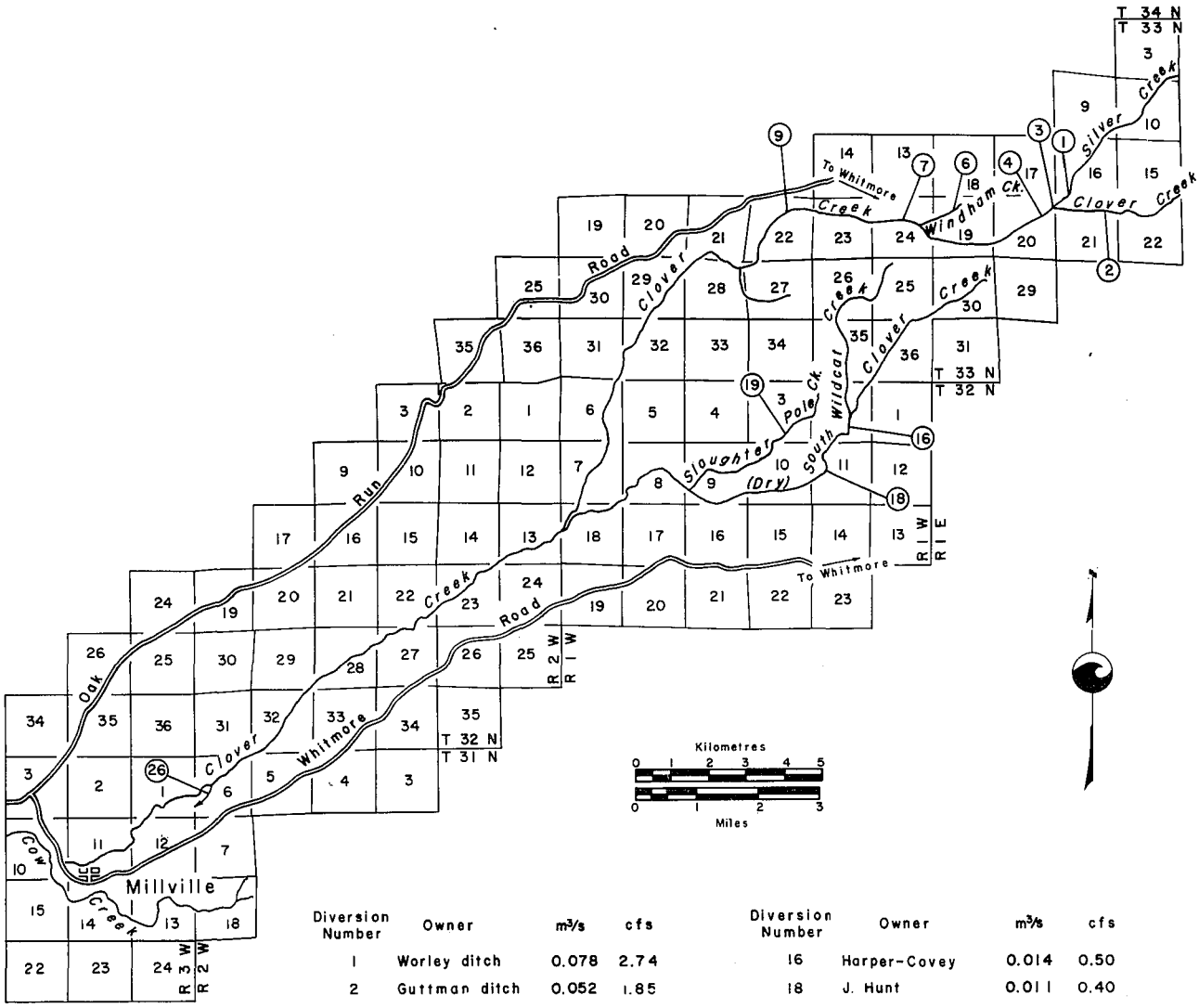
Diversion Number	Name	m^3/s	Cfs
4	Bishop	0.014	0.50
11	McMillian	0.013	0.46
12	Benbow	0.018	0.63
29	Grant-Pherson-Jones	0.074	2.60
31	Spaulding-Haley	0.037	1.30
32	Halcomb	0.113	4.00
33	Roe	0.008	0.30
41	Hadley (pump)	0.028	0.80
45	Export Water to Oak Run Creek	0.142	5.00
70	Nichols	0.009	0.31
88	Ruthford	0.051	1.80
89	Bobich	0.013	0.47
99	Shaw	0.003	0.10
100	Emerald	0.007	0.25
101	Porteous	0.013	0.45
102	Hendrix	0.008	0.30
104	Artadel Mining Company	0.001	0.04
105	Artadel Mining Company	0.016	0.55
106	Rickert	0.123	4.35
109	Matthews (pump)	0.003	0.10
110	Cook & Butcher	0.127	4.50
112	Boyle (pump)	0.011	0.40



DIVERSIONS FROM COW CREEK

COW CREEK WATERMASTER SERVICE AREA

Figure 6c



Diversion Number	Owner	m³/s	cfs
1	Worley ditch	0.078	2.74
2	Guttman ditch	0.052	1.85
3	Bonde ditch	0.037	1.30
4	Mill ditch	0.154	5.45
6	Maxwell ditch	0.010	0.35
7) 9)	Welch and Nailer ditch	0.061	2.15
16	Harper-Covey	0.014	0.50
18	J. Hunt	0.011	0.40
19	Slaughter Pole ditch	0.011	0.40
26	Millville ditch	0.184	6.50

DIVERSIONS FROM CLOVER CREEK

COW 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 a portion of the boundary line between Shasta and Tehama Counties. It drains an area of approximately 120 square kilometres (45 square miles) on the western slopes of mountains situated immediately west of Lassen National Park. The creek flows in a westerly direction through the town of Manton to its confluence with North Fork Battle Creek. Manton, the only community in the area, is located approximately 60 km (40 miles) northeast of Red Bluff.

A map of the Digger Creek stream system is presented as Figure 7, page 41.

Basis of Service

The rights to use of the waters of Digger Creek were determined by five court adjudications. The 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 on page

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 adjoining the stream so that all water not consumptively used returns to Digger Creek. The lower users are located within a 10 km^2 (5 square mile) area. Very little runoff from the lower users returns to the creek.

The water rights of the three upper users are absolute and not correlative to the 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

Precipitation, occurring principally in the winter months, is typical of Northern California foothill areas. 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 entire irrigation season. However, serious deficiencies occur in dry years.

The estimated daily mean discharge of Digger Creek below the mouth of the South Fork is presented in Table 13, page 40.

Method of Distribution

Irrigation is accomplished principally 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.

1978 Distribution

Seth Barrett, Water Resources Technician II, was the watermaster for this season. Watermaster service began June 1 and continued until September 30.

The supply was good for the entire season, with some surplus below the lowest diverter at all times.

Rain showers helped considerably to maintain good flow after the extremely hot weather in July.

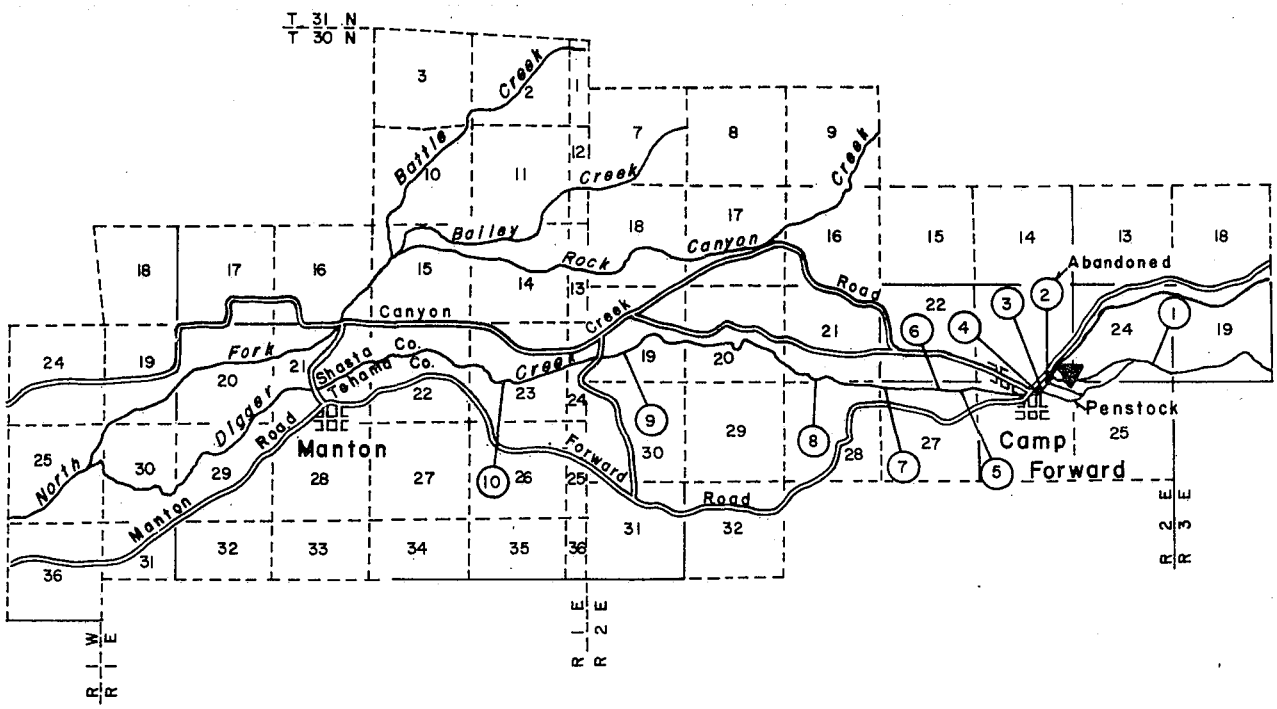
DIGGER CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 13
DIGGER CREEK BELOW SOUTH FORK BRANCH

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1							1.841*	65.0	1.218	43.0	.736	26.0	.425	15.0	1
2							1.812	64.0	1.218	43.0	.708	25.0	.425	15.0	2
3							1.784	63.0	1.161	41.0	.651	23.0	.425	15.0	3
4							1.756	62.0	1.076	38.0	.623	22.0	.425	15.0	4
5							1.699	60.0	1.076	38.0	.623	22.0	.481	17.0	5
6							1.671	59.0	1.104	39.0	.623	22.0	.510	18.0	6
7							1.614	57.0	1.161	41.0	.623	22.0	.481	17.0	7
8							1.614	57.0	1.104	39.0	.623	22.0	.453	16.0	8
9							1.643	58.0	1.104	39.0	.623	22.0	.623	22.0	9
10							1.558	55.0	1.076	38.0	.595	21.0	.623	22.0	10
11							1.473	52.0	1.048	37.0	.595	21.0	.538	19.0	11
12							1.444	51.0	1.048	37.0	.566	20.0	.481	17.0	12
13							1.444	51.0	1.048	37.0	.566	20.0	.425	15.0	13
14							1.473	52.0	1.048	37.0	.538	19.0	.425	15.0	14
15							1.558	55.0	1.020	36.0	.538	19.0	.425	15.0	15
16							1.473	52.0	1.020	36.0	.510	18.0	.425	15.0	16
17							1.444	51.0	.991	35.0	.510	18.0	.425	15.0	17
18							1.444	51.0	.991	35.0	.481	17.0	.425	15.0	18
19							1.444	51.0	.963	34.0	.481	17.0	.425	15.0	19
20							1.444	51.0	.963	34.0	.453	16.0	.425	15.0	20
21							1.359	48.0	.906	32.0	.453	16.0	.396	14.0	21
22							1.359	48.0	.878	31.0	.481	17.0	.396	14.0	22
23							1.331	47.0	.850	30.0	.453	16.0	.396	14.0	23
24							1.246	44.0	.850	30.0	.453	16.0	.396	14.0	24
25							1.218	43.0	.821	29.0	.425	15.0	.396	14.0	25
26							1.161	41.0	.793	28.0	.425	15.0	.368	13.0	26
27							1.161	41.0	.793	28.0	.425	15.0	.368	13.0	27
28							1.246	44.0	.793	28.0	.425	15.0	.368	13.0	28
29							1.331	47.0	.765	27.0	.425	15.0	.368	13.0	29
30							1.246	44.0	.736	26.0	.481	17.0	.368	13.0	30
31									.736	26.0	.425	15.0			31
MEAN							1.476	52.1	.979	34.6	.534	18.8	.437	15.4	MEAN
DAM^3							3824.		2621.		1428.		1132.		DAM^3
AF								3100.		2125.		1158.		918.	AF

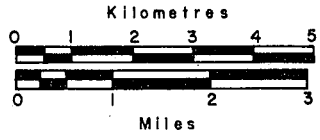
* Beginning of Record

Figure 7



Diversion Number	Name	m^3/s	cfs
1,3-5	Forward Brothers	0.217	7.65
6	Wright	0.014	0.50
	Pritchard E.	0.011	0.375
	Pritchard R.	0.064	2.25
7	Pritchard R.	0.013	0.45
8	Boole ditch	0.224	7.90
9	Williams ditch	0.031	1.10
10	Crooker-Harrison ditch	0.085	3.00

▲ Watermaster installed recorder station.



DIVERSIONS FROM DIGGER CREEK
DIGGER CREEK WATERMASTER SERVICE AREA

FALL RIVER WATERMASTER SERVICE AREA

The Fall River service area is in Shasta County in the vicinity of Fall River Mills and McArthur, about 100 kilometres (70 miles) northeast of Redding via State Route 299.

The Tule River originates at Big Lake and Horr Pond and flows for a distance of about 8 km (5 miles), where it enters Fall River. The McArthur diversion canal diverts water by gravity from the Tule River which flows for 8 km (5 miles) to near the town of McArthur, where land is irrigated along the Pit River.

Two pumps are monitored in the service area, one on the Tule River and one on Fall River.

Basis of Service

The Fall River service area was created on January 14, 1976; watermaster service began in 1976.

Watermaster service is provided annually from March 15 to October 15 in accordance with an agreement dated November 25, 1975 between John McArthur, Kenneth McArthur and PGandE.

1978 Distribution

Watermaster service began on March 15 and continued until October 15. James C. Scheler, Assistant Engineer, Water Resources, was watermaster.

The flow in McArthur Canal was regulated in accordance with water rights adjudicated to the McArthur family by the Shasta County Superior Court in a judgment dated April 26, 1928, modified by agreement dated March 15, 1976, between Kenneth McArthur and PGandE.

In the letter of understanding dated October 13, 1975, between PGandE and John R. McArthur, it was agreed that for all water used on nonriparian lands (presently comprising approximately 1 900 hectares (4,700 acres), corresponding flow reductions will be made in the diversions into the McArthur Canal. These reductions were made, when necessary, during the scheduled regulation changes to the McArthur Canal.

1978 MONTHLY SUMMARY OF McARTHUR DIVERSIONS

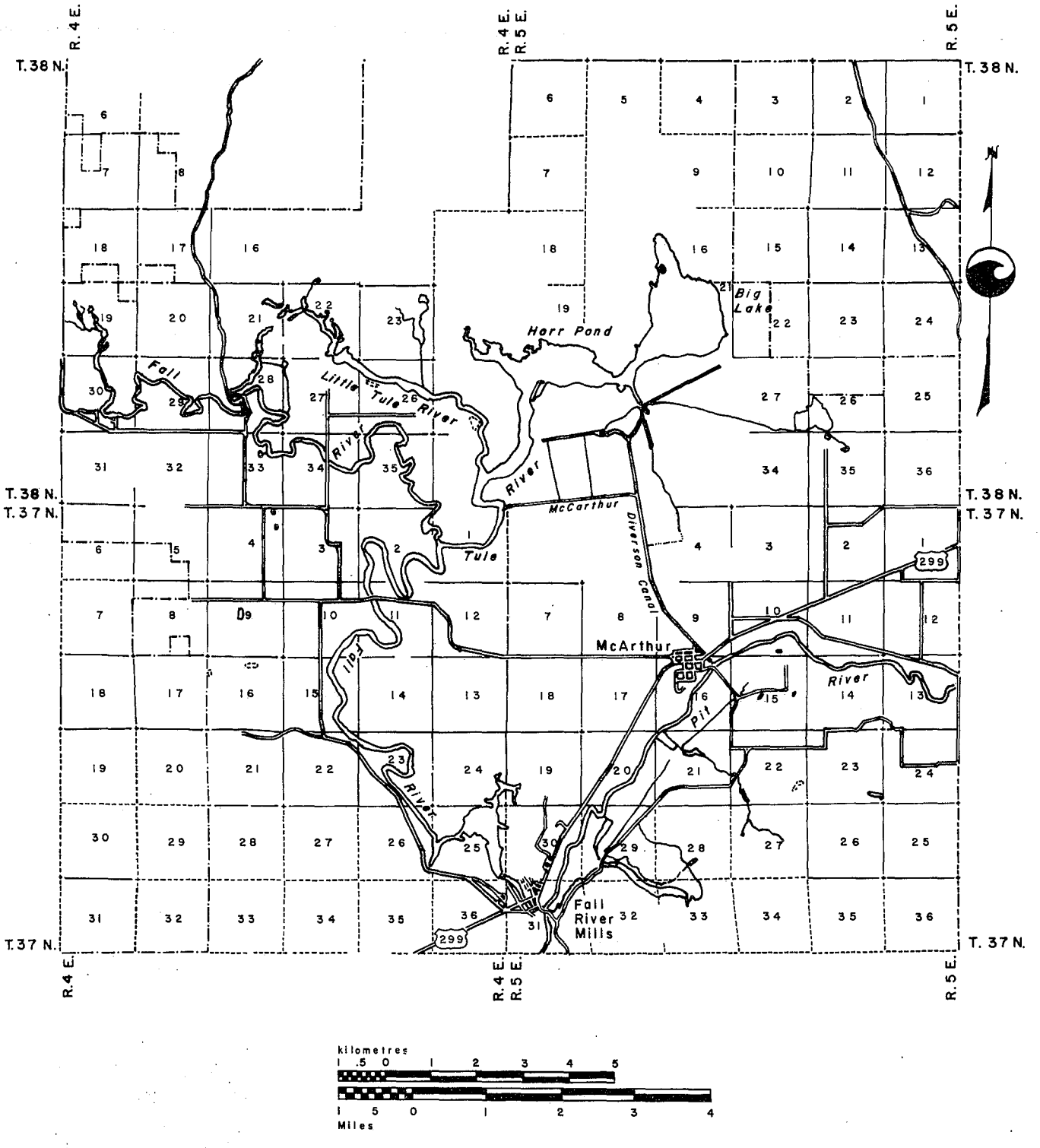
Period	McArthur Canal		Two Pumps Nonriparian Lands		Total McArthur Diversions		McArthur Water Rights	
	dam^3	A/F	dam^3	A/F	dam^3	A/F	dam^3	A/F
Mar. 15[1/]	180	142	0	0	175	142	995	807
April	1 750	1,421	0	0	1,750	1,421	1 930	1,562
May	2 270	1,841	25	20	2 300	1,861	2 510	2,037
June	2 800	2,272	143	116	2 950	2,388	2 440	1,978
July	3 430	2,781	397	322	3 830	3,103	3 570	2,897
August	3 240	2,629	207	168	3 450	2,797	3 570	2,897
Sept.	1 860	1,505	141	114	2 000	1,619	2 200	1,784
Oct. 15[2/]	910	734	116	94	1 020	828	860	697
Totals	16 440	13,325	1 029	834	17 475	14,159[3/]	18 075	14,659[3/]

1/ Beginning of watermaster season.

2/ End of watermaster season.

3/ McArthur owed 559 dam^3 (453 acre-feet) to PGandE as of March 15, 1978. It was paid back as of October 15, 1978.

Figure 8



McCARTHUR CANAL DIVERSIONS
FALL RIVER WATERMASTER SERVICE AREA

FRENCH CREEK WATERMASTER SERVICE AREA

The French Creek service area is situated 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 in a northeasterly direction through the central part of the service area. Miners Creek begins east of the headwaters of French Creek and flows in a northerly direction, joining French Creek about 4.8 kilometres (3 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 1.6 km (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. The service area is about 1 km (1/2 mile) wide and 8 km (5 miles) long, with the main axis and drainage running from south to north. Elevations of the agricultural area range from about 1 000 metres (3,200 feet) at the south to about 900 m (2,800 feet) at the confluence of French Creek and Scott River.

A map of the French Creek stream system with the diversions and roads is presented as Figure 9, page 49.

Basis of Service

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

Water is distributed according to three schedules: North Fork French Creek with three priorities; Miners Creek with three; and the French Creek, Horse Range Creek, Paynes Lake Creek, and Duck Lake Creek 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 but are subject to the exclusive control of the other owners of the ditch.

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

Water Supply

The water supply is derived from snowmelt runoff, springs and seepage, and occasional summer thundershowers.

The watershed of French Creek contains about 80 km^2 (32 square miles) of heavily forested, steep, mountainous terrain of the easterly slopes of the Salmon Mountains. It varies in elevation from about 2 200 m (7,200 feet) along its west rim to about 1 000 m (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 Duck Lake Creek, a tributary, is presented in Table 14, page 48.

1978 Distribution

Watermaster service began in the French Creek service area on April 1 and continued until September 30. Lester L. Lighthall, Water Resources Technician II, was watermaster.

Watermaster service was initiated in the 1969 season and data obtained since then shows that the available water supply was far above normal.

The upper priority allotments were regulated in decreasing quantities to satisfy the upper third priority rights, until the end of July. Due to return flows, third priority was available for the rest of the season.

Downstream first, second, and third priority allotments below the Milk House Ditch can rely on more dependable water supply than those of the upper users.

Water was released from Smith Lake (Siphon Lake) the first week of August for those on the North Fork French Creek Ditch with interest in the Smith Lake siphon. First, second, and third priority water was available in Miners Creek all season. No water was diverted from Duck Lake Creek or French Creek to Miners Creek this season.

FRENCH CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 14
DUCK LAKE CREEK TRIBUTARY TO FRENCH CREEK

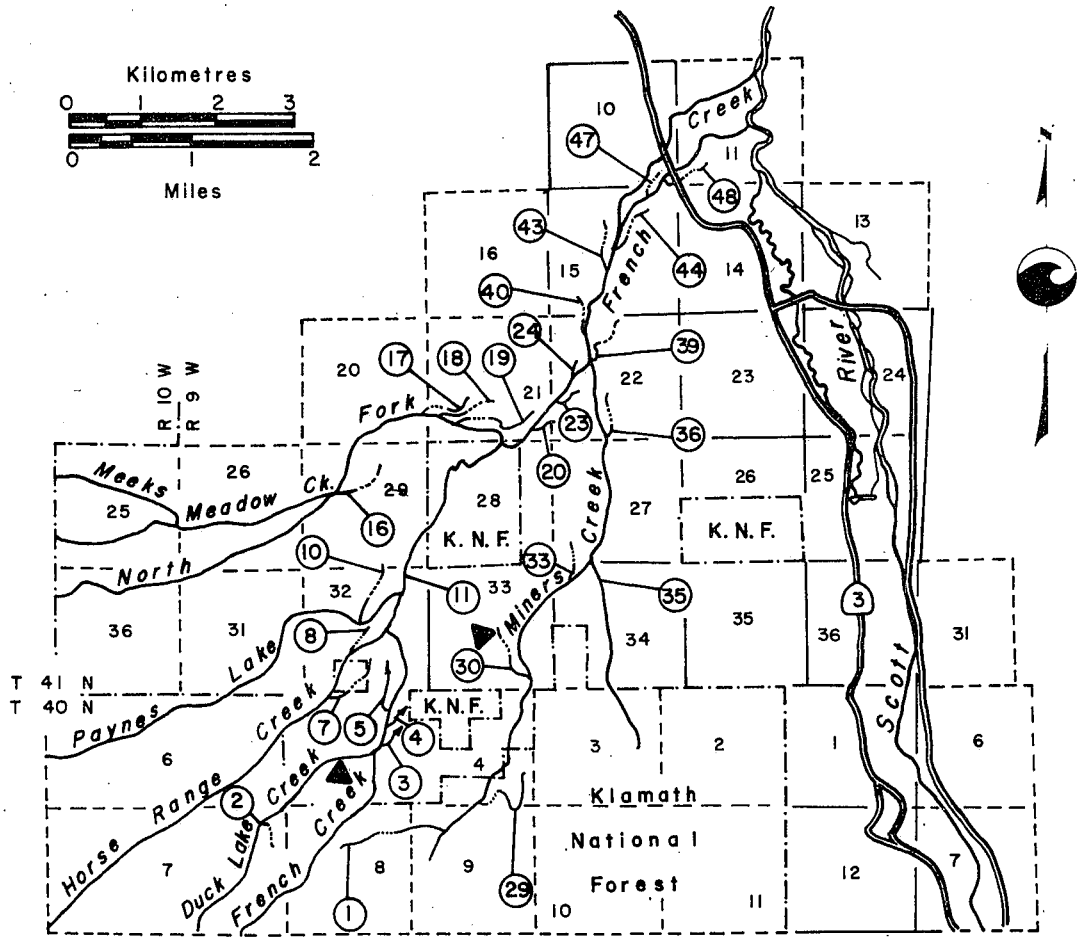
DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1							1.416	50.0	.793	28.0	.093	3.3	.065	2.3	1
2							1.444	51.0	1.161	41.0	.093	3.3	.057	2.0	2
3							1.473	52.0	1.161	41.0	.093	3.3	.048	1.7	3
4							1.699	60.0	.821	29.0	.093	3.3	.040	1.4	4
5							1.869	66.0	.340	12.0	.085	3.0	.057	2.0	5
6							2.011	71.0	.312	11.0	.085	3.0	.164	5.8	6
7							1.897	67.0	.272	9.6	.082	2.9	.136	4.8	7
8							1.869	66.0	.263	9.3	.079	2.8	.113	4.0	8
9							1.841	65.0	.238	8.4	.079	2.8	.181	6.4	9
10							1.558	55.0	.218	7.7	.074	2.6	.272	9.6	10
11							1.416	50.0	.212	7.5	.074	2.6	.198	7.0	11
12					1.303*	46.0	1.303	46.0	.201	7.1	.074	2.6	.150	5.3	12
13					1.558	55.0	1.246	44.0	.193	6.8	.074	2.6	.130	4.6	13
14					1.699	60.0	1.189	42.0	.181	6.4	.074	2.6	.119	4.2	14
15					1.586	56.0	1.104	39.0	.176	6.2	.074	2.6	.102	3.6	15
16					1.303	46.0	.991	35.0	.164	5.8	.079	2.8	.096	3.4	16
17					1.161	41.0	.935	33.0	.159	5.6	.074	2.6	.093	3.3	17
18					1.218	43.0	.963	34.0	.150	5.3	.074	2.6	.085	3.0	18
19					1.331	47.0	.935	33.0	.144	5.1	.074	2.6	.085	3.0	19
20					1.558	55.0	.963	34.0	.136	4.8	.074	2.6	.082	2.9	20
21					1.812	64.0	.935	33.0	.130	4.6	.093	3.3	.082	2.9	21
22					1.784	63.0	.935	33.0	.125	4.4	.096	3.4	.079	2.8	22
23					1.529	54.0	.821	29.0	.119	4.2	.082	2.9	.079	2.8	23
24					1.246	44.0	.708	25.0	.113	4.0	.079	2.8	.074	2.6	24
25					1.104	39.0	.623	22.0	.102	3.6	.085	3.0	.074	2.6	25
26					1.048	37.0	.566	20.0	.102	3.6	.082	2.9	.074	2.6	26
27					1.161	41.0	.623	22.0	.102	3.6	.079	2.8	.079	2.8	27
28					1.331	47.0	.991	35.0	.102	3.6	.079	2.8	.079	2.8	28
29					1.473	52.0	.736	26.0	.096	3.4	.079	2.8	.074	2.6	29
30					1.444	51.0	.821	29.0	.096	3.4	.074	2.6	.074	2.6	30
31					1.359	48.0			.096	3.4	.074	2.6			31
MEAN					1.400	49.5	1.196	42.2	.274	9.7	.081	2.9	.101	3.6	MEAN
DAM³					2418.		3098.		732.		216.		263.		DAM³
AF						1960.		2512.		594.		175.		213.	AF

* Beginning of Record

Diversion Number	Owner	m^3/s	cfs
1, 2, 29	Fuglistaler	0.071	2.50
3, 30,	Danielson	0.059	2.08
4, 33, 35	Lewis	0.066	2.33
5, 7, 8, 10	J. H. Ranch Inc.	0.060	2.10
11	MacGowen, Byers	0.067	2.36
16	Intl. Paper Co., Thompson	0.002	0.06
17	Beckman, J.A.F.M. Co., Fowles	0.207	7.32
18	Wilson	0.014	0.49
19	S. P. Land Co.	0.004	0.14

Diverson Number	Owner	m^3/s	cfs
20	Oxley, Larsen, Jennings	0.006	0.23
23, 40	Jennings	0.047	1.65
24	Wilson	0.003	0.12
36	Larsen	0.007	0.25
43	Oxley, Beckman, Webster	0.128	4.53
44	Oxley, Beckman	0.059	2.09
47	Oxley, Beckman, Webster	0.022	0.76
48	Spencer	0.022	0.76

▲ Watermaster installed recorder station



DIVERSIONS FROM FRENCH CREEK WATERMASTER SERVICE AREA

GOOSE VALLEY CREEK WATERMASTER SERVICE AREA

The Goose Valley Creek service area is situated in the northeast part of Shasta County, 10 kilometres (6 miles) northwest of the town of Burney.

Basis of Service

The Goose Valley Creek watermaster service area, which consists of Lake Margaret (formerly known as Haynes Reservoir), was created on January 14, 1976.

The State Water Resources Control Board granted License 8943 to store 7 900 square hectometres (6,400 acre-feet) between about November 1 and April 1 of each year and a maximum withdrawal of 5 000 dam^3 (4,000 A.F) in any one year.

In the matter of License 8943 before the Water Resources Control Board, a stipulation and agreement dated December 9, 1975, between Pacific Gas and Electric Company and John and Margaret Casey, owners of Lake Margaret, is the basis for watermaster service between November 1 and June 1 of each year.

1978 Distribution

Watermaster service began for Lake Margaret on November 1, 1977. Kenneth E. Morgan, Water Resources Engineering Associate was watermaster.

The following is a summary of Lake Margaret operations from November 1, 1977 to December 31, 1978.

LAKE MARGARET OPERATIONS

Date	Actual Storage dam^3	Actual Storage A/F	Right to Store dam^3	Right to Store A/F
11/1/77	401	325	10	8
11/30/77	602	488	23	19
12/31/77	887	719	1 010	818
1/31/78	2 350	1,900	110	89
2/28/78	2 880	2,330	1 120	909
3/31/78	3 430	2,780	1 790	1,450[1/]
4/30/78	5 220	4,230	839	680[1/]
5/31/78	6 060	4,910		
Period of Release for Irrigation				
11/1/78	3 080	2,500	0	0
12/1/78	3 370	2,732	0	0
12/31/78	3 160	2,560		

1/ Regulatory storage for irrigation.

HAT CREEK WATERMASTER SERVICE AREA

The Hat Creek service area is in the eastern part of Shasta County, north of Lassen Volcanic National Park. The maps, Figures 10 through 10c, pages 55 through 58, show the Hat Creek service area and stream system, including locations of the diversions of the upper and lower user groups.

Hat Creek, which flows in a northerly direction through the area, is the only source of water supply in the service area. The place of use is Hat Creek Valley, which is approximately 32 kilometres (20 miles) long and 3.2 km (2 miles) wide, extending northward from about 4.8 km (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 outcroppings of volcanic rocks.

Basis of Service

Water from Hat Creek 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 County Superior Court. Decree No. 5724 established irrigation and nonirrigation allotments for 18 periods of rotation between "upper" and "lower" user groups for the period of May 1 to October 28 annually. Decree No. 7858 established three allotments for continuous irrigation, May 1 through October 28, and allotments for the period 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 terminating at 6 a.m., October 28. All water rights are of the same priority, with the surplus flows distributed according to the users that are on rotation. The upper users' water rights require 4 380 m^3/s (154.7 cubic feet per second) and lower users require 4 715 m^3/s (166.5 cfs). The lower users require more because of additional channel loss. When the upper users are being served, the lower users receive a minimum flow for stock water.

Water Supply

The water supply of Hat Creek comes from snowmelt runoff from Lassen Peak and from large springs. Snowmelt normally creates a high flow during May and June, but the substantial portion of the summer supply comes from large springs which decrease only slightly in output. Only after a series of dry years does the flow of these springs fall much below 75 percent of total allotments.

Method of Distribution

Most irrigation in the area is accomplished by wild flooding. Large heads of water are used to cover the land rapidly, thereby preventing excessive loss from percolation in the extremely porous soil. Diversion dams constructed across the creek serve to 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. A few domestic rights are met by pumping directly from Hat Creek.

1978 Distribution

Watermaster service was provided from May 1 to September 30 with James C. Scheler, Assistant Engineer, Water Resources, succeeding Seth Barrett on May 31 as watermaster. The water supply afforded deliveries of 150 percent at the start of the season and gradually decreased until, on July 20, the upper

users were allocated 100 percent. Subsequent rotation allotments to the upper users were 83, 82 and 80 percent of their water rights.

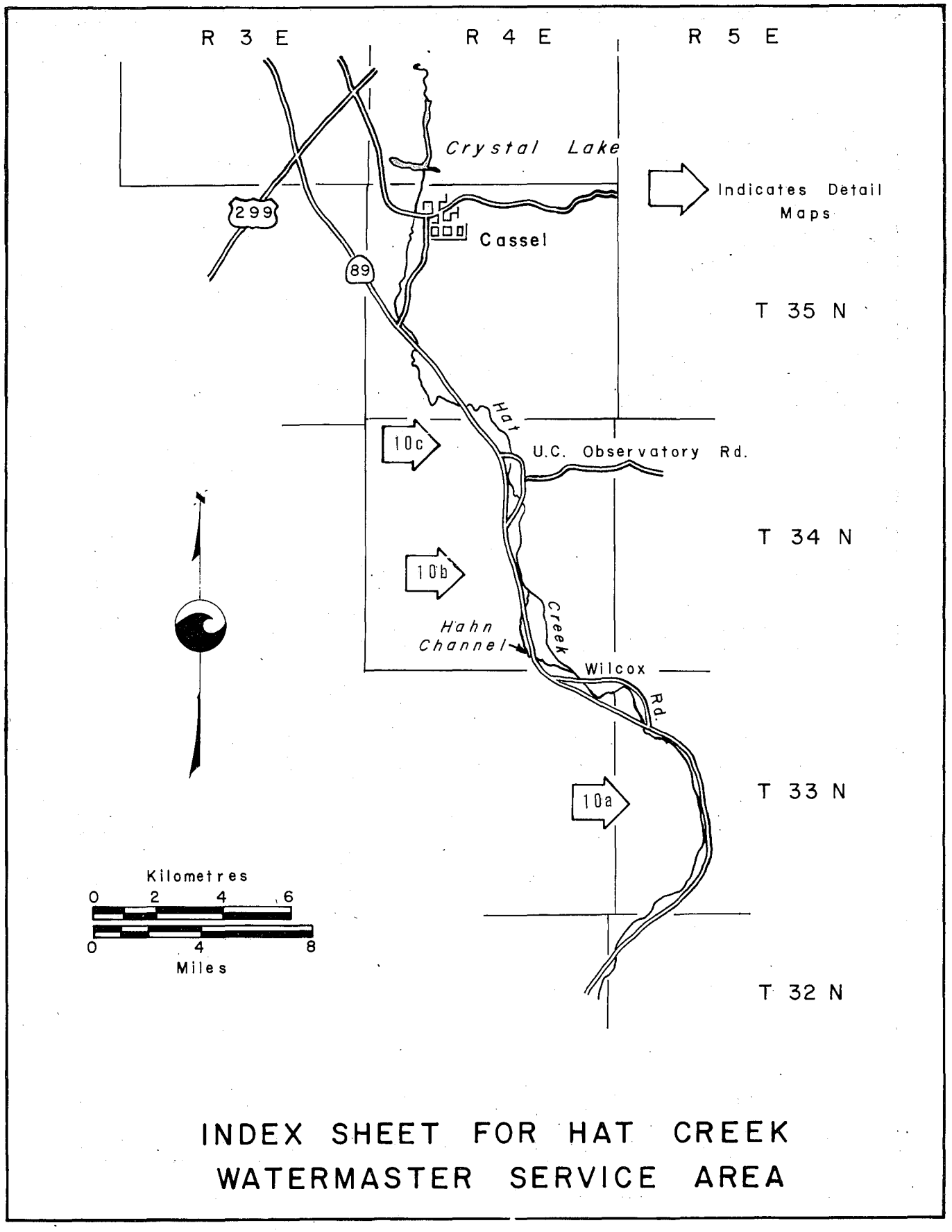
As with the upper users, the lower users received amounts ranging downward from 150 percent at the start of the season to 100 percent on July 10. During their rotation period beginning July 30, they were allocated 80 percent and all subsequent allotments to the lower users were at 75 percent of their water rights.

HAT CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 15
HAT CREEK NEAR HAT CREEK

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1	3.342	118.0	4.191	148.0	4.191	148.0	6.202	219.0	5.749	203.0	4.106	145.0	3.455	122.0	1
2	3.342	118.0	3.993	141.0	4.276	151.0	5.834	206.0	5.636	199.0	4.078	144.0	3.427	121.0	2
3	3.370	119.0	3.823	135.0	4.191	148.0	6.089	215.0	5.409	191.0	4.021	142.0	3.455	122.0	3
4	3.512	124.0	3.767	133.0	4.333	153.0	6.429	227.0	5.352	189.0	3.993	141.0	3.398	120.0	4
5	3.540	125.0	3.710	131.0	4.248	150.0	6.910	244.0	5.296	187.0	3.965	140.0	3.427	121.0	5
6	3.512	124.0	3.710	131.0	4.135	146.0	7.392	261.0	5.381	190.0	3.908	138.0	3.597	127.0	6
7	3.455	122.0	3.710	131.0	4.191	148.0	7.505	265.0	5.437	192.0	3.880	137.0	3.483	123.0	7
8	3.427	121.0	3.653	129.0	4.361	154.0	7.505	265.0	5.239	185.0	3.880	137.0	3.568	126.0	8
9	3.427	121.0	3.653	129.0	4.644	164.0	7.901	279.0	5.324	188.0	3.795	134.0	3.993	141.0	9
10	3.398	120.0	3.682	130.0	4.984	176.0	7.618	269.0	5.437	192.0	3.710	131.0	4.361	154.0	10
11	3.455	122.0	3.738	132.0	5.352	189.0	7.080	250.0	5.324	188.0	3.710	131.0	3.852	136.0	11
12	3.427	121.0	3.823	135.0	5.352	189.0	6.967	246.0	5.154	182.0	3.710	131.0	3.767	133.0	12
13	3.427	121.0	3.823	135.0	5.749	203.0	7.052	249.0	5.041	178.0	3.710	131.0	3.738	132.0	13
14	3.398	120.0	3.852	136.0	6.627	234.0	6.995	247.0	5.013	177.0	3.682	130.0	3.738	132.0	14
15	3.398	120.0	3.823	135.0	7.108	251.0	6.570	232.0	5.069	179.0	3.653	129.0	3.682	130.0	15
16	3.398	120.0	3.795	134.0	5.749	203.0	6.655	235.0	5.013	177.0	3.568	126.0	3.682	130.0	16
17	3.427	121.0	3.738	132.0	6.627	234.0	6.230	220.0	4.843	171.0	3.540	125.0	3.682	130.0	17
18	3.455	122.0	3.682	130.0	7.108	251.0	6.457	228.0	4.758	168.0	3.597	127.0	3.682	130.0	18
19	3.455	122.0	3.682	130.0	5.749	203.0	6.542	231.0	4.729	167.0	3.653	129.0	3.682	130.0	19
20	3.483	123.0	3.710	131.0	5.494	194.0	6.542	231.0	4.673	165.0	3.738	132.0	3.682	130.0	20
21	3.568	126.0	3.653	129.0	5.692	201.0	6.429	227.0	4.616	163.0	3.710	131.0	3.653	129.0	21
22	3.653	129.0	3.625	128.0	6.004	212.0	6.485	229.0	4.531	160.0	3.823	135.0	3.653	129.0	22
23	3.653	129.0	3.625	128.0	6.230	220.0	6.457	228.0	4.475	158.0	3.767	133.0	3.625	128.0	23
24	3.625	128.0	3.682	130.0	6.429	227.0	6.400	226.0	4.418	156.0	3.738	132.0	3.625	128.0	24
25	3.597	127.0	3.880	137.0	6.400	226.0	6.145	217.0	4.361	154.0	3.738	132.0	3.597	127.0	25
26	3.625	128.0	3.965	140.0	6.202	219.0	5.976	211.0	4.333	153.0	3.738	132.0	3.597	127.0	26
27	3.682	130.0	3.880	137.0	5.352	189.0	5.721	202.0	4.305	152.0	3.710	131.0	3.597	127.0	27
28	3.710	131.0	4.050	143.0	4.956	175.0	5.919	209.0	4.220	149.0	3.653	129.0	3.597	127.0	28
29	3.795	134.0	4.050	143.0	4.814	170.0	5.919	209.0	4.135	146.0	3.483	123.0	3.597	127.0	29
30	3.908	138.0	4.220	149.0	4.956	175.0	5.834	206.0	4.163	147.0	3.540	125.0	3.568	126.0	30
31	4.163	147.0			5.551	196.0			4.191	148.0	3.483	123.0			31
MEAN	3.536	134.4	3.806	134.4	5.389	190.3	6.592	232.8	4.891	172.7	3.751	132.5	3.649	128.8	MEAN
DAM^3	9465.		9859.		14424.		17075.		13091.		10040.		9451.		DAM^3
AF		7673.		7993.		11694.		13842.		10613.		8139.		7662.	AF

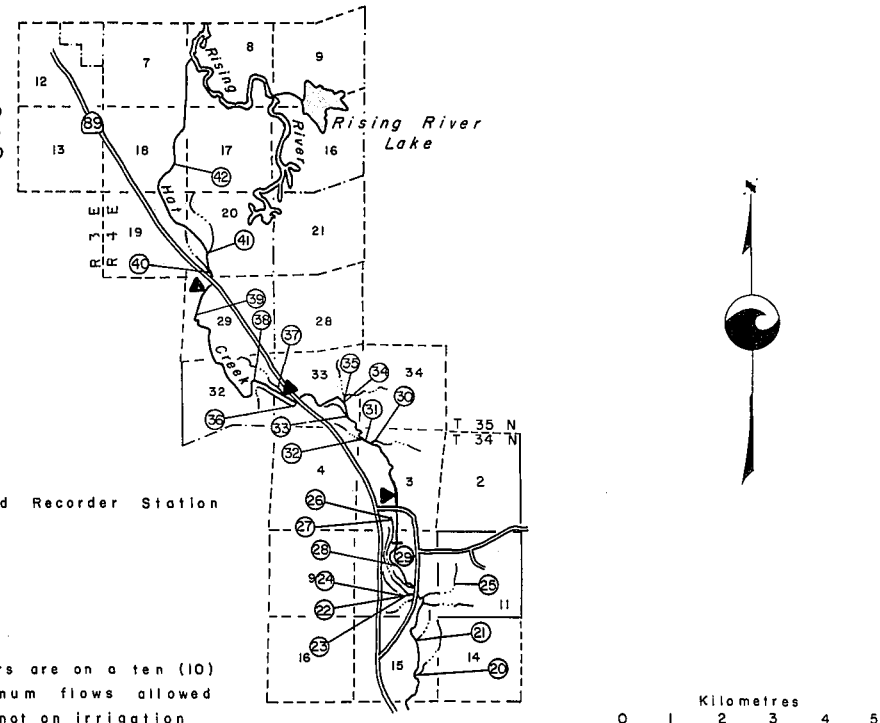
Figure 10



INDEX SHEET FOR HAT CREEK WATERMASTER SERVICE AREA

Diversion Number	Ditch	m^3/s	cfs
20	H. & F. Lonquist Upper	0.127	4.50***
21	H. & F. Lonquist Lower		
22	Reiger	0.198	7.00**
23	Harry Lonquist	0.071	2.50**
24	Morris Upper	0.382	13.50*
25	Morris Lower	0.630	22.25*
26	H. Lonquist–Reynolds–Bidwell	0.425	15.00**
27	H. Lonquist–Reynolds–East Side	0.099	3.50**
28	H. Lonquist–Reynolds Middle	0.014	0.50
29	Reynolds Diversion	0.113	4.00**
30	Jeff Bone Upper (Indian, not in WSA)	0.014	0.50
31	Jeff Bone Lower (Indian, not in WSA)	0.014	0.50
32	Lee Bone (Indian, not in WSA)	0.028	1.00
33	Julia Wilson (Indian, not in WSA)	0.156	5.50
34	Sam Williams (Indians, not in WSA)	0.021	0.75
35	Joe Wilson (Indian, not in WSA)	0.078	2.75
36	Ellen Brown Upper	0.085	3.00
37	W.W. Brown–Ellen Brown	0.326	11.50
38	Ellen Brown Lower	0.092	3.25
39	Charlie Snook	0.014	0.50
40	Doyel	0.566	20.00
41	Bertha Giessner	0.290	10.25
42	Otto Giessner	0.226	8.00

Diversion Number	Direct Diversions from Hat Creek	m^3/s	cfs
37a	Hat Creek	0.071	2.50
40a	Hat Creek	0.177	6.25
42a	Hat Creek	0.227	8.00



* Upper User

** Upper and Lower User

*** Total Water Right

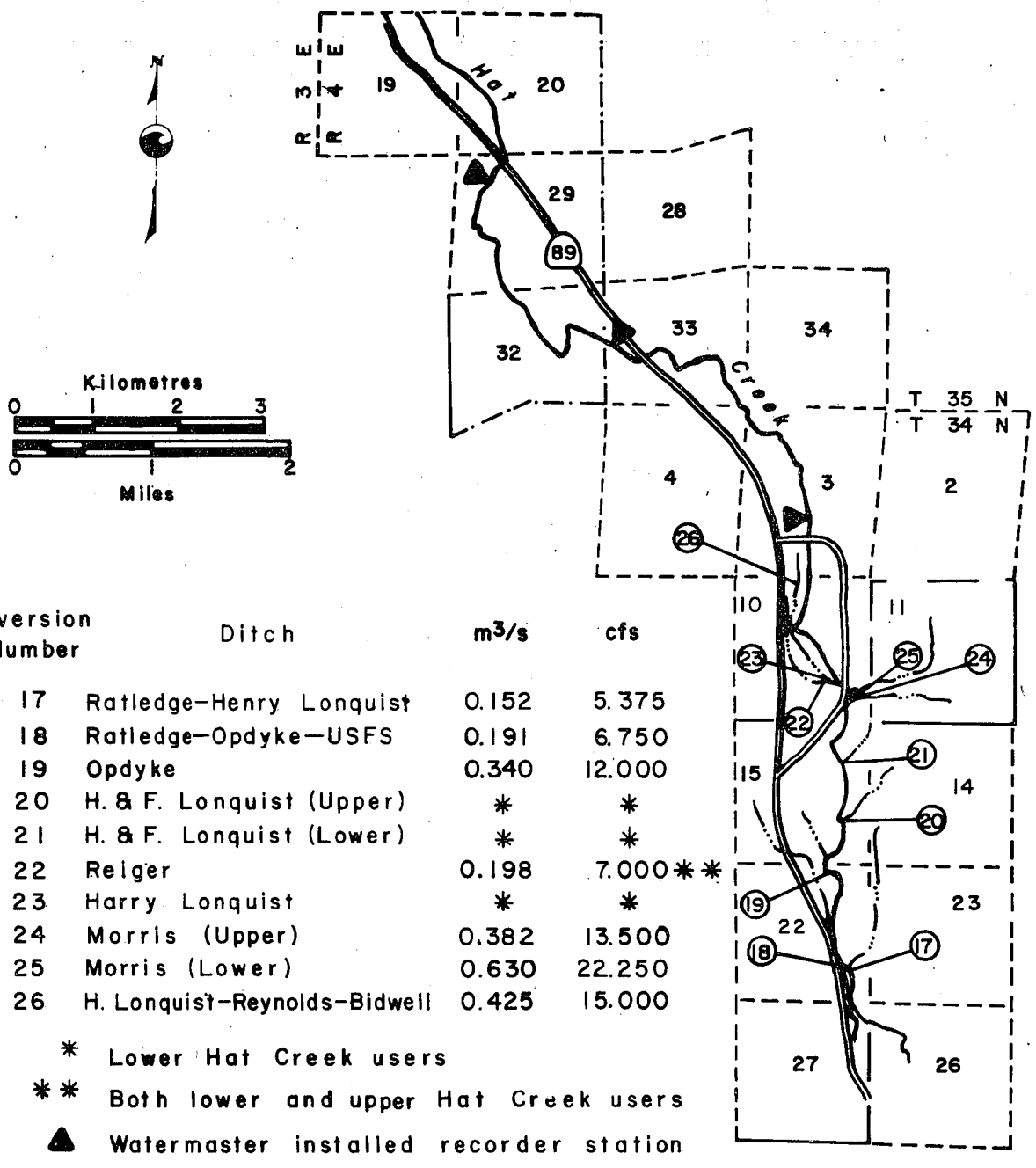
▲ Watermaster Installed Recorder Station

Upper and Lower Users are on a ten (10) day rotation. Minimum flows allowed in each ditch when not on irrigation schedule.

The above water rights do not include the mud flow right defined in paragrahs 21 and 22 of the Hat Creek Decree.

DIVERSIONS FROM LOWER HAT CREEK
HAT CREEK WATERMASTER SERVICE AREA

Figure 1.0b



Diversion Number	Ditch	m^3/s	cfs
17	Ratledge–Henry Lonquist	0.152	5.375
18	Ratledge–Opdyke–USFS	0.191	6.750
19	Opdyke	0.340	12.000
20	H. & F. Lonquist (Upper)	*	*
21	H. & F. Lonquist (Lower)	*	*
22	Reiger	0.198	7.000**
23	Harry Lonquist	*	*
24	Morris (Upper)	0.382	13.500
25	Morris (Lower)	0.630	22.250
26	H. Lonquist–Reynolds–Bidwell	0.425	15.000

* Lower Hat Creek users

** Both lower and upper Hat Creek users

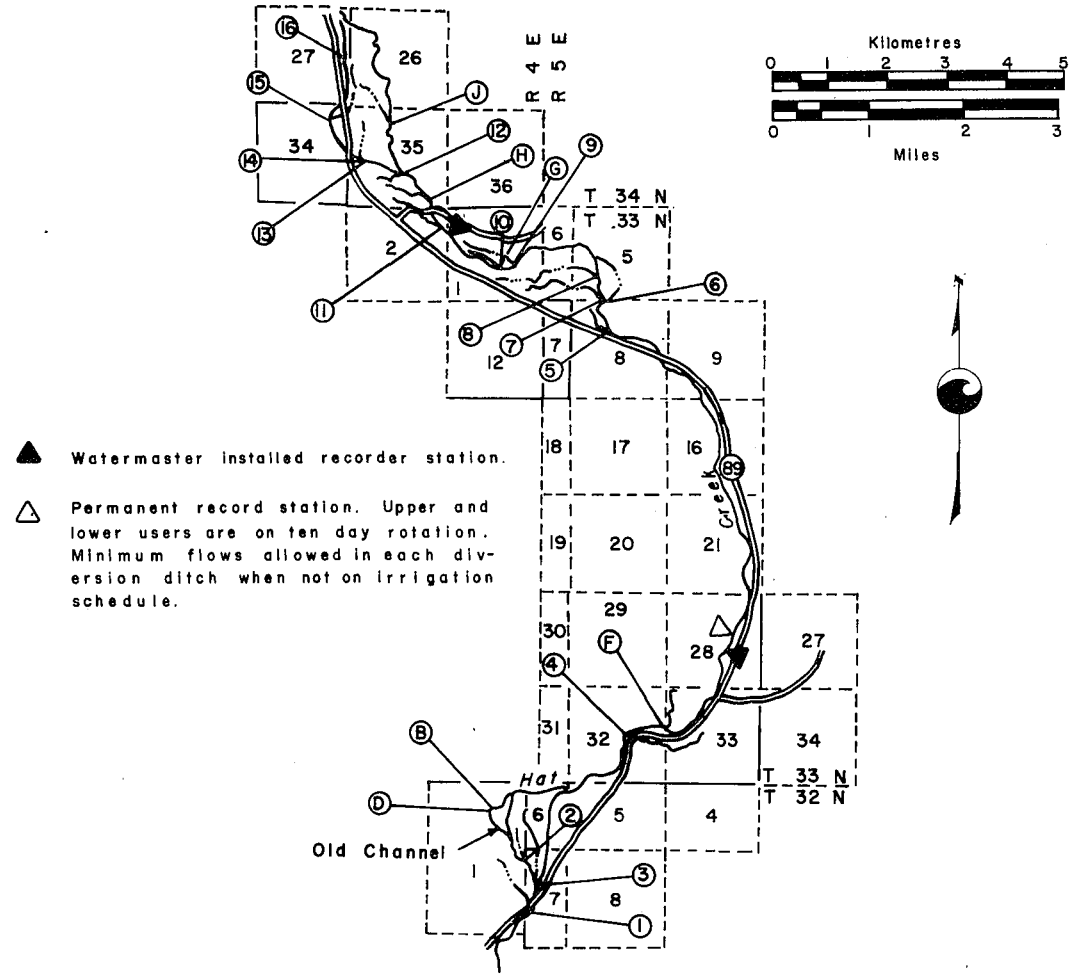
▲ Watermaster installed recorder station

The above water rights do not include the mud flow right defined in paragrahs 21 and 22 of the Hat Creek Decree.

DIVERSIONS FROM LOWER UPPER HAT CREEK HAT CREEK WATERMASTER SERVICE AREA

Diversion Number	Ditch	m^3/s	cfs	Diversion Number	Ditch	m^3/s	cfs
1	Harvey Wilcox Upper	0.060	2.125	9	Rube Wilcox-Davis	0.142	5.000
2	Harvey Wilcox Lower			10	Harry Wilcox Lower	0.028	1.000
3	Stevenson	0.067	2.375	11	Valentine Upper	0.014	0.500
4	Hall	0.078	2.750	12	Valentine Lower	0.042	1.500
5	Aleck Brown	0.014	0.500	13	Heryford Upper	0.014	0.500
6	Hawkins	0.064	2.250	14	Heryford Middle	0.042	1.500
7	Harry Wilcox Upper	0.202	7.125	15	Heryford Lower	0.014	0.500
8	Harry Wilcox Middle	0.634	22.375	16	Edith Snook	0.152	5.375
B	Consterdine	0.016	0.560	F	Shearon	0.027	0.960
D	Stevenson	0.220	7.781	G,H	Grant Lower	0.014	0.500
D,3	Total Allottment	0.293	10.356	J	Domestic	0.014	0.500

The above water rights do not include the mud flow right defined in paragrahs 21 and 22 of the Hat Creek Decree.



DIVERSIONS FROM UPPER HAT CREEK
HAT CREEK WATERMASTER SERVICE AREA

INDIAN CREEK WATERMASTER SERVICE AREA

The Indian Creek service area is located in the north central part of Plumas County, in the vicinity of Greenville.

The major sources of supply in the service area are Indian Creek and two tributaries, Wolf Creek and Lights Creek. Indian Creek and its minor tributaries rise in the mountains east of the service area. It then flows through Genesse and Indian valleys and past Taylorsville and Crescent Mills to its confluence with 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 50 square kilometres (20) square miles). The average elevation is about 1 100 metres (3,500 feet).

Maps of the whole area and of each major stream system within the Indian Creek service area are presented as Figures 11 through 11c, pages 61 through 64.

Basis of Service

The Indian Creek watermaster service area was created on February 19, 1951, to include, 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 subsequent to 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 currently 47 water right owners in the service area with total allotments amounting to 2.7234 m^3/s (96.715 cfs.) Indian Creek decree establishes three priority classes for each of the major stream systems within the service area.

Water Supply

The water supply in the Indian Creek service area comes mainly from snowmelt runoff, 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, with the exception of some tributaries, have sufficient flow to supply all allotments until July 1. After these dates, flows decrease throughout the season until, by the end of August, only a small portion of allotments is available.

A record of the daily mean discharge of Indian Creek, near Taylorsville, where Indian Creek enters the valley, is presented in Table 16, page 60.

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 few sprinkler systems are in use.

1978 Distribution

Watermaster service began in the Indian Creek service area on May 30, and continued until October 16, with Earl F. Stower, Water Resources Technician II, as watermaster. The supply in the service area was a little above average during the season.

Wolf Creek. The flow in Wolf Creek was sufficient to satisfy all allotments (three priorities) until July 26. It gradually decreased until only first and 25 percent of second priorities were available by August 24.

Lights Creek and Tributaries. The flow in Lights Creek was sufficient to satisfy all allotments (three priorites) through July. Surface flow at the county road stopped by the middle of August. On Cooks Creek, the surface flow at Diversion No. 81 did not stop during the season.

Indian Creek. Indian Creek's flow was sufficient to satisfy all allotments (three priorites) until the end of July. The supply dropped to a low of 70 percent of second priority by August 15. No water was diverted at Diversion No. 55 Accretions below Diversion No. 55 were sufficient to meet other downstream allotments.

Special Occurrences

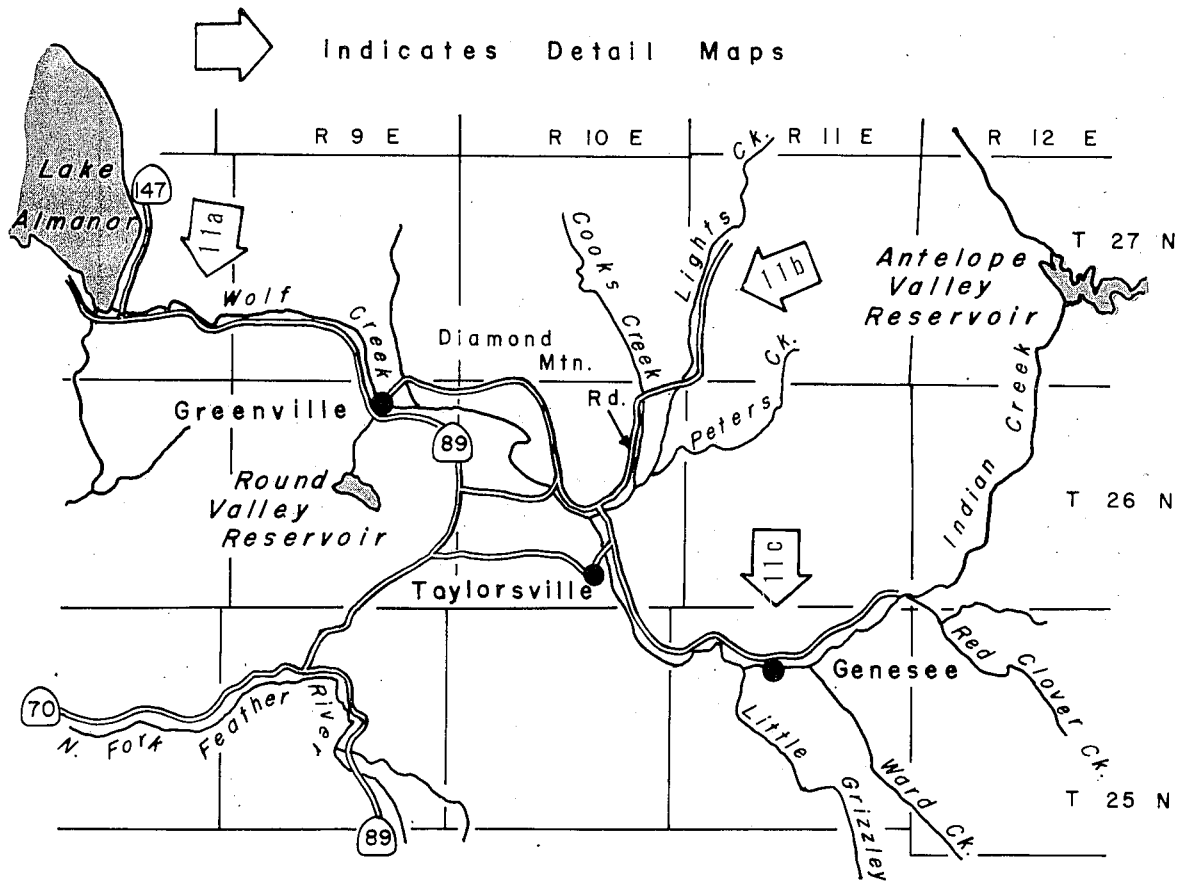
A trial reoperation of Antelope Dam for enchancement of downstream fish habitat was initiated. Minimum releases were raised to .60 m^3/s (20 cfs). The increased release was routed by Diversion No. 36 and Diversion No. 54, the Millrace Dam. No other routing was required.

INDIAN CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 16
INDIAN CREEK NEAR TAYLORSVILLE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1	14.188	501.0	52.675	1860.0	19.428	686.0	13.820	488.0	3.568	126.0	1.444	51.0	1.331	47.0	1
2	17.219	608.0	41.064	1450.0	18.351	648.0	13.084	462.0	3.427	121.0	1.444	51.0	1.331	47.0	2
3	22.769	804.0	32.851	1160.0	18.153	641.0	12.801	452.0	3.370	119.0	1.416	50.0	1.303	46.0	3
4	34.267	1210.0	28.320	1000.0	18.153	641.0	12.999	459.0	3.228	114.0	1.388	49.0	1.303	46.0	4
5	60.605	2140.0	24.384	861.0	17.020	601.0	13.254	468.0	3.030	107.0	1.388	49.0	1.614	57.0	5
6	52.675	1860.0	23.222	820.0	15.718	555.0	13.622	481.0	3.030	107.0	1.416	50.0	1.897	67.0	6
7	43.896	1550.0	20.390	720.0	14.556	514.0	13.367	472.0	2.974	105.0	1.444	51.0	1.728	61.0	7
8	45.029	1590.0	9.629	340.0	15.038	531.0	12.801	452.0	2.945	104.0	1.444	51.0	1.643	58.0	8
9	41.914	1480.0	10.903	385.0	15.803	558.0	12.291	434.0	2.719	96.0	1.444	51.0	1.643	58.0	9
10	39.082	1380.0	17.417	615.0	16.709	590.0	11.328	400.0	2.577	91.0	1.388	49.0	1.812	64.0	10
11	39.082	1380.0	21.155	747.0	17.020	601.0	10.082	356.0	2.520	89.0	1.359	48.0	1.614	57.0	11
12	31.435	1110.0	26.083	921.0	16.822	594.0	9.374	331.0	2.436	86.0	1.388	49.0	1.388	49.0	12
13	25.601	904.0	25.715	908.0	18.040	637.0	8.836	312.0	2.322	82.0	1.388	49.0	1.303	46.0	13
14	24.044	849.0	24.384	861.0	20.957	740.0	8.241	291.0	2.266	80.0	1.388	49.0	1.303	46.0	14
15	23.562	832.0	22.208	787.0	23.562	832.0	7.675	271.0	2.209	78.0	1.388	49.0	1.246	44.0	15
16	25.233	891.0	20.730	732.0	22.175	783.0	6.967	246.0	2.152	76.0	1.388	49.0	1.274	45.0	16
17	30.019	1060.0	19.512	689.0	20.277	716.0	6.570	232.0	2.124	75.0	1.388	49.0	1.388	49.0	17
18	33.418	1180.0	17.219	608.0	18.465	652.0	6.174	218.0	2.067	73.0	1.359	48.0	1.501	53.0	18
19	37.666	1330.0	15.718	555.0	17.728	626.0	5.862	207.0	1.954	69.0	1.359	48.0	1.529	54.0	19
20	41.914	1480.0	14.670	518.0	17.530	619.0	5.551	196.0	1.954	69.0	1.359	48.0	1.529	54.0	20
21	48.144	1700.0	16.709	590.0	18.040	637.0	5.296	187.0	1.897	67.0	1.331	47.0	1.529	54.0	21
22	53.242	1880.0	15.519	548.0	18.153	641.0	5.041	178.0	1.897	67.0	1.331	47.0	1.501	53.0	22
23	56.923	2010.0	13.990	494.0	18.040	637.0	4.758	168.0	1.841	65.0	1.359	48.0	1.444	51.0	23
24	50.693	1790.0	13.622	481.0	17.105	604.0	4.531	160.0	1.841	65.0	1.388	49.0	1.416	50.0	24
25	43.046	1520.0	14.472	511.0	16.511	583.0	4.248	150.0	1.812	64.0	1.359	48.0	1.388	49.0	25
26	42.763	1510.0	15.916	562.0	15.038	531.0	4.135	146.0	1.728	61.0	1.331	47.0	1.388	49.0	26
27	39.082	1380.0	16.114	569.0	13.905	491.0	4.191	148.0	1.699	60.0	1.331	47.0	1.359	48.0	27
28	40.498	1430.0	16.511	583.0	14.103	498.0	4.248	150.0	1.671	59.0	1.331	47.0	1.331	47.0	28
29	41.347	1460.0	16.822	594.0	15.038	531.0	3.936	139.0	1.643	58.0	1.303	46.0	1.331	47.0	29
30	43.046	1520.0	17.728	626.0	15.123	534.0	3.682	130.0	1.614	57.0	1.303	46.0	1.331	47.0	30
31	46.710	1720.0			14.387	508.0			1.529	54.0	1.331	47.0			31
MEAN	38.423	1356.7	20.858	736.5	17.321	611.6	8.292	292.8	2.324	82.1	1.377	48.6	1.457	51.4	MEAN
DAM^3	102841.		54026.		46360.		21478.		6221.		3685.		3773.		DAM^3
AF		83374.		43799.		37584.		17413.		5043.		2987.		3059.	AF

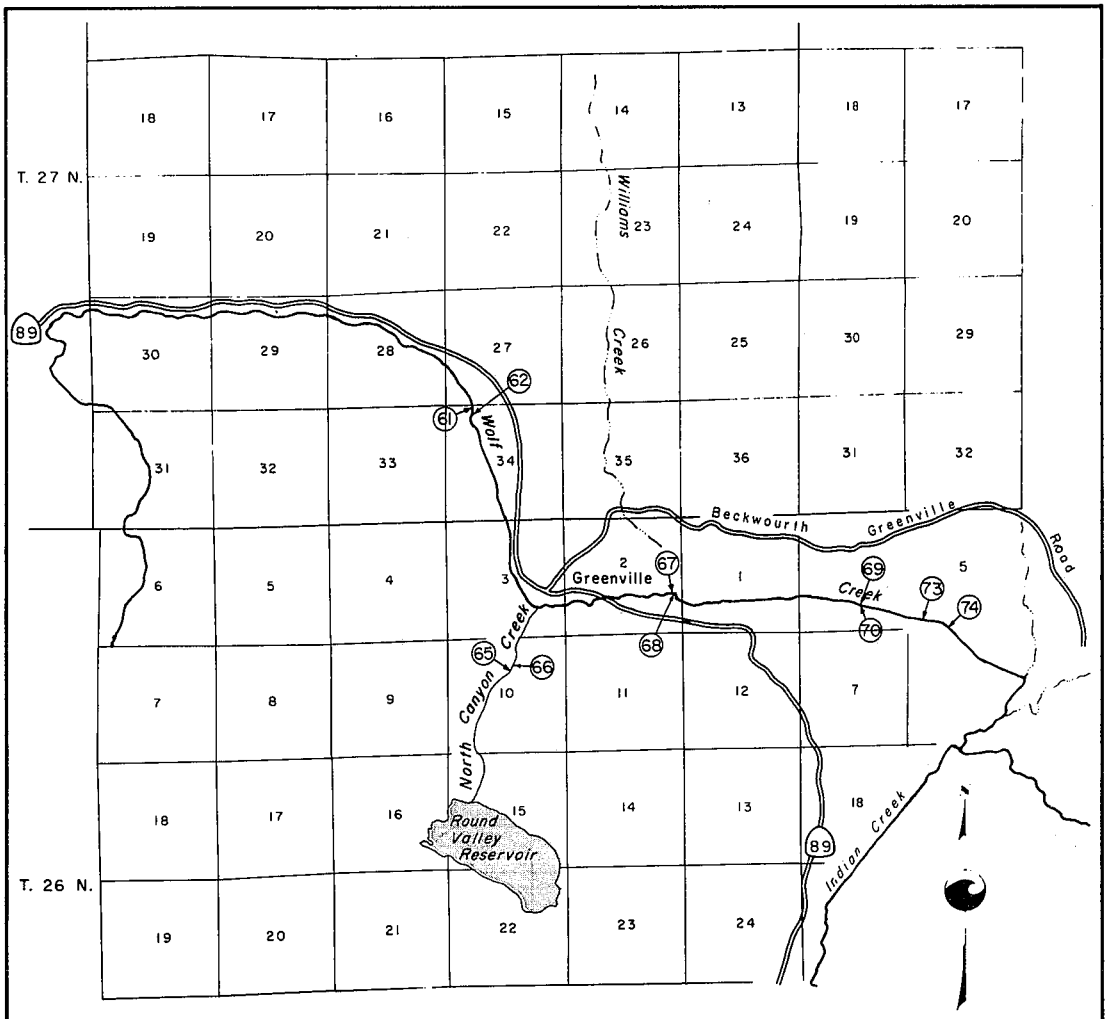
Figure 11



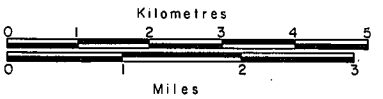
(Served by: Department Water Resources—Central District, Watermaster Service.)

INDEX MAP
DIVERSIONS FROM INDIAN CREEK
WATERMASTER SERVICE AREA

Figure 11a



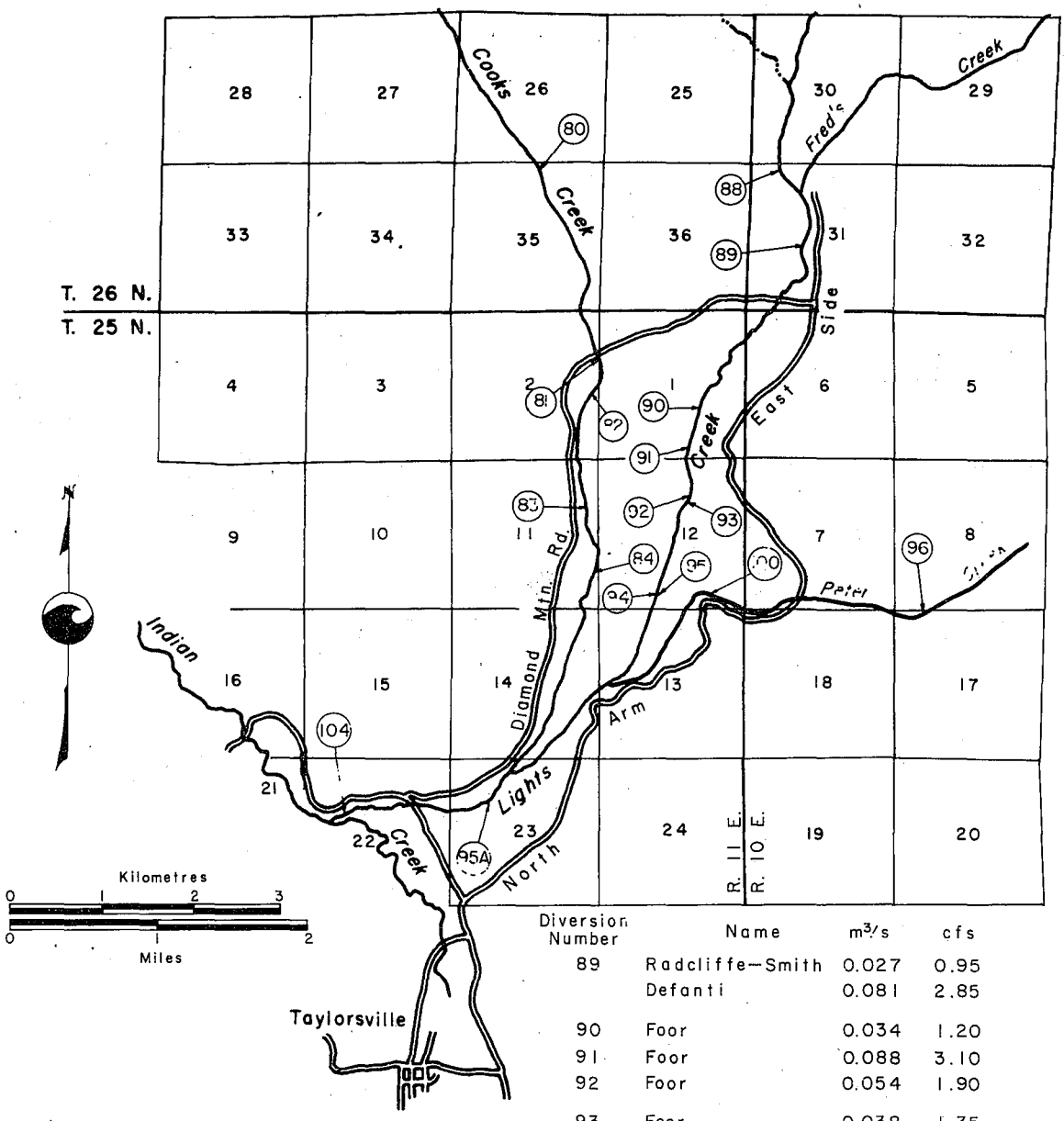
DIVERSION NUMBER	Name	m³/s	cfs
61	McMullen	0.0028	0.10
62	Wattenberg	0.0079	0.28
	Hollingsworth	0.0198	0.70
65	Bidwell	0.0057	0.20
66	Embree	0.0051	0.18
	Rilea	0.0020	0.07
	Colagross	0.0006	0.02
	Lanning	0.0004	0.013
	Trombly	0.0010	0.034
	Santoni	0.0052	0.183
67	Leininger	0.0198	0.70
67 (cont.)	Duensing	0.0255	0.90
	Posch	0.0765	2.70
	Meyer	0.0198	0.70
	Thompson	0.0228	0.805
	Meyer	0.0052	0.183
	Micheal	0.0011	0.04
	Hatch	0.0006	0.022
68	Frederickson	0.0637	2.25
69	Sheehan	0.0496	1.75
70	Guidici	0.1090	3.85
73	Wheelock	0.0283	1.00
74	Rogers	0.0396	1.40



(Served by: Department Water Resources—Central District, Watermaster Service.)

DIVERSIONS FROM WOLF CREEK
INDIAN CREEK WATERMASTER SERVICE AREA

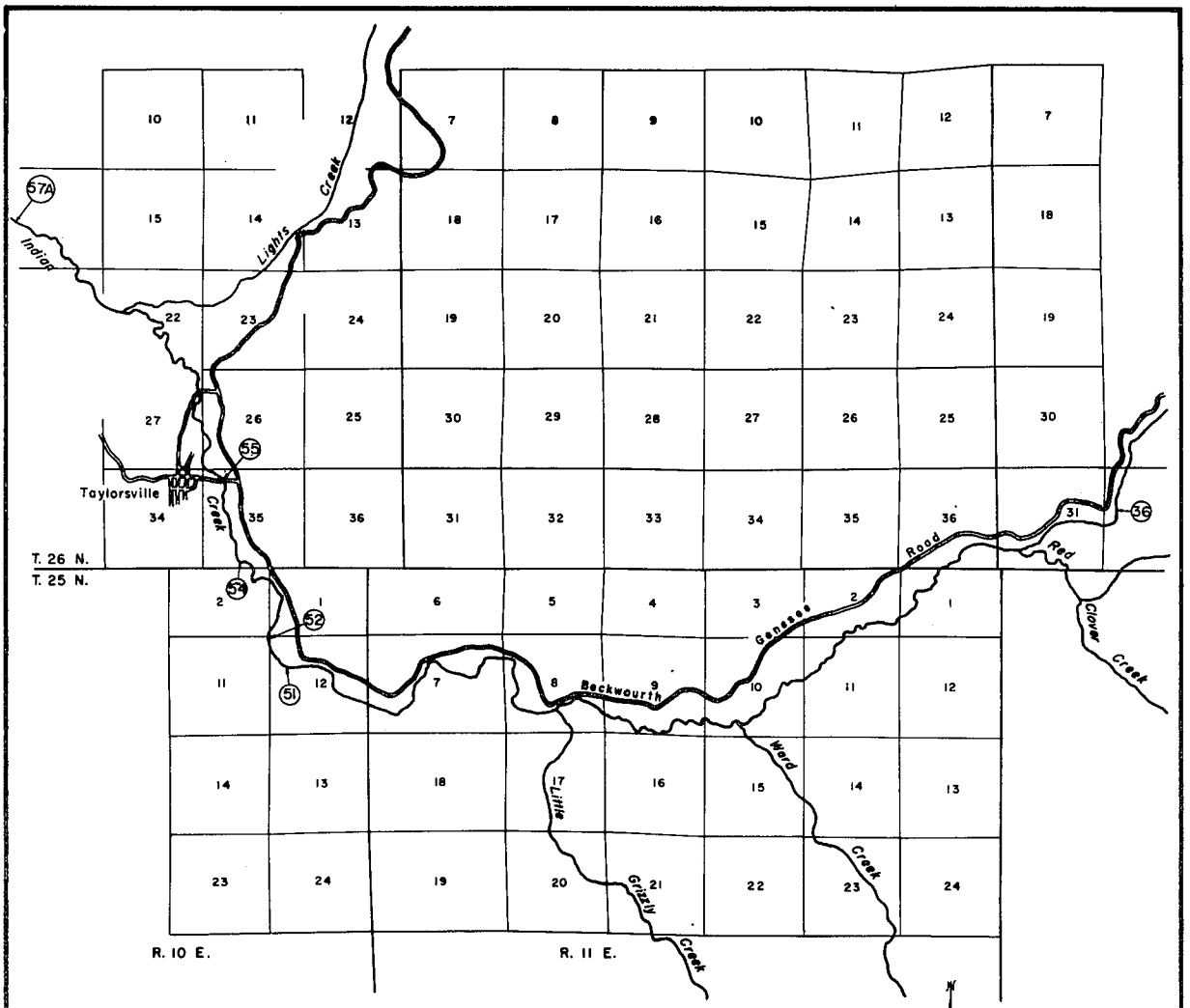
(Served by: Department Water Resources—Central District, Watermaster Service.)



Diversion Number	Name	m³/s	cfs
80	American Exploratory Co.	0.042	1.50
8	Radcliffe-Smith	0.028	1.00
82	Foor	0.013	0.45
83	Foor	0.008	0.30
84	Foor	0.013	0.45
88	Foor	0.082	2.90

Diversion Number	Name	m³/s	cfs
89	Radcliffe-Smith	0.027	0.95
	Defanti	0.081	2.85
90	Foor	0.034	1.20
91	Foor	0.088	3.10
92	Foor	0.054	1.90
93	Foor	0.038	1.35
	Peter	0.016	0.55
94	Foor	0.024	0.85
	Adams	0.042	1.475
95	Foor	0.033	1.175
95a	Baker	0.001	0.05
96	Peter	0.057	2.00
100	Foor	0.006	0.20
104	Awbrey	0.005	0.185
	Hunt	0.001	0.015

DIVERSIONS FROM LIGHTS CREEK
INDIAN CREEK WATERMASTER SERVICE AREA



Diversion Number	Name		m³/s	cfs
36	Wilbur		1.565	55.28
51) 52)	Page		0.038	1.33 *
54	Mill Race Ditch		1.198	42.30
	Brown	Scudder		
	Brown	Matz		
	Crenshaw etal	Neer, Eve		
	Foster	Neer, Eve		
	Johnson	Pearce		
	Leininger	Probst		
	Leininger	Young		
55	Baker		0.096	3.40
57a	Neer, F.C.		0.071	2.50

Kilometres 0 1 2 3 4 5
Miles 0 1 2 3

* Diversion at 51 may also be diverted at 52.

(Served by: Department Water Resources — Central District, Watermaster Service.)

DIVERSONS FROM INDIAN CREEK AND UPPER TRIBUTARIES INDIAN CREEK WATERMASTER SERVICE AREA

JUNIPER CREEK WATERMASTER SERVICE AREA

The Juniper Creek service area is situated in the northwest part of Lassen County, south and east of the town of Bieber, in Big Valley (see Figure 3).

Basis of Service

The Juniper Creek watermaster service area which consists of Iverson Reservoir, was created on January 14, 1976. On November 24, 1964, water right application 20916 was granted by the Water Resources Control Board for the storage of 2.2 cubic hectometres (1,800-acre-feet) for Iverson Reservoir.

In the matter of application 20916, a stipulation and agreement, dated July 17, 1964 between applicant John McArthur and the Pacific Gas and Electric Company is the basis of watermaster service. Watermaster service is provided between November 1 and May 1 of each year.

1978 Distribution

Watermaster service began in the Juniper Creek watermaster area on November 1, 1977, with Kenneth E. Morgan, Water Resources Engineering Associate as watermaster.

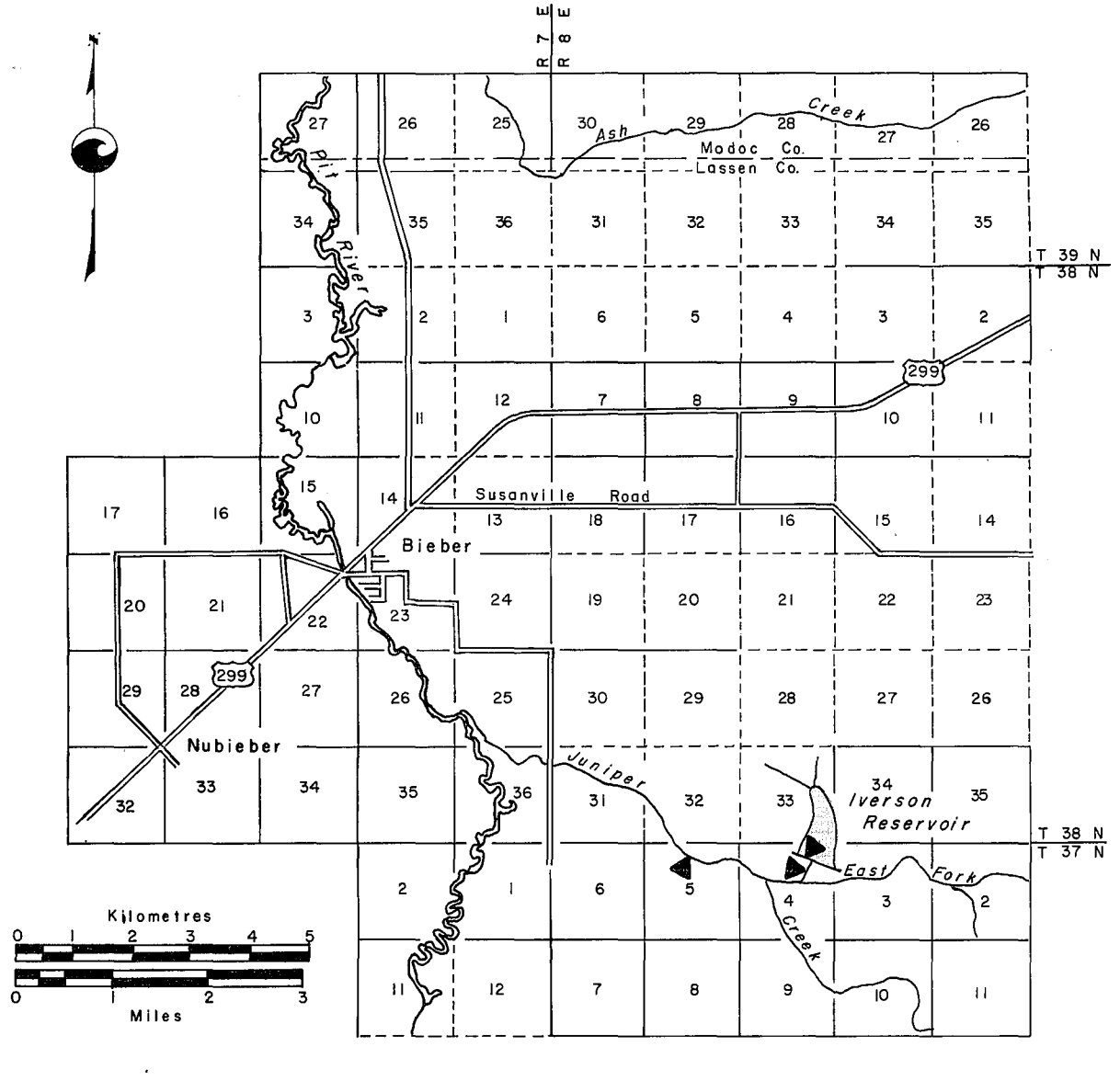
A clarification of the July 17, 1964 stipulation and agreement has not been reached between the owners of Iverson Reservoir and PGandE in regard to the right to store in Iverson Reservoir.

Iverson Reservoir Operations

	Storage		Releases	
Date	dam^3	A/F	dam^3	A/F
11/1.77	0	0	0	0
12/12/77	0	0	0	0
12/31/77	308	250	0	0
1/31/78	767	622	0	0
2/28/78	1 160	938	0	0
4/1/78[1/]	2 220	1,800	1 610	1,305
10/30/78	601	495	0	0
12/1/78	546[2/]	443[2/]	0	0
12/31/78	509[2/]	413[2/]		

1/ Reservoir filled to capacity.

2/ Loss due to seepage and evaporation.



Iverson Reservoir Capacity 2.2 hm^3 (1 800 A/F)

▲ Watermaster installed recorder station

DIVERSIONS FROM IVERSON RESERVOIR JUNIPER CREEK WATERMASTER SERVICE AREA

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

The Middle Fork Feather River service area is located in Sierra Valley, a plateau area on the west slope of the Sierra Nevada Mountains in the eastern portion of Sierra and Plumas Counties.

Major sources of supply for this service area are the Middle Fork Feather River and its tributaries in the Sierra Valley. The area is comprised of 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, Webber Creek and tributaries, West Side Canal, and Fletcher Creek and Spring Channels. The Middle Fork Feather River flows generally north for approximately 25 kilometres (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 25 km (15 miles) long and 15 km (10 miles) wide. The average elevation of the valley floor is 1 500 metres (4,900 ft.).

Maps of the Middle Fork Feather River service area are presented as Figures 13 through 13k, pages 70 through 81.

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; Webber 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 103 water right owners in the service area, with total allotments amounting to 10.536 m^3/s (372.079 cfs).

Water Supply

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

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

Smithneck Creek flow is normally sufficient to supply all allotments until about the middle of May. It then decreases until about June 1 when only first and second priority allotments are available for the rest of the season.

The natural flow of Webber Creek is normally sufficient to supply all allotments until the middle of May. At that time, up to 1.7 m^3/s (60 cfs) is diverted from the Little Truckee River to supplement the flow. This imported water is diverted through the Little Truckee Ditch into Onion Creek and then into Webber 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 the first part of June. The flow then gradually declines throughout the season.

The flow of Fletcher Creek and Spring Channels normally supplies all allotments until July 1. It then gradually declines for the remainder of the season.

Records of the daily mean discharge of Little Truckee Ditch and the Middle Fork Feather River near Portola are presented in Tables 17 and 18, page 69.

Method of Distribution

Wild flooding is employed by most of the water users to irrigate their fields. Small diversion dams are placed in the system 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.

1978 Distribution

Watermaster service began March 15, in the Middle Fork Feather River service area, and continued until September 30. Joe Nessler, Water Resources Engineering Associate, was Supervising Watermaster during this period. Conrad Lahr, Water Resources Technician II, assisted as watermaster. The available supply in the service area was below average during the season.

Little Last Chance Creek. Frenchman Dam and Reservoir began its seventeenth season of operation. An annual contract governing storage, distribution, and sale of water was again negotiated with the Last Chance Creek Water District. Delivery and distribution of water was made in accordance with the provisions of the District's Board of Directors.

Smithneck Creek. Sufficient water was available in the system to satisfy all needs until the first part of May. A two-week rotation schedule for first and second priority users below Loyalton was started July 11, and continued for two rotations. Water was insufficient, therefore, for rotation.

Webber Creek and Tributaries. The natural flow of Webber Creek was enough to supply all allotments (six priorities) until the latter part of May. It decreased for the rest of the season, with only enough water to supply first and part of second priorities. Importation of water from the Little Truckee River began May 22, supplementing the Webber Creek flow, to help satisfy all allotments of the Sierra Valley Water Company shareholders (one priority). A total of 9 930 dam^3 (8,050 acre-feet) of water was diverted through the Little Truckee Ditch up to September 30. This provided sufficient water until about August 1.

West Side Canal Group. The water supply in the West Side Canal Group, consisting of Hamlin, Miller, and Turner Creeks, was enough to satisfy all allotments (five priorities) until about July 1.

Fletcher Creek and Spring Channels. There was ample water for all allotments until the first of August. The flow decreased gradually until first and about 50 percent of second priorities were available by the end of the season.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 17
LITTLE TRUCKEE DITCH AT HEAD

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1							.765	27.0	1.671	59.0	.963	34.0	.116	4.1	1
2							.765	27.0	1.699	60.0	.850	30.0	.110	3.9	2
3							.736	26.0	1.699	60.0	.793	28.0	.105	3.7	3
4							.736	26.0	1.699	60.0	.736	26.0	.099	3.5	4
5							.935	33.0	1.699	60.0	.651	23.0	.312	11.0	5
6							1.331	47.0	1.699	60.0	.538	19.0	.680	24.0	6
7							1.699	60.0	1.671	59.0	.566	20.0	.368	13.0	7
8							1.699	60.0	1.671	59.0	.538	19.0	.269	9.5	8
9							1.671	59.0	1.699	60.0	.510	18.0	.312	11.0	9
10							1.671	59.0	1.728	61.0	.453	16.0	.651	23.0	10
11							1.671	59.0	1.728	61.0	.396	14.0	.453	16.0	11
12							1.671	59.0	1.671	59.0	.368	13.0	.368	13.0	12
13							1.671	59.0	1.614	57.0	.340	12.0	.312	11.0	13
14							1.671	59.0	1.614	57.0	.312	11.0	.368	13.0	14
15							1.671	59.0	1.614	57.0	.278	9.8	.312	11.0	15
16							1.586	56.0	1.529	54.0	.261	9.2	.261	9.2	16
17							1.501	53.0	1.416	50.0	.252	8.9	.232	8.2	17
18							1.501	53.0	1.359	48.0	.232	8.2	.232	8.2	18
19							1.416	50.0	1.501	53.0	.224	7.9	.215	7.6	19
20							1.388	49.0	1.586	56.0	.207	7.3	.207	7.3	20
21							1.388	49.0	1.473	52.0	.201	7.1	.190	6.7	21
22					.425*	15.0	1.388	49.0	1.416	50.0	.201	7.1	.161	5.7	22
23					.736	26.0	1.331	47.0	1.303	46.0	.190	6.7	.153	5.4	23
24					.680	24.0	1.303	46.0	1.189	42.0	.184	6.5	.153	5.4	24
25					.595	21.0	1.416	50.0	1.076	38.0	.176	6.2	.153	5.4	25
26					.566	20.0	1.671	59.0	1.161	41.0	.167	5.9	.144	5.1	26
27					.595	21.0	1.699	60.0	1.529	54.0	.161	5.7	.130	4.6	27
28					.708	25.0	1.699	60.0	1.388	49.0	.144	5.1	.116	4.1	28
29					.680	24.0	1.671	59.0	1.246	44.0	.130	4.6	.116	4.1	29
30					.736	26.0	1.671	59.0	1.133	40.0	.125	4.4	.116	4.1	30
31					.765	27.0			1.048	37.0	.125	4.4			31
MEAN					.649	22.9	1.433	50.6	1.501	53.0	.364	12.8	.247	8.7	MEAN
DAM^3					560.		3712.		4017.		973.		640.		DAM^3
AF						454.		3009.		3257.		789.		519.	AF

* Beginning of Record

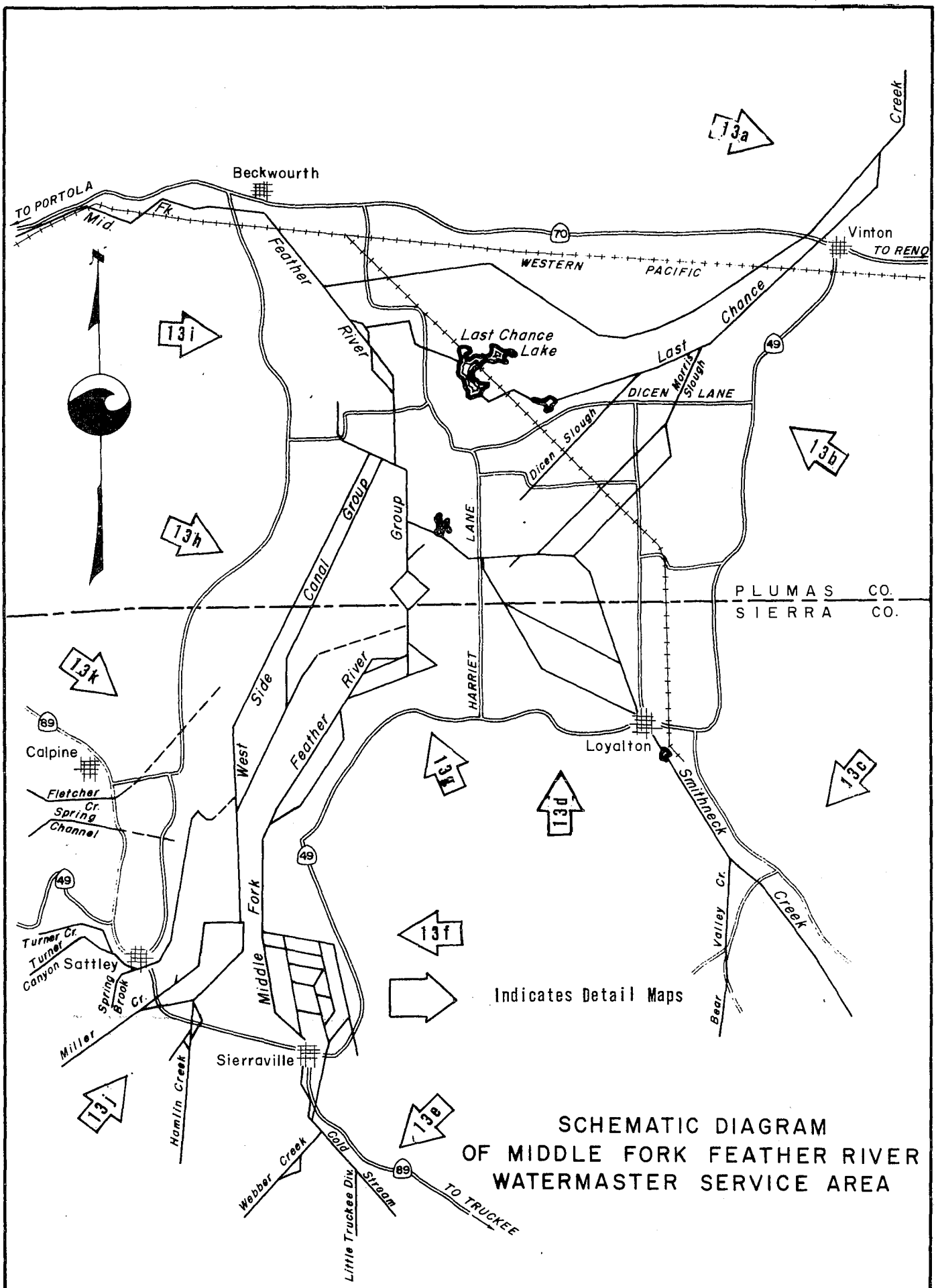
Feather

MIDDLE FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 18
MIDDLE FORK FEATHER RIVER NEAR PORTOLA

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1	6.429	227.0	12.857	454.0	4.956	175.0	2.011	71.0	1.076	38.0	.283	10.0	.215	7.6	1
2	6.429	227.0	13.679	483.0	3.795	134.0	1.812	64.0	.963	34.0	.261	9.2	.238	8.4	2
3	6.514	230.0	13.679	483.0	2.917	103.0	1.614	57.0	.963	34.0	.227	8.0	.204	7.2	3
4	7.250	256.0	11.838	418.0	2.917	103.0	1.444	51.0	.963	34.0	.204	7.2	.195	6.9	4
5	12.744	450.0	10.139	358.0	3.228	114.0	1.359	48.0	.935	33.0	.204	7.2	.261	9.2	5
6	29.736	1050.0	9.261	327.0	3.115	110.0	1.274	45.0	.906	32.0	.204	7.2	.261	9.2	6
7	37.099	1310.0	8.779	310.0	2.747	97.0	1.218	43.0	.906	32.0	.227	8.0	.238	8.4	7
8	23.534	831.0	8.326	294.0	2.407	85.0	1.274	45.0	.878	31.0	.204	7.2	.238	8.4	8
9	17.615	622.0	7.590	268.0	1.020	36.0	1.303	46.0	.906	32.0	.195	6.9	.238	8.4	9
10	15.378	543.0	6.684	236.0	.963	34.0	1.331	47.0	.935	33.0	.184	6.5	.275	9.7	10
11	14.387	508.0	5.749	203.0	1.728	61.0	1.359	48.0	.906	32.0	.153	5.4	.249	8.8	11
12	13.197	466.0	4.956	175.0	2.096	74.0	1.359	48.0	.850	30.0	.153	5.4	.238	8.4	12
13	12.178	430.0	4.701	166.0	2.181	77.0	1.303	46.0	.850	30.0	.153	5.4	.144	5.1	13
14	10.875	384.0	4.616	163.0	2.181	77.0	1.331	47.0	.793	28.0	.153	5.4	.102	3.6	14
15	9.062	320.0	4.701	166.0	2.096	74.0	1.331	47.0	.736	26.0	.184	6.5	.093	3.3	15
16	8.694	307.0	4.758	168.0	2.096	74.0	1.331	47.0	.708	25.0	.195	6.9	.093	3.3	16
17	8.213	290.0	4.758	168.0	2.067	73.0	1.303	46.0	.680	24.0	.195	6.9	.110	3.9	17
18	8.043	284.0	4.503	159.0	1.926	68.0	1.303	46.0	.623	22.0	.195	6.9	.119	4.2	18
19	8.128	287.0	4.305	152.0	1.926	68.0	1.274	45.0	.566	20.0	.195	6.9	.127	4.5	19
20	8.411	297.0	4.503	159.0	2.152	76.0	1.274	45.0	.510	18.0	.195	6.9	.215	7.6	20
21	8.977	317.0	4.616	163.0	2.464	87.0	1.274	45.0	.453	16.0	.204	7.2	.453	16.0	21
22	10.762	380.0	4.701	166.0	2.520	89.0	1.274	45.0	.425	15.0	.215	7.6	.453	16.0	22
23	12.744	450.0	4.701	166.0	2.379	84.0	1.274	45.0	.425	15.0	.227	8.0	.396	14.0	23
24	12.857	454.0	4.503	159.0	2.464	87.0	1.529	54.0	.340	12.0	.238	8.4	.396	14.0	24
25	12.404	438.0	4.220	149.0	2.549	90.0	2.152	76.0	.340	12.0	.227	8.0	.368	13.0	25
26	11.611	410.0	4.106	145.0	2.605	92.0	1.728	61.0	.340	12.0	.227	8.0	.396	14.0	26
27	10.960	387.0	4.106	145.0	2.804	99.0	1.444	51.0	.340	12.0	.227	8.0	.396	14.0	27
28	9.827	347.0	4.220	149.0	3.115	110.0	1.274	45.0	.340	12.0	.238	8.4	.340	12.0	28
29	9.147	323.0	4.418	156.0	3.002	106.0	1.133	40.0	.312	11.0	.238	8.4	.312	11.0	29
30	9.261	327.0	4.758	168.0	2.719	96.0	1.161	41.0	.312	11.0	.238	8.4	.312	11.0	30
31	10.450	369.0			2.322	82.0			.312	11.0	.238	8.4			31
MEAN	12.352	436.2	6.491	229.2	2.499	88.2	1.402	49.5	.664	23.5	.209	7.4	.256	9.0	MEAN
DAM^3	33061.		16813.		6688.		3631.		1778.		559.		663.		DAM^3
AF		26803.		13630.		5422.		2944.		1441.		454.		537.	AF

Figure 13

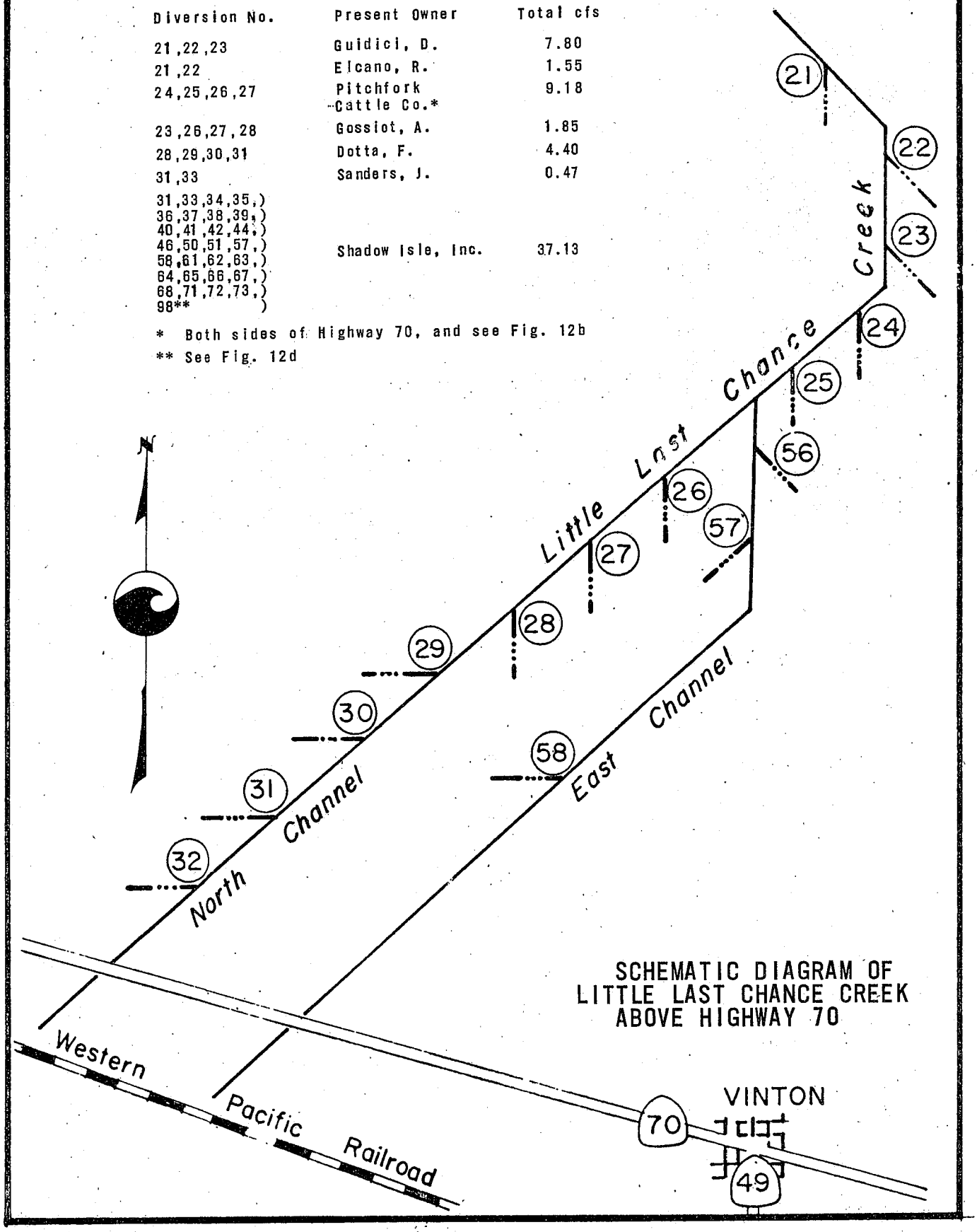

13a
13b
13c
13d
13e
13f
13g
13h
13i
13j
13k
Beckwourth
TO PORTOLA
Mid. Fk.
Feather River
70
WESTERN PACIFIC
Vinton
TO RENO
Creek
Last Chance Lake
Last Chance
49
DICEN Morris Slough
LANE
Dicen Slough
Canal
Group
Group
LANE
PLUMAS CO.
SIERRA CO.
HARRIET
Loyalton
Smithneck
Valley Cr.
Creek
Bear
89
Calpine
Fletcher Cr.
Spring Channel
West Side
Feather River
Fork
Middle
Turner Cr.
Turner Canyon
Sattley
Spring Brook Cr.
Miller
Hamlin Creek
Sierraville
Webber Creek
Cold Stream
Little Truckee Div.
89
TO TRUCKEE
Indicates Detail Maps
SCHEMATIC DIAGRAM
OF MIDDLE FORK FEATHER RIVER
WATERMASTER SERVICE AREA

ALLOCATIONS FROM LITTLE LAST CHANCE CREEK
ABOVE HIGHWAY 70

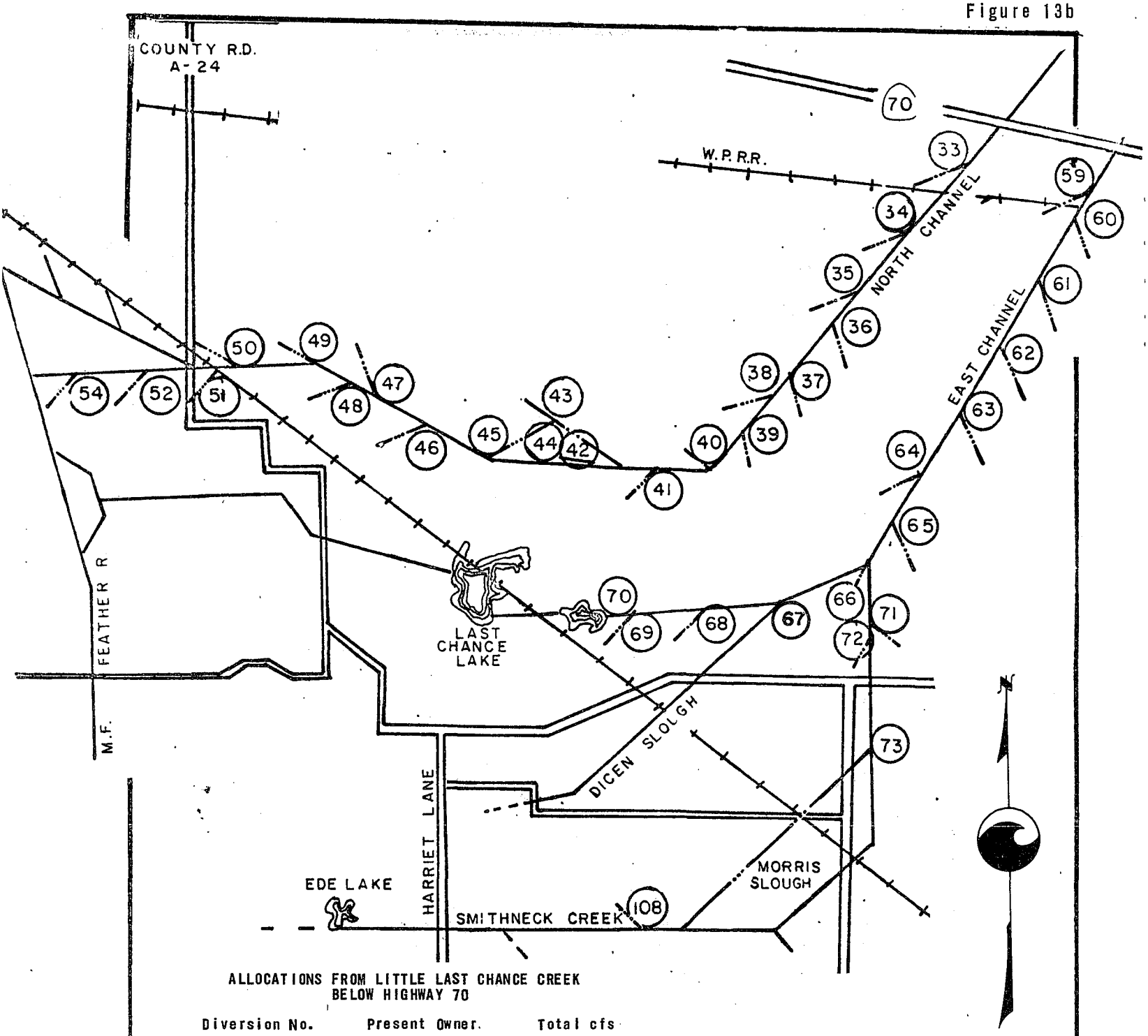
Diversion No.	Present Owner	Total cfs
21,22,23	Guidici, D.	7.80
21,22	Elcano, R.	1.55
24,25,26,27	Pitchfork Cattle Co.*	9.18
23,26,27,28	Gossiot, A.	1.85
28,29,30,31	Dotta, F.	4.40
31,33	Sanders, J.	0.47
31,33,34,35,) 36,37,38,39,) 40,41,42,44,) 46,50,51,57,) 58,61,62,63,) 64,65,66,67,) 68,71,72,73,) 98**)	Shadow Isle, Inc.	37.13

* Both sides of Highway 70, and see Fig. 12b

** See Fig. 12d



SCHEMATIC DIAGRAM OF
LITTLE LAST CHANCE CREEK
ABOVE HIGHWAY 70

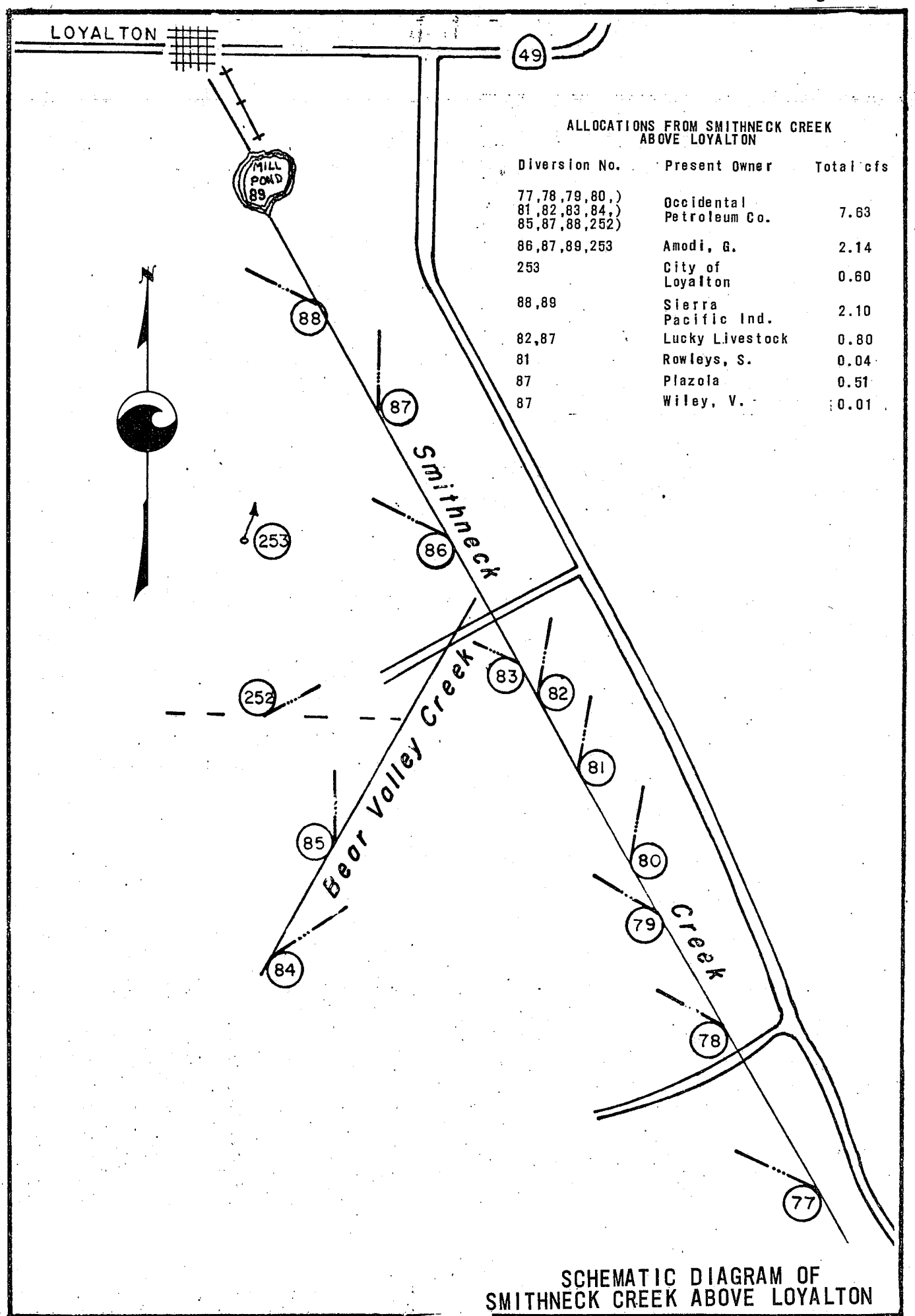


ALLOCATIONS FROM LITTLE LAST CHANCE CREEK
BELOW HIGHWAY 70

Diversion No.	Present Owner.	Total cfs
31*,32*,57*,) 58*,59,60)	Ramelli, T.	3.30
57,58,59,60	Ayoob, G.	4.05
43,44,45,67, 68,69,72,79	Roberti, E.	9.14
70	Ramelli, M.	0.55
70	Wiley, V.	0.20
70	Carmichael, S.	0.10
47,48,49	Overland Inc.	4.45
52,53	Maddalena, L.	1.20
54,55	Noble, P.	0.45
67,72	Lucky Livestock	1.68
67,108	Hage, J.	0.20

* See Fig. 12a for location of diversions 33-42, 46,50,51,61-68,71,73,98 (Occidental Petroleum)

SCHEMATIC DIAGRAM OF
LITTLE LAST CHANCE CREEK
BELOW HIGHWAY 70

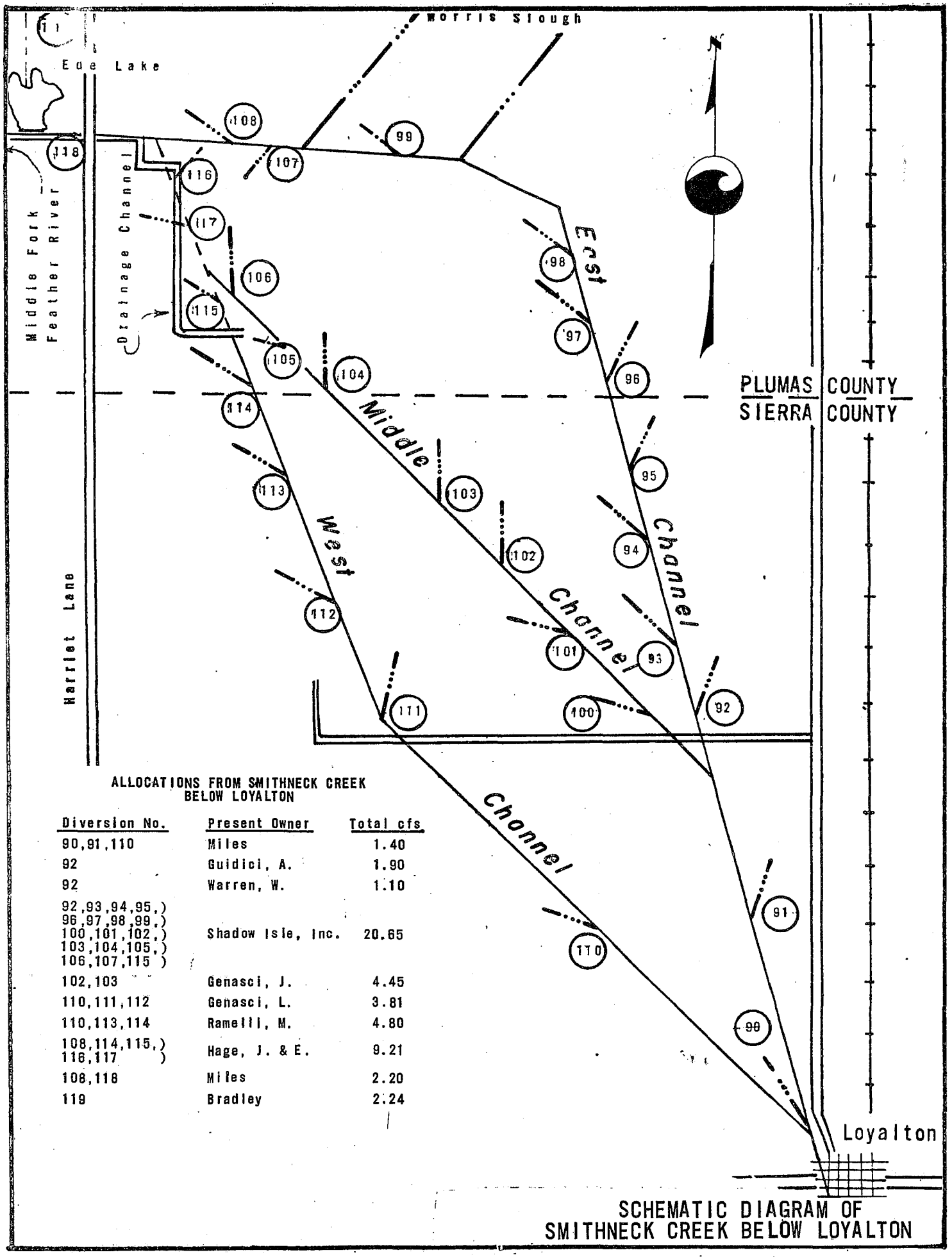


ALLOCATIONS FROM SMITHNECK CREEK ABOVE LOYALTON

Diversion No.	Present Owner	Total cfs
77,78,79,80,) 81,82,83,84,) 85,87,88,252)	Occidental Petroleum Co.	7.63
86,87,89,253	Amodi, G.	2.14
253	City of Loyalton	0.60
88,89	Sierra Pacific Ind.	2.10
82,87	Lucky Livestock	0.80
81	Rowleys, S.	0.04
87	Plazola	0.51
87	Wiley, V.	0.01

SCHEMATIC DIAGRAM OF SMITHNECK CREEK ABOVE LOYALTON

Figure 13d



ALLOCATIONS FROM SMITHNECK CREEK BELOW LOYALTON

Diversion No.	Present Owner	Total cfs
90,91,110	Miles	1.40
92	Guidici, A.	1.90
92	Warren, W.	1.10
92,93,94,95,) 96,97,98,99,) 100,101,102,) 103,104,105,) 106,107,115)	Shadow Isle, Inc.	20.65
102,103	Genasci, J.	4.45
110,111,112	Genasci, L.	3.81
110,113,114	Ramelli, M.	4.80
108,114,115,) 116,117)	Hage, J. & E.	9.21
108,118	Miles	2.20
119	Bradley	2.24

SCHEMATIC DIAGRAM OF SMITHNECK CREEK BELOW LOYALTON

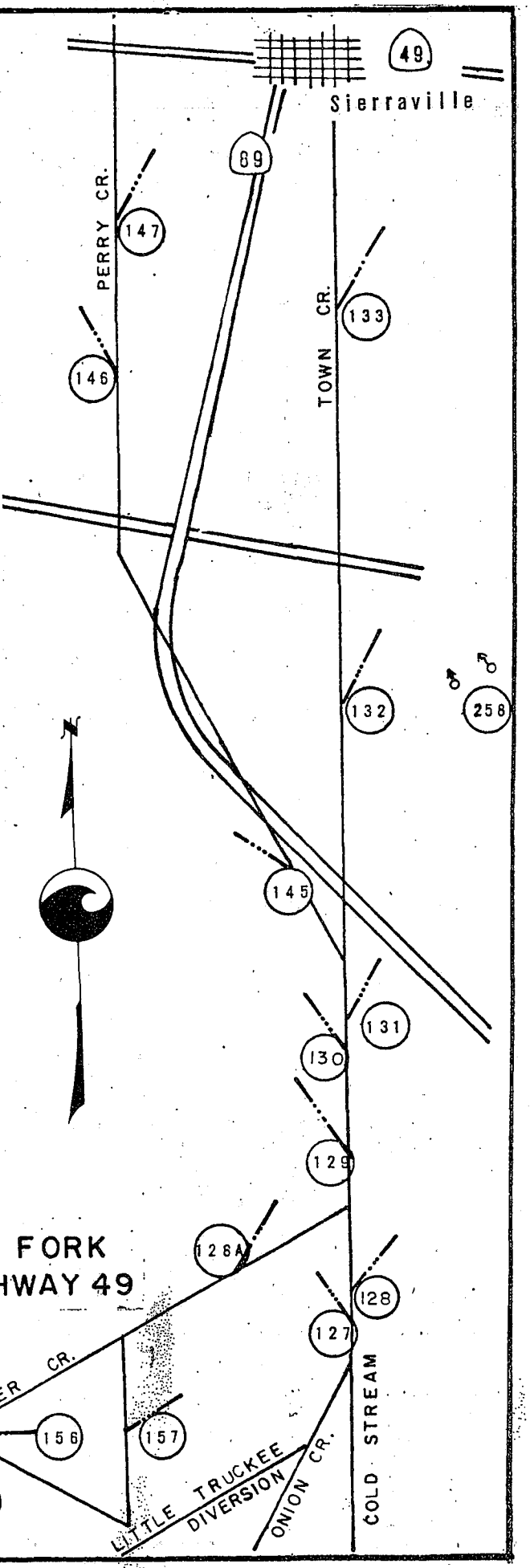
ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER SOUTH OF HIGHWAY 49

Diversion No.	Present Owner	Total cfs
127	Morgan	0.009
127	Monico	0.111
155	Amodei, J.	2.50
133, 156, 157	McKinney	1.35
128, 128A	Shrigley, M.	0.197
128, 128A	Grimm, W.	0.211
128, 128A	Donnell, H.	0.242
128, 128A	McCafferty, L.	0.255
133, 134	Johnson, L.	0.04
134*	Johnson, S.	0.22
129*	Maddalena, G.	2.30
131	Pitchfork Cattle Co.	0.07
131, 132, 145, 258	Willis, R&P.	3.204
128, 128A	S.F. Bay Girl Scout Council	0.095
130	LaCosta, P.	0.006
130	Dellera, C.	0.025
145	Vaum, R&N.	0.02
145	Wright, I.	0.10
145	McCaffrey, Lola	0.028
145	McCaffrey, J.	0.072
145	Scudder, N.	0.04
133	Goodrich, C.	0.02
134	Mello, E.	0.067
134	Tahoe Truckee Lumber Co.	0.03
134	Griffen, T.	0.03
134	Rosocoe, P.	0.02
129, 133**	Webber, G.	2.11
R. R. Springs	Sierraville PUD	0.654
134	Lombardi, E&C.	0.023

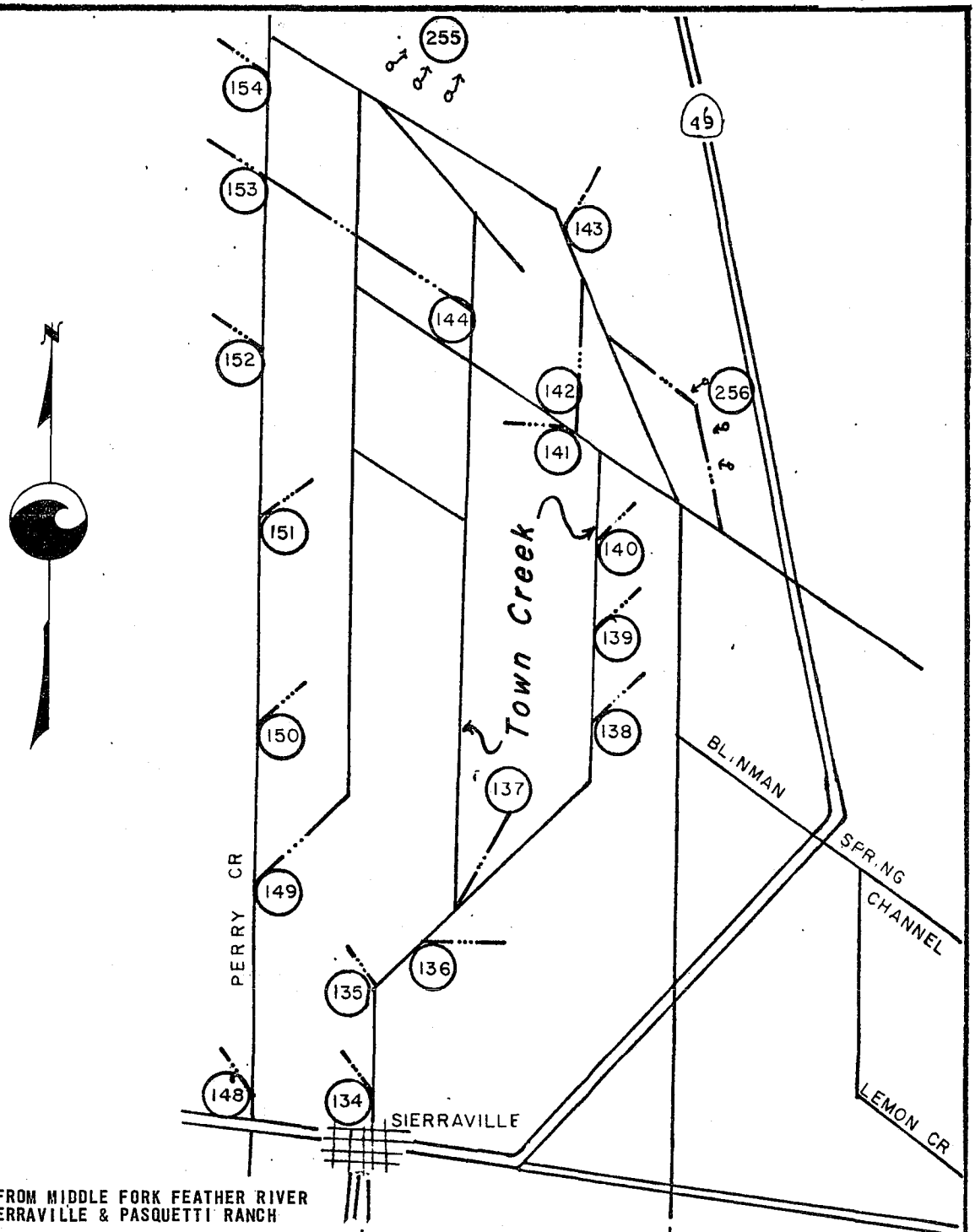
* Both sides of Highway 49

** Other allocations north of Highway 49

Rights under Div. 134, formerly used in Sierraville.



SCHEMATIC DIAGRAM OF MIDDLE FORK FEATHER RIVER SOUTH OF HIGHWAY 49



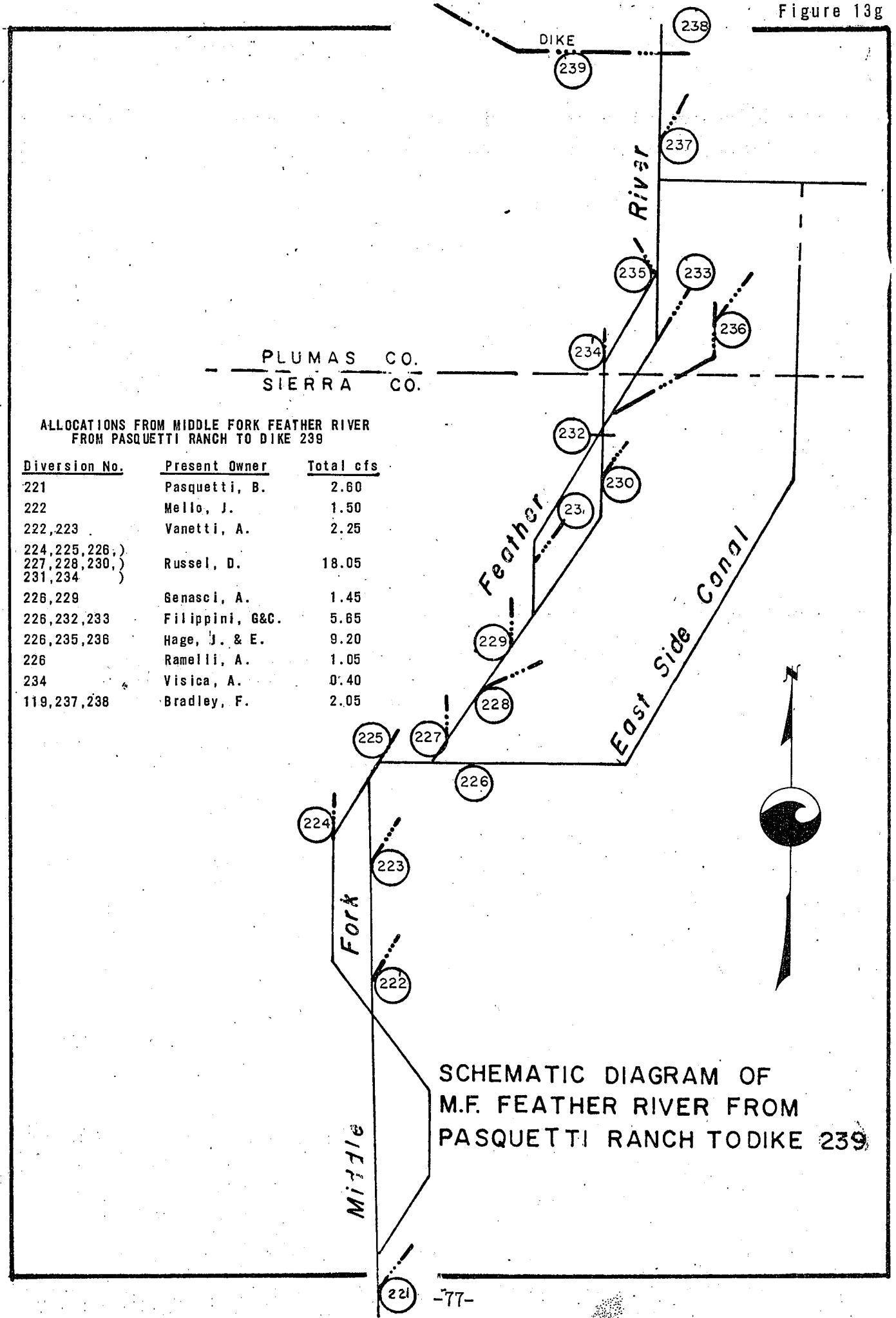
ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER
BETWEEN SIERRAVILLE & PASQUETTI RANCH

Diversion No.	Present Owner	Total cfs
134	Hannon, P.	0.015
134	Snozzi, A.	0.02
135	Carmichael, S.	0.55
137,141,146*,) 147*,149,152)	Webber, G.	13.00
136,137,138,) 139,147*)	Bony, M.	6.85
148	Wilson Bros.	2.00
148,149,150,) 151)	Small, F.	4.90
140,256	Alpers, F.	3.20
142,143,255	Torri, K.	4.00
144,153,154	Euer, R&J.	2.00

* See Fig. 12e

SCHEMATIC DIAGRAM OF
MIDDLE FORK FEATHER RIVER
BETWEEN
SIERRAVILLE AND PASQUETTI RANCH

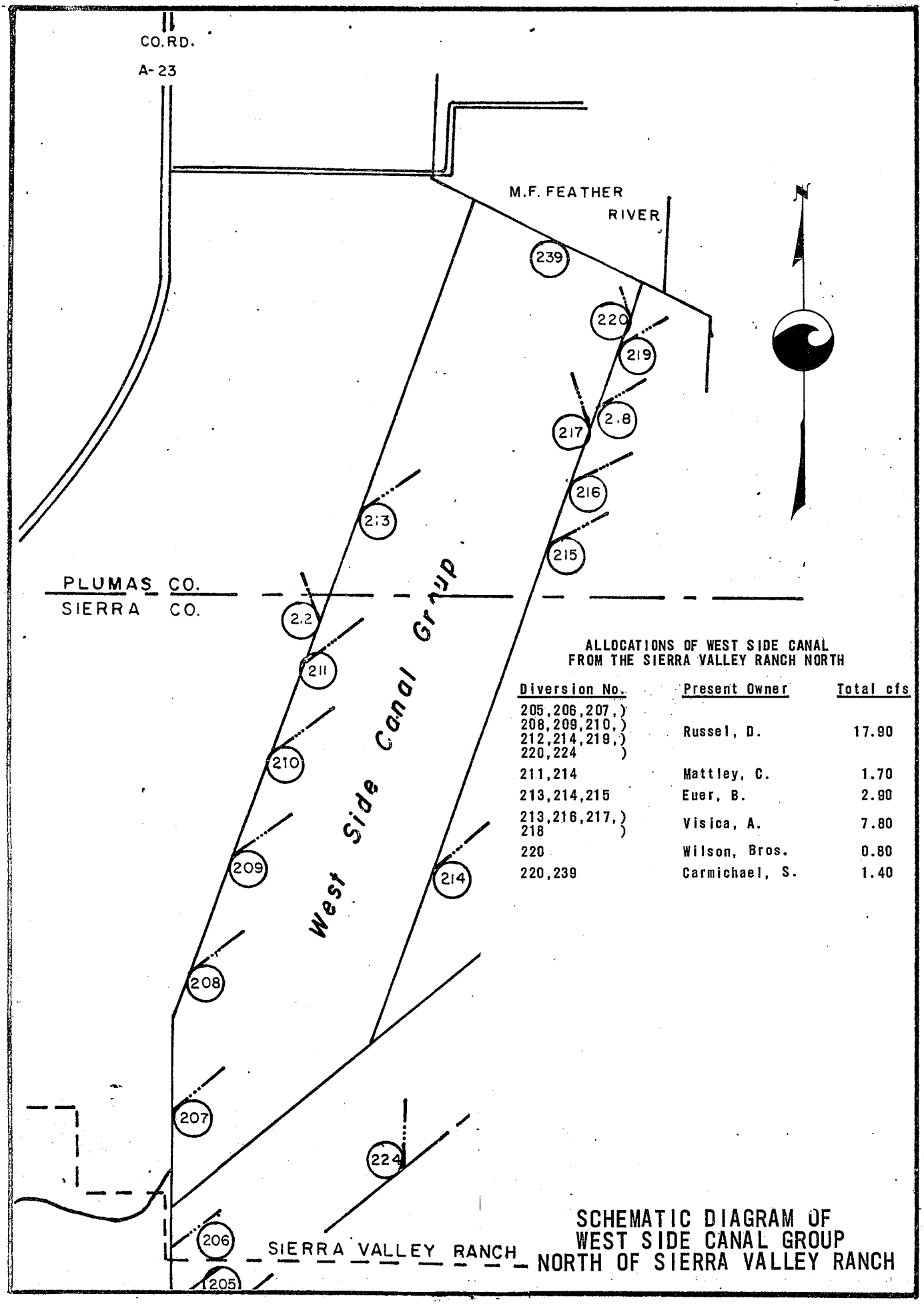
Figure 13g



ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER
FROM PASQUETTI RANCH TO DIKE 239

Diversion No.	Present Owner	Total cfs
221	Pasquetti, B.	2.60
222	Mello, J.	1.50
222,223	Vanetti, A.	2.25
224,225,226,) 227,228,230,) 231,234)	Russel, D.	18.05
226,229	Genasci, A.	1.45
226,232,233	Filippini, G&C.	5.65
226,235,236	Hage, J. & E.	9.20
226	Ramelli, A.	1.05
234	Visica, A.	0.40
119,237,238	Bradley, F.	2.05

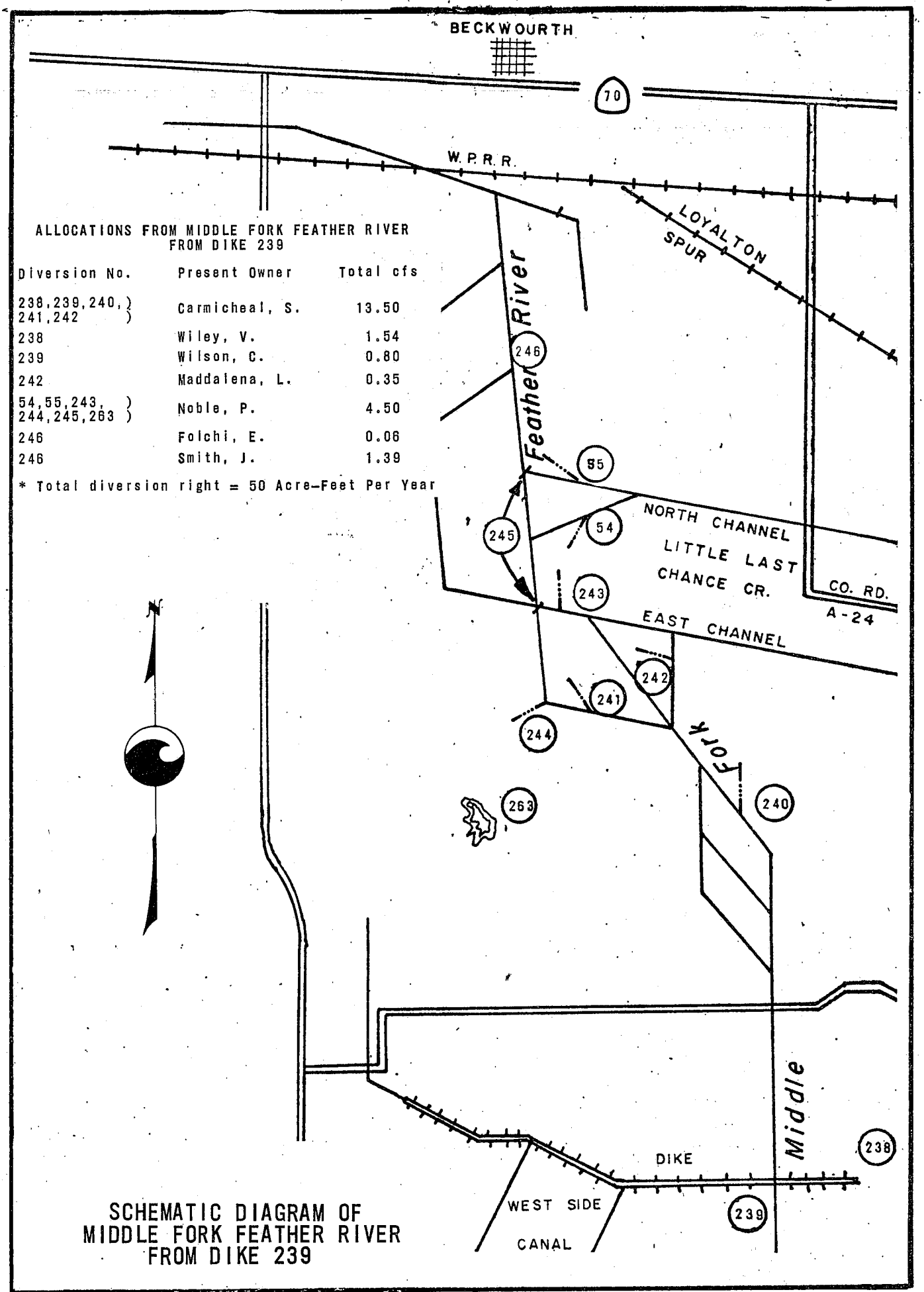
SCHEMATIC DIAGRAM OF
M.F. FEATHER RIVER FROM
PASQUETTI RANCH TO DIKE 239



ALLOCATIONS OF WEST SIDE CANAL
FROM THE SIERRA VALLEY RANCH NORTH

Diversion No.	Present Owner	Total cfs
205,206,207,) 208,209,210,) 212,214,219,) 220,224)	Russel, D.	17.90
211,214	Mattley, C.	1.70
213,214,215	Euer, B.	2.90
213,216,217,) 218)	Visica, A.	7.80
220	Wilson, Bros.	0.80
220,239	Carmichael, S.	1.40

SCHEMATIC DIAGRAM OF
WEST SIDE CANAL GROUP
NORTH OF SIERRA VALLEY RANCH



ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER FROM DIKE 239

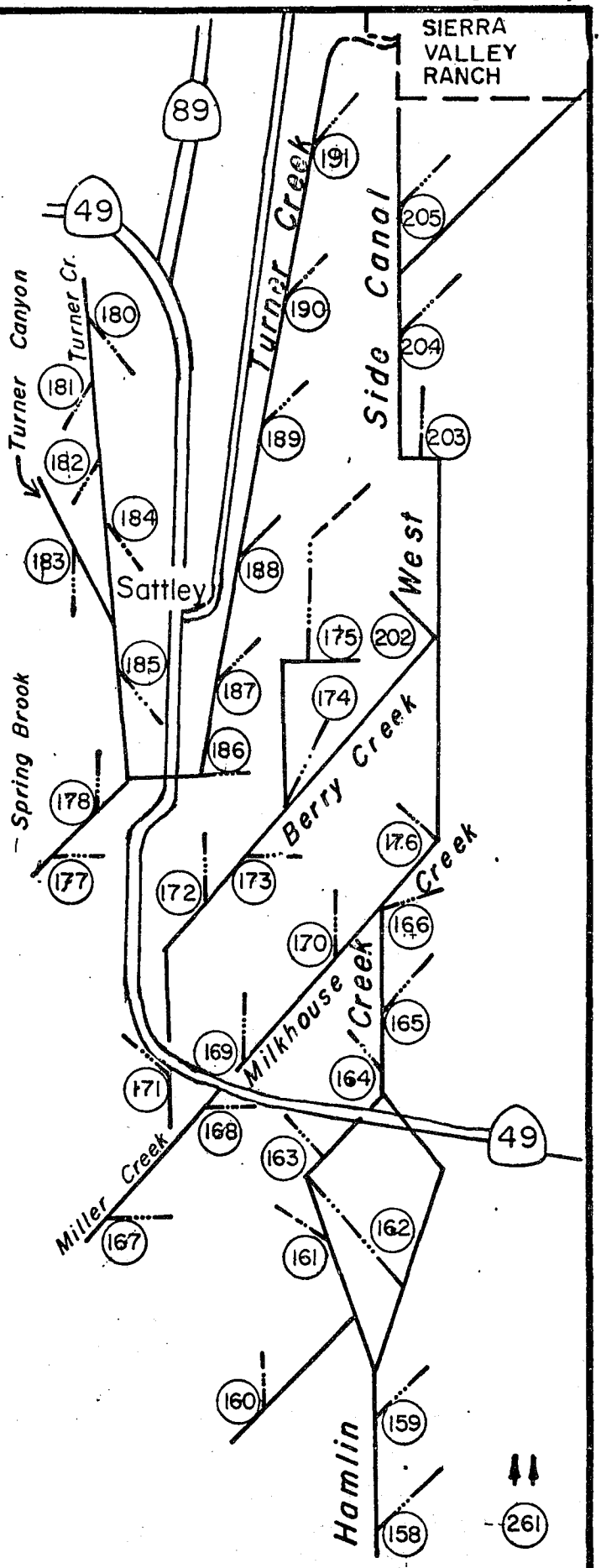
Diversion No.	Present Owner	Total cfs
238,239,240,) 241,242)	Carmicheal, S.	13.50
238	Wiley, V.	1.54
239	Wilson, C.	0.80
242	Maddalena, L.	0.35
54,55,243,) 244,245,263)	Noble, P.	4.50
246	Folchi, E.	0.06
246	Smith, J.	1.39

* Total diversion right = 50 Acre-Feet Per Year

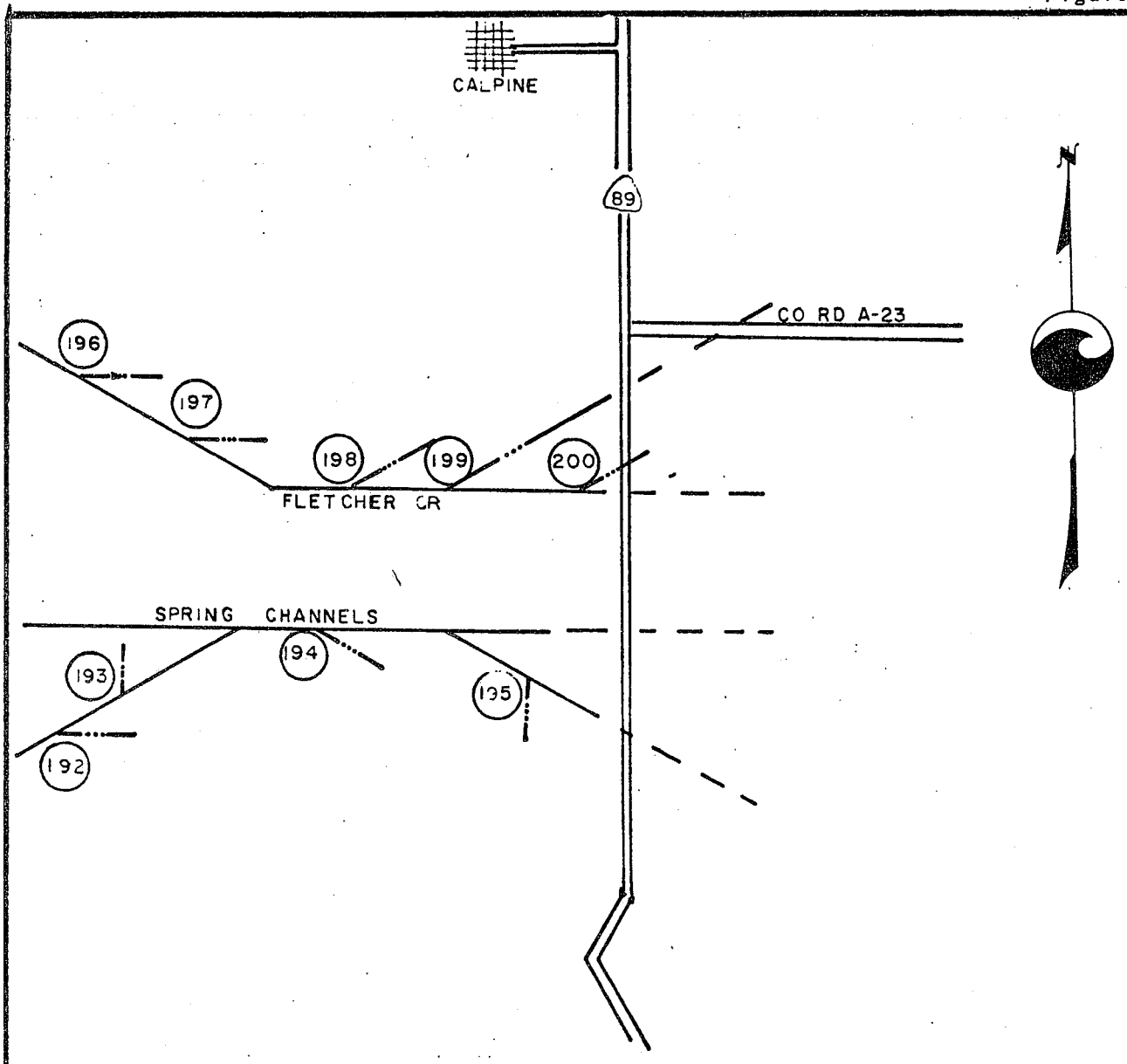
SCHEMATIC DIAGRAM OF MIDDLE FORK FEATHER RIVER FROM DIKE 239

ALLOCATIONS FROM WEST SIDE CANAL GROUP
SOUTH OF SIERRA VALLEY RANCH

Diversion No.	Present Owner	Total cfs
158,159,161,) 162,261)	Maddalena, L.	6.13
160,161,163,) 164,167)	Strang, A&E.	8.55
165,167,168,) 169,170,171,) 173,174,177)	Martinetti, E.	6.33
165,166	Webber, G.	2.60
172,177,178,) 184,185)	Cavitt, J.	4.25
174,202,175	Tong, J.	2.60
175,184,186,) 187)	Church, G.	5.60
180	Turner, J.	0.02
175,181,182,) 183,184,185,) 187,189,190,) 202)	Turner, F.	10.25
176	Wilson Bros.	1.50
180,188	Dargie, T.	2.90
189	Berutti, J.	2.50
189,191,202,) 204,205)	Van Vleck, G.	6.05
176,203	Euer, R&J.	1.50
176	Pasguetti, B.	2.40



SCHEMATIC DIAGRAM OF
WEST SIDE CANAL GROUP
SOUTH OF SIERRA VALLEY RANCH



ALLOCATIONS FROM FLETCHER CREEK
AND SPRING CHANNELS

Diversion No.	Present Owner	Total cfs
196	Sierra Co. Water District	0.56
177,178,192,) 193,194)	Borelli, A.	1.744
192	Scott, F.	0.05
192,193,194	Jinnette, F&W.	0.046
195,199,200	Paulson & Cadenhead	1.428
199	Lukens & Coppla	0.302
199,200	Jaquess, E.	1.32

SCHEMATIC DIAGRAM
FLETCHER CREEK
AND
SPRING CHANNELS

NORTH FORK COTTONWOOD CREEK SERVICE AREA

The North Fork Cottonwood Creek service area is situated in Shasta County near the town of Ono west of Redding. Figure 14, page 85, shows the North Fork Cottonwood Creek stream system including the diversions and roads.

The source of water supply for this service area is the North Fork of Cottonwood Creek and its two major tributaries, Moon Creek and Jerusalem Creek. The North Fork of Cottonwood Creek flows through the service area in a southeasterly direction to its confluence with 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 separated by about the 305 metre (1,000 foot) elevation.

Basis of Service

The water rights on 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; however, service was provided intermittently in accordance with the decree since 1924. All water rights are of equal priority.

Water Supply

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

A record of the daily mean discharge of North Fork Cottonwood Creek near Igo is presented in Table 19, page 84. This gaging station is downstream from most diversion points on the creek, but gives a general indication of the water supply.

Method of Distribution

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

1978 Distribution

Seth Barrett, Water Resources Technician II, was watermaster for the North Fork Cottonwood Creek service area, beginning June 1 and continuing until September 30.

The water supply was good for the entire season, with some surplus passing the Gas Point Bridge below all diverters.

The watershed for this service area appeared to get more rain than most of the other service areas.

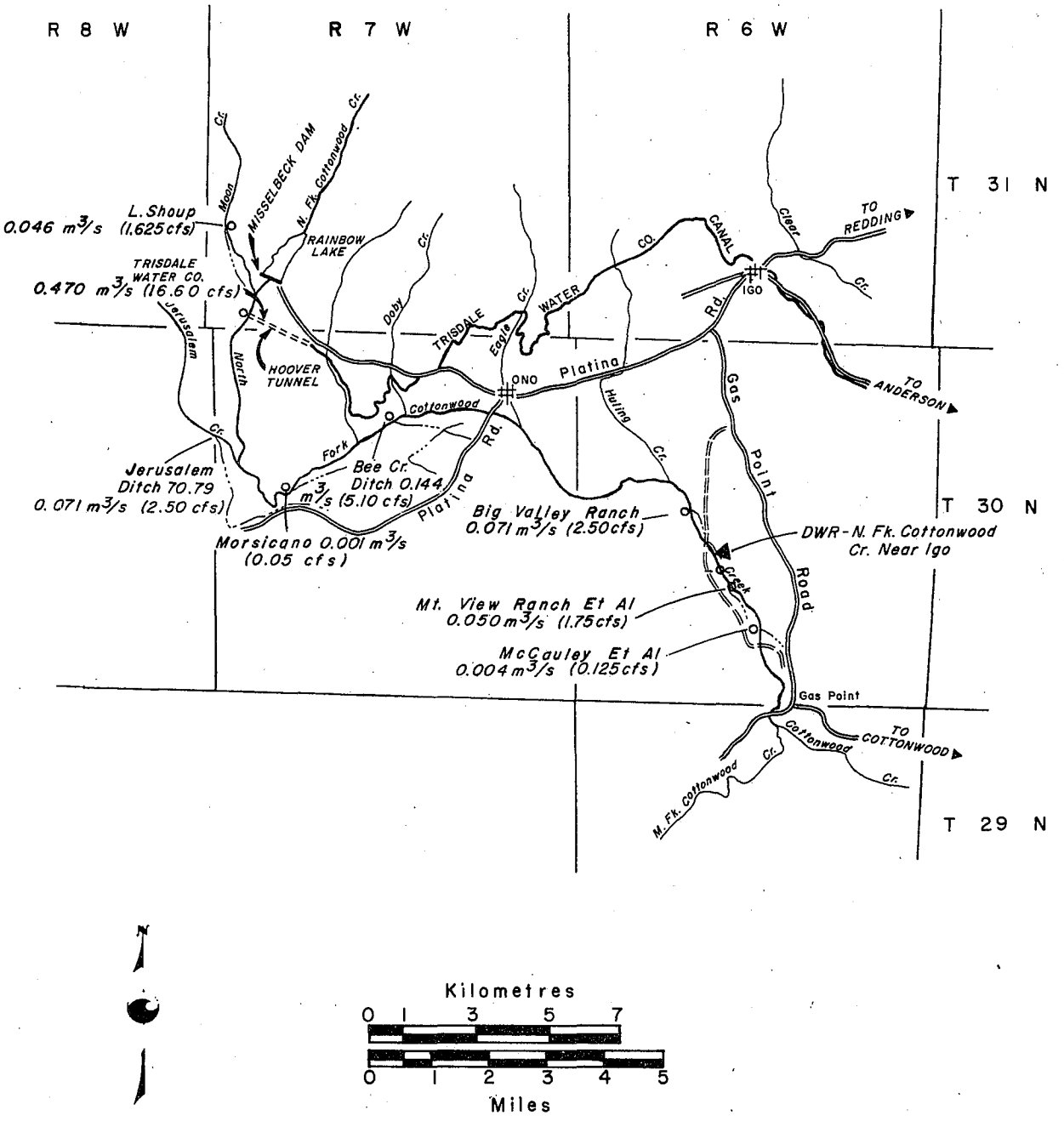
NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 19
NORTH FORK COTTONWOOD CREEK NEAR IGO

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			25.431*	898.0	8.354	295.0	2.011	71.0	1.699	60.0	.368	13.0	.184	6.5	1
2			16.057	567.0	8.411	297.0	1.869	66.0	1.841	65.0	.368	13.0	.176	6.2	2
3			14.613	516.0	7.901	279.0	1.812	64.0	1.699	60.0	.368	13.0	.159	5.6	3
4			14.641	517.0	7.930	280.0	1.869	66.0	1.586	56.0	.368	13.0	.167	5.9	4
5			16.992	600.0	8.071	285.0	1.812	64.0	1.501	53.0	.368	13.0	.368	13.0	5
6			25.998	918.0	7.646	270.0	1.756	62.0	1.416	50.0	.340	12.0	.623	22.0	6
7			20.645	729.0	7.335	259.0	1.756	62.0	1.303	46.0	.340	12.0	.396	14.0	7
8			18.040	637.0	7.052	249.0	1.756	62.0	1.218	43.0	.312	11.0	.340	12.0	8
9			16.284	575.0	6.853	242.0	1.671	59.0	1.161	41.0	.283	10.0	3.002	106.0	9
10			15.151	535.0	6.627	234.0	1.614	57.0	1.133	40.0	.212	7.5	3.653	129.0	10
11			14.387	508.0	6.315	223.0	1.614	57.0	1.048	37.0	.201	7.1	1.303	46.0	11
12			13.509	477.0	6.117	216.0	1.671	59.0	.991	35.0	.204	7.2	.906	32.0	12
13			13.140	464.0	6.032	213.0	1.671	59.0	.906	32.0	.201	7.1	.765	27.0	13
14			12.659	447.0	5.806	205.0	1.643	58.0	.821	29.0	.204	7.2	.651	23.0	14
15			14.556	514.0	5.664	200.0	1.643	58.0	.793	28.0	.201	7.1	.510	18.0	15
16			12.886	455.0	5.296	187.0	1.643	58.0	.765	27.0	.201	7.1	.481	17.0	16
17			11.781	416.0	4.984	176.0	1.643	58.0	.765	27.0	.195	6.9	.481	17.0	17
18			11.158	394.0	4.729	167.0	1.586	56.0	.736	26.0	.198	7.0	.481	17.0	18
19			11.101	392.0	3.625	128.0	1.643	58.0	.708	25.0	.184	6.5	.453	16.0	19
20			10.563	373.0	3.087	109.0	1.643	58.0	.680	24.0	.167	5.9	.425	15.0	20
21			9.855	348.0	3.059	108.0	1.643	58.0	.623	22.0	.176	6.2	.453	16.0	21
22			9.232	326.0	2.832	100.0	1.643	58.0	.510	18.0	.195	6.9	.453	16.0	22
23			8.496	300.0	2.379	84.0	1.643	58.0	.481	17.0	.204	7.2	.453	16.0	23
24			7.845	277.0	2.436	86.0	1.643	58.0	.481	17.0	.218	7.7	.425	15.0	24
25			16.992	600.0	2.436	86.0	1.643	58.0	.453	16.0	.238	8.4	.425	15.0	25
26			16.369	578.0	2.379	84.0	1.699	60.0	.453	16.0	.261	9.2	.425	15.0	26
27			12.178	430.0	2.379	84.0	1.699	60.0	.425	15.0	.241	8.5	.425	15.0	27
28			10.592	374.0	2.209	78.0	1.728	61.0	.396	14.0	.227	8.0	.396	14.0	28
29			9.544	337.0	2.181	77.0	1.699	60.0	.396	14.0	.195	6.9	.396	14.0	29
30			8.808	311.0	2.152	76.0	1.671	59.0	.396	14.0	.170	6.0	.396	14.0	30
31					2.096	74.0			.396	14.0	.190	6.7			31
MEAN			13.984	493.8	4.980	175.8	1.701	60.1	.896	31.6	.245	8.7	.659	23.3	MEAN
DAM^3			36220.		13329.		4406.		2399.		656.		1707.		DAM^3
AF				29364.		10806.		3572.		1945.		532.		1384.	AF

* Beginning of Record

Figure 14



DIVERSIONS FROM NORTH FORK COTTONWOOD CREEK 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 73 kilometres (45 miles) to just south of Alturas.

Eight small independent streams draining the west slope of the Warner Mountains and generally following a westerly direction comprise the major source of water supply. Three of these streams, New Pine, Cottonwood, and Davis Creeks, are tributary to Goose Lake. The other five are tributary to the North Fork Pit River. From north to south these are: Linville, Franklin, Joseph, Thoms, and Parker Creeks.

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 immediately below Alturas. The basins of Goose Lake and the North Fork Pit River may be considered as completely separate, since the lake has not spilled into the river for nearly 100 years.

The place of use in the northern half of the area lies in a relatively long, narrow, sloping strip extending 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 1 325 metres (4,350 feet) just below Alturas to about 1 585 m (5,200 feet) at the upper portions on some of the creeks.

Maps of the North Fork Pit River watermaster service area and of the separate stream systems within the area are presented as Figures 15 through 15i, pages 95 through 106.

Basis of Service

Table 20, page 89, briefly outlines the five decrees covering the area and presents data relative to the establishment of watermaster service and water rights.

Water Supply

The water supply is derived primarily 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 as regulatory storage.

Method of Distribution

Distribution is accomplished by diversion structures in the main channels diverting into ditches which 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 ground water being added as the surface flow diminishes. Subirrigation 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.

1978 Distribution

Watermaster service in the North Fork Pit River service area began April 1, and continued until September 30. Eldon E. Rinehart, Water Resources Engineering Associate, was the watermaster until September 1, when L. L. Bates, Water Resources Engineering Associate, took over for the rest of the season. The water supply was below normal for the season.

New Pine Creek. Surplus water was available to New Pine Creek water right owners through June 30, the period that proration or correlative system of distribution was in effect. Beginning July 1, distribution is based on the priority system in accordance with the decree. Fourth priority allotments were satisfied until July 1. Following that date, the flow gradually decreased to five cfs by the end of the watermaster season on September 30, enough to satisfy the first and approximately 54 percent of the second priority allotments.

Cottonwood Creek. The flow in Cottonwood Creek was adequate to satisfy all six priorities until May 17. Thereafter the flow dropped off until at the end of the season on September 30, only enough flow remained to supply about 16 percent of first priorities.

Davis Creek. The water supply in Davis Creek was sufficient to satisfy all allotments until May 23. Thereafter the flow gradually diminished. Full third priority allotments were met until June 24, and second priority allotments were served throughout the remainder of the season. On September 30, the flow was 6.4 cfs, or sufficient to meet first, second and about five percent of the third priority.

Linville Creek. Spring-fed Linville Creek maintains a remarkable uniform flow throughout the watermaster season. The available water supply in the creek remained fairly constant from the start of the 1978 season when the flow was about 2.8 cfs to the end of the season when the flow was 1.8 cfs. The flow was sufficient to meet 46 percent of first priority allotments at the end of the season.

Franklin Creek. The water supply in Franklin Creek was sufficient to satisfy all allotments through May 22. All third priority rights were met until May 27; the flow then gradually decreased to 6.1 cfs on June 12, at which time all of the first, second, and about 66 percent of the third priority allotments were being met. From then until the end of July the flow gradually decreased to 2.6 cfs which still filled a portion of third priority. On September 15, when the winter schedule of priorities became effective, the flow was 2.7 cfs.

Joseph Creek. A surplus water supply existed in Joseph Creek from the beginning of the watermaster service until May 6. Thereafter the flow gradually diminished to 1.0 cfs on September 30 when the watermaster season ended. This latter flow was sufficient to meet 42 percent of the first priority rights.

Thoms Creek. A sufficient water supply existed in Thoms Creek to meet all allotments until July 8. The flow then gradually decreased to the end of the watermaster season on September 30. On the latter date there was only enough flow to meet a portion of first priority allotments.

North Fork Pit River. A surplus water supply existed in the North Fork Pit River until July 11. Following that date, the flow gradually decreased until mid-August, after which date the flow remained level. At the end of the watermaster season on September 30, a portion of first priority allotments were being filled.

Parker Creek. The flow in Parker Creek was sufficient to meet all priorities until June 19. The flow then served all first priorities and a decreasing percentage of seconds for the remainder of the season.

Shields Creek. The flow was sufficient to satisfy all priorities until June 2. From then until the end of the season there was enough water for first, second, and a decreasing percentage of third priority allotments.

TABLE 20

DECREES AND RELATED DATA - NORTH FORK PIT RIVER SERVICE AREA

Stream	Modoc County Superior Court Decree No.	Date	Type[a/]	Service Area Created	No. of Water Right Owners	Total m^3/s	Total Cfs	Remarks
New Pine Creek	2821	6-14-32	CR	6-22-32	21	0.628	22.18	Decree does not determine town users rights, but by agreement they may divert from 7 a.m. Monday until 7 a.m. Tuesday, further modified to a continuous flow used in rotation.
Cottonwood Creek	2344	5-03-40	CR	12-13-40	5	0.435	15.35	When water for Diversion No. 3 is insufficient to reach the area of use, it is diverted at Diversion No. 4
Davis Creek	2782	6-30-32	CR	7-13-32	19	1.492	52.70	4 priorities, 4-1 to 9-15. Some rights vary according to flow available. Most 1st & 2nd priorities are year-round. One second priority right is for 0.011 m^3/s (0.40 cfs) export for Roberts Creek.
					2[b/]			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 Creek	3118	9-08-33	CR	9-14-33	4	0.330	11.66	4 priorities. The 1st priority and all 2nd priority rights are year-round, except one, which is equal to all the others 0.041 m^3/s (1.46 cfs), and is for the period 9-15 to 3-31 annually. Third and fourth priorities are for 4-1 to 9-30 each year.
North Fork Pit River	4074	12-14-34	S	12-18-39	10	1.465	51.73	5 priorities, 4-1 to 9-30. Dorris Reservoir water diverted through Parker Creek ditch on Parker Creek. 4th and 5th priorities are special class.
Linville	4074	12-14-39	S	12-18-39	3	0.235	8.30	2 priorities.
Joseph	4074	12-14-39	S	12-18-39	6	0.339	11.98	4 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	7	0.512	18.07	4 priorities, 4-1 to 9-30. Diversion to Dorris Reservoir shown on North Fork Pit River schedule is made at No. 120, Parker Creek Ditch.
Shields	4074	12-14-39	S	12-18-39	5	0.212	7.50	4 priorities, 4-1 to 9-30.
Thoms	4074	12-14-39	S	12-18-39	9	0.182	6.44	3 priorities, 4-1 to 9-30.
						0.266	9.40	0.142 m^3/s (5.0 cfs) export to Cedar Creek; and 0.125 m^3/s (4.40 cfs) export to Stony Canyon.
Gleason	4074	12-14-39	S	12-18-39	4	0.126	4.45	5 priorities.

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

NORTH FORK PIT WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 21
NEW PINE CREEK BELOW SCHROEDER'S

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.278*	9.8	.708	25.0	.935	33.0	.623	22.0	.238	8.4	.147	5.2	1
2			.278	9.8	.651	23.0	.935	33.0	.595	21.0	.227	8.0	.147	5.2	2
3			.278	9.8	.623	22.0	.935	33.0	.595	21.0	.210	7.4	.147	5.2	3
4			.278	9.8	.623	22.0	.991	35.0	.538	19.0	.210	7.4	.147	5.2	4
5			.278	9.8	.623	22.0	1.048	37.0	.510	18.0	.204	7.2	.147	5.2	5
6			.278	9.8	.623	22.0	1.104	39.0	.510	18.0	.204	7.2	.147	5.2	6
7			.278	9.8	.623	22.0	1.104	39.0	.481	17.0	.204	7.2	.147	5.2	7
8			.278	9.8	.708	25.0	1.104	39.0	.453	16.0	.204	7.2	.147	5.2	8
9			.283	10.0	.623	22.0	1.104	39.0	.453	16.0	.204	7.2	.144	5.1	9
10			.312	11.0	.708	25.0	1.048	37.0	.425	15.0	.204	7.2	.144	5.1	10
11			.340	12.0	.736	26.0	.991	35.0	.425	15.0	.204	7.2	.142	5.0	11
12			.368	13.0	.736	26.0	.935	33.0	.368	13.0	.204	7.2	.142	5.0	12
13			.368	13.0	.850	30.0	.878	31.0	.368	13.0	.204	7.2	.142	5.0	13
14			.340	12.0	.991	35.0	.878	31.0	.368	13.0	.204	7.2	.142	5.0	14
15			.340	12.0	1.048	37.0	.878	31.0	.340	12.0	.198	7.0	.142	5.0	15
16			.312	11.0	.935	33.0	.850	30.0	.340	12.0	.198	7.0	.142	5.0	16
17			.283	10.0	.850	30.0	.850	30.0	.340	12.0	.190	6.7	.142	5.0	17
18			.283	10.0	.850	30.0	.821	29.0	.340	12.0	.190	6.7	.142	5.0	18
19			.278	9.8	.878	31.0	.793	28.0	.312	11.0	.190	6.7	.142	5.0	19
20			.283	10.0	.963	34.0	.793	28.0	.312	11.0	.190	6.7	.142	5.0	20
21			.278	9.8	1.048	37.0	.793	28.0	.283	10.0	.184	6.5	.142	5.0	21
22			.283	10.0	1.161	41.0	.793	28.0	.283	10.0	.184	6.5	.142	5.0	22
23			.283	10.0	1.048	37.0	.793	28.0	.278	9.8	.184	6.5	.142	5.0	23
24			.283	10.0	.991	35.0	.793	28.0	.278	9.8	.184	6.5	.142	5.0	24
25			.453	16.0	.878	31.0	.736	26.0	.263	9.3	.184	6.5	.142	5.0	25
26			.793	28.0	.878	31.0	.736	26.0	.263	9.3	.167	5.9	.139	4.9	26
27			.935	33.0	.935	33.0	.708	25.0	.263	9.3	.156	5.5	.139	4.9	27
28			.850	30.0	.991	35.0	.651	23.0	.246	8.7	.150	5.3	.139	4.9	28
29			.736	26.0	1.020	36.0	.651	23.0	.246	8.7	.150	5.3	.139	4.9	29
30			.793	28.0	.935	33.0	.623	22.0	.246	8.7	.156	5.5	.139	4.9	30
31					.991	35.0			.238	8.4	.147	5.2			31
MEAN			.390	13.8	.846	29.9	.875	30.9	.374	13.2	.191	6.7	.143	5.0	MEAN
DAM^3			1010.		2264.		2267.		1000.		512.		370.		DAM^3
AF				819.		1836.		1838.		811.		415.		300.	AF

* Beginning of Record

NORTH FORK PIT WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 22
COTTONWOOD CREEK BELOW LARKIN GARDEN DITCH

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1					.312	11.0	.595	21.0	.176	6.2	.065	2.3	.017	.6	1
2					.340	12.0	.566	20.0	.173	6.1	.065	2.3	.017	.6	2
3					.396	14.0	.510	18.0	.173	6.1	.062	2.2	.017	.6	3
4					.425	15.0	.481	17.0	.159	5.6	.062	2.2	.017	.6	4
5					.481	17.0	.481	17.0	.147	5.2	.057	2.0	.017	.6	5
6					.566	20.0	.453	16.0	.147	5.2	.057	2.0	.017	.6	6
7			.261*	9.2	.538	19.0	.425	15.0	.144	5.1	.057	2.0	.017	.6	7
8			.278	9.8	.510	18.0	.396	14.0	.142	5.0	.028	1.0	.017	.6	8
9			.275	9.7	.453	16.0	.340	12.0	.142	5.0	.051	1.8	.017	.6	9
10			.280	9.9	.510	18.0	.312	11.0	.136	4.8	.051	1.8	.017	.6	10
11			.312	11.0	.566	20.0	.283	10.0	.130	4.6	.045	1.6	.017	.6	11
12			.340	12.0	.595	21.0	.275	9.7	.119	4.2	.048	1.7	.017	.6	12
13			.396	14.0	.623	22.0	.278	9.8	.113	4.0	.045	1.6	.017	.6	13
14			.425	15.0	.651	23.0	.275	9.7	.108	3.8	.045	1.6	.017	.6	14
15			.396	14.0	.566	20.0	.272	9.6	.105	3.7	.040	1.4	.017	.6	15
16			.340	12.0	.481	17.0	.266	9.4	.105	3.7	.037	1.3	.017	.6	16
17			.312	11.0	.425	15.0	.258	9.1	.102	3.6	.034	1.2	.017	.6	17
18			.340	12.0	.396	14.0	.255	9.0	.099	3.5	.028	1.0	.017	.6	18
19			.340	12.0	.368	13.0	.246	8.7	.099	3.5	.031	1.1	.017	.6	19
20			.396	14.0	.340	12.0	.227	8.0	.093	3.3	.028	1.0	.017	.6	20
21			.340	12.0	.340	12.0	.221	7.8	.088	3.1	.028	1.0	.017	.6	21
22			.283	10.0	.340	12.0	.212	7.5	.088	3.1	.023	.8	.017	.6	22
23			.269	9.5	.312	11.0	.207	7.3	.085	3.0	.023	.8	.017	.6	23
24			.275	9.7	.283	10.0	.201	7.1	.079	2.8	.020	.7	.017	.6	24
25			.283	10.0	.283	10.0	.198	7.0	.076	2.7	.023	.8	.017	.6	25
26			.340	12.0	.312	11.0	.198	7.0	.076	2.7	.020	.7	.017	.6	26
27			.340	12.0	.368	13.0	.198	7.0	.071	2.5	.017	.6	.017	.6	27
28			.283	10.0	.425	15.0	.193	6.8	.071	2.5	.017	.6	.017	.6	28
29			.312	11.0	.481	17.0	.193	6.8	.068	2.4	.017	.6	.017	.6	29
30			.283	10.0	.566	20.0	.184	6.5	.068	2.4	.017	.6	.017	.6	30
31					.566	20.0			.068	2.4	.017	.6			31
MEAN			.321	11.3	.446	15.7	.307	10.8	.111	3.9	.037	1.3	.017	.6	MEAN
DAM^3			665.		1193.		794.		298.		100.		44.		DAM^3
AF				539.		967.		644.		241.		81.		36.	AF

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 23
DAVIS CREEK ABOVE DIVERSION NO. 4

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.821*	29.0	1.020	36.0	1.784	63.0	.595	21.0	.283	10.0	.187	6.6	1
2			.821	29.0	1.048	37.0	1.784	63.0	.566	20.0	.278	9.8	.190	6.7	2
3			.821	29.0	1.076	38.0	1.756	62.0	.538	19.0	.272	9.6	.184	6.5	3
4			.793	28.0	1.076	38.0	1.756	62.0	.481	17.0	.266	9.4	.184	6.5	4
5			.793	28.0	1.104	39.0	1.756	62.0	.368	13.0	.258	9.1	.181	6.4	5
6			.765	27.0	1.133	40.0	1.728	61.0	.368	13.0	.255	9.0	.181	6.4	6
7			.765	27.0	1.133	40.0	1.756	62.0	.340	12.0	.246	8.7	.181	6.4	7
8			.736	26.0	1.076	38.0	1.784	63.0	.340	12.0	.241	8.5	.181	6.4	8
9			.793	28.0	1.076	38.0	1.699	60.0	.283	10.0	.238	8.4	.181	6.4	9
10			.850	30.0	1.048	37.0	1.728	61.0	.283	10.0	.229	8.1	.181	6.4	10
11			.906	32.0	1.076	38.0	1.699	60.0	.283	10.0	.218	7.7	.181	6.4	11
12			.906	32.0	1.076	38.0	1.643	58.0	.278	9.8	.207	7.3	.181	6.4	12
13			.963	34.0	1.133	40.0	1.614	57.0	.280	9.9	.184	6.5	.181	6.4	13
14			.991	35.0	1.104	39.0	1.529	54.0	.278	9.8	.173	6.1	.181	6.4	14
15			.963	34.0	1.133	40.0	1.473	52.0	.280	9.9	.176	6.2	.181	6.4	15
16			.963	34.0	1.189	42.0	1.416	50.0	.283	10.0	.178	6.3	.181	6.4	16
17			.906	32.0	1.246	44.0	1.303	46.0	.283	10.0	.176	6.2	.181	6.4	17
18			.935	33.0	1.246	44.0	1.246	44.0	.312	11.0	.176	6.2	.181	6.4	18
19			.991	35.0	1.303	46.0	1.161	41.0	.283	10.0	.178	6.3	.181	6.4	19
20			.991	35.0	1.331	47.0	1.133	40.0	.278	9.8	.181	6.4	.181	6.4	20
21			1.020	36.0	1.359	48.0	1.076	38.0	.280	9.9	.178	6.3	.181	6.4	21
22			1.020	36.0	1.416	50.0	1.020	36.0	.283	10.0	.178	6.3	.181	6.4	22
23			1.048	37.0	1.444	51.0	1.020	36.0	.283	10.0	.181	6.4	.181	6.4	23
24			1.076	38.0	1.473	52.0	.963	34.0	.278	9.8	.184	6.5	.181	6.4	24
25			1.048	37.0	1.529	54.0	.850	30.0	.278	9.8	.184	6.5	.181	6.4	25
26			1.020	36.0	1.558	55.0	.850	30.0	.283	10.0	.190	6.7	.181	6.4	26
27			1.020	36.0	1.614	57.0	.765	27.0	.312	11.0	.187	6.6	.181	6.4	27
28			.991	35.0	1.614	57.0	.736	26.0	.283	10.0	.184	6.5	.181	6.4	28
29			.963	34.0	1.643	58.0	.680	24.0	.312	11.0	.187	6.6	.181	6.4	29
30			.935	33.0	1.643	58.0	.680	24.0	.312	11.0	.190	6.7	.181	6.4	30
31					1.699	60.0			.283	10.0	.187	6.6			31
MEAN			.920	32.5	1.278	45.1	1.346	47.5	.329	11.6	.208	7.3	.182	6.4	MEAN
DAM^3			2384.		3421.		3487.		880.		556.		471.		DAM^3
AF				1933.		2773.		2827.		713.		451.		382.	AF

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
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TABLE 24
LINVILLE CREEK AT OLD POWERHOUSE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1							.074	2.6	.062	2.2	.062	2.2	.057	2.0	1
2							.074	2.6	.062	2.2	.059	2.1	.057	2.0	2
3							.074	2.6	.065	2.3	.059	2.1	.057	2.0	3
4							.076	2.7	.065	2.3	.059	2.1	.057	2.0	4
5							.076	2.7	.065	2.3	.059	2.1	.057	2.0	5
6							.074	2.6	.062	2.2	.059	2.1	.054	1.9	6
7							.074	2.6	.062	2.2	.059	2.1	.054	1.9	7
8							.074	2.6	.062	2.2	.059	2.1	.054	1.9	8
9					.076*	2.7	.074	2.6	.059	2.1	.059	2.1	.054	1.9	9
10					.079	2.8	.071	2.5	.059	2.1	.059	2.1	.054	1.9	10
11					.082	2.9	.071	2.5	.057	2.0	.057	2.0	.054	1.9	11
12					.082	2.9	.071	2.5	.057	2.0	.057	2.0	.054	1.9	12
13					.082	2.9	.071	2.5	.057	2.0	.057	2.0	.054	1.9	13
14					.082	2.9	.071	2.5	.057	2.0	.057	2.0	.054	1.9	14
15					.079	2.8	.071	2.5	.057	2.0	.057	2.0	.054	1.9	15
16					.079	2.8	.071	2.5	.057	2.0	.057	2.0	.054	1.9	16
17					.079	2.8	.068	2.4	.057	2.0	.057	2.0	.054	1.9	17
18					.079	2.8	.068	2.4	.059	2.1	.057	2.0	.054	1.9	18
19					.079	2.8	.068	2.4	.059	2.1	.059	2.1	.054	1.9	19
20					.076	2.7	.068	2.4	.059	2.1	.059	2.1	.054	1.9	20
21					.076	2.7	.071	2.5	.059	2.1	.059	2.1	.051	1.8	21
22					.076	2.7	.071	2.5	.059	2.1	.059	2.1	.051	1.8	22
23					.079	2.8	.068	2.4	.059	2.1	.059	2.1	.051	1.8	23
24					.079	2.8	.068	2.4	.062	2.2	.059	2.1	.051	1.8	24
25					.082	2.9	.068	2.4	.062	2.2	.059	2.1	.051	1.8	25
26					.079	2.8	.065	2.3	.062	2.2	.059	2.1	.051	1.8	26
27					.076	2.7	.065	2.3	.062	2.2	.057	2.0	.051	1.8	27
28					.076	2.7	.065	2.3	.062	2.2	.057	2.0	.051	1.8	28
29					.074	2.6	.065	2.3	.062	2.2	.057	2.0	.051	1.8	29
30					.071	2.5	.065	2.3	.062	2.2	.057	2.0	.051	1.8	30
31					.074	2.6			.062	2.2	.057	2.0			31
MEAN					.078	2.8	.070	2.5	.061	2.1	.058	2.1	.053	1.9	MEAN
DAM^3					156.		182.		162.		156.		138.		DAM^3
AF						126.		147.		131.		127.		112.	AF

* Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 25
FRANKLIN CREEK ABOVE DIVERSIONS

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1					.340	12.0	.246	8.7	.110	3.9	.074	2.6	.074	2.6	1
2					.340	12.0	.244	8.6	.108	3.8	.076	2.7	.074	2.6	2
3					.340	12.0	.241	8.5	.108	3.8	.076	2.7	.074	2.6	3
4					.340	12.0	.238	8.4	.105	3.7	.074	2.6	.074	2.6	4
5					.312	11.0	.235	8.3	.105	3.7	.074	2.6	.074	2.6	5
6					.283	10.0	.229	8.1	.102	3.6	.071	2.5	.074	2.6	6
7			.122*	4.3	.283	10.0	.218	7.7	.102	3.6	.071	2.5	.076	2.7	7
8			.133	4.7	.312	11.0	.210	7.4	.099	3.5	.068	2.4	.076	2.7	8
9			.127	4.5	.340	12.0	.201	7.1	.099	3.5	.068	2.4	.076	2.7	9
10			.122	4.3	.340	12.0	.193	6.8	.096	3.4	.068	2.4	.076	2.7	10
11			.133	4.7	.340	12.0	.181	6.4	.093	3.3	.071	2.5	.076	2.7	11
12			.133	4.7	.340	12.0	.173	6.1	.091	3.2	.071	2.5	.076	2.7	12
13			.136	4.8	.396	14.0	.170	6.0	.091	3.2	.071	2.5	.076	2.7	13
14			.136	4.8	.396	14.0	.161	5.7	.091	3.2	.068	2.4	.076	2.7	14
15			.139	4.9	.368	13.0	.156	5.5	.088	3.1	.068	2.4	.076	2.7	15
16			.150	5.3	.368	13.0	.153	5.4	.088	3.1	.065	2.3	.076	2.7	16
17			.164	5.8	.340	12.0	.150	5.3	.085	3.0	.065	2.3	.076	2.7	17
18			.178	6.3	.340	12.0	.147	5.2	.085	3.0	.065	2.3	.076	2.7	18
19			.195	6.9	.340	12.0	.147	5.2	.088	3.1	.065	2.3	.076	2.7	19
20			.204	7.2	.340	12.0	.144	5.1	.088	3.1	.062	2.2	.076	2.7	20
21			.195	6.9	.340	12.0	.142	5.0	.085	3.0	.065	2.3	.076	2.7	21
22			.193	6.8	.340	12.0	.139	4.9	.082	2.9	.065	2.3	.076	2.7	22
23			.212	7.5	.312	11.0	.133	4.7	.079	2.8	.068	2.4	.076	2.7	23
24			.204	7.2	.312	11.0	.127	4.5	.079	2.8	.068	2.4	.076	2.7	24
25			.246	8.7	.312	11.0	.122	4.3	.076	2.7	.068	2.4	.076	2.7	25
26			.340	12.0	.283	10.0	.119	4.2	.074	2.6	.071	2.5	.076	2.7	26
27			.453	16.0	.283	10.0	.116	4.1	.076	2.7	.071	2.5	.076	2.7	27
28			.396	14.0	.275	9.7	.113	4.0	.076	2.7	.071	2.5	.076	2.7	28
29			.368	13.0	.269	9.5	.110	3.9	.074	2.6	.074	2.6	.076	2.7	29
30			.396	14.0	.266	9.4	.108	3.8	.074	2.6	.074	2.6	.076	2.7	30
31					.258	9.1			.074	2.6	.074	2.6			31
MEAN			.212	7.5	.324	11.4	.169	6.0	.089	3.2	.070	2.5	.078	2.8	MEAN
DAM^3	0.		438.		867.		437.		239.		186.		203.		DAM^3
AF		0.		355.		703.		355.		194.		151.		165.	AF

* Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 26
JOSEPH CREEK BELOW COUCH CREEK

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1					.538	19.0	.255	9.0	.170	6.0	.051	1.8	.028	1.0	1
2					.510	18.0	.255	9.0	.164	5.8	.051	1.8	.028	1.0	2
3					.481	17.0	.255	9.0	.161	5.7	.054	1.9	.028	1.0	3
4					.396	14.0	.258	9.1	.159	5.6	.054	1.9	.028	1.0	4
5					.368	13.0	.261	9.2	.156	5.5	.057	2.0	.028	1.0	5
6					.368	13.0	.256	9.1	.150	5.3	.059	2.1	.028	1.0	6
7			.258*	9.1	.340	12.0	.258	9.1	.144	5.1	.054	1.9	.028	1.0	7
8			.258	9.1	.340	12.0	.258	9.1	.144	5.1	.054	1.9	.028	1.0	8
9			.269	9.5	.340	12.0	.256	9.1	.147	5.2	.054	1.9	.028	1.0	9
10			.275	9.7	.312	11.0	.261	9.2	.142	5.0	.051	1.8	.028	1.0	10
11			.283	10.0	.312	11.0	.255	9.0	.139	4.9	.051	1.8	.028	1.0	11
12			.340	12.0	.312	11.0	.255	9.0	.133	4.7	.051	1.8	.028	1.0	12
13			.368	13.0	.312	11.0	.246	8.7	.130	4.6	.054	1.9	.028	1.0	13
14			.340	12.0	.312	11.0	.238	8.4	.125	4.4	.054	1.9	.028	1.0	14
15			.340	12.0	.312	11.0	.229	8.1	.116	4.1	.051	1.8	.028	1.0	15
16			.312	11.0	.312	11.0	.227	8.0	.113	4.0	.048	1.7	.028	1.0	16
17			.312	11.0	.283	10.0	.221	7.8	.108	3.8	.048	1.7	.028	1.0	17
18			.269	9.5	.283	10.0	.218	7.7	.102	3.6	.048	1.7	.028	1.0	18
19			.255	9.0	.278	9.8	.212	7.5	.096	3.4	.048	1.7	.028	1.0	19
20			.283	10.0	.275	9.7	.210	7.4	.093	3.3	.045	1.6	.028	1.0	20
21			.340	12.0	.269	9.5	.201	7.1	.088	3.1	.045	1.6	.028	1.0	21
22			.453	16.0	.272	9.6	.201	7.1	.082	2.9	.042	1.5	.028	1.0	22
23			.425	15.0	.269	9.5	.198	7.0	.079	2.8	.042	1.5	.028	1.0	23
24			.510	18.0	.266	9.4	.198	7.0	.074	2.6	.045	1.6	.028	1.0	24
25			.538	19.0	.263	9.3	.190	6.7	.071	2.5	.045	1.6	.028	1.0	25
26			.595	21.0	.263	9.3	.184	6.5	.065	2.3	.042	1.5	.028	1.0	26
27			.651	23.0	.261	9.2	.181	6.4	.059	2.1	.045	1.6	.028	1.0	27
28			.708	25.0	.261	9.2	.178	6.3	.057	2.0	.042	1.5	.028	1.0	28
29			.623	22.0	.258	9.1	.178	6.3	.054	1.9	.042	1.5	.028	1.0	29
30			.595	21.0	.258	9.1	.173	6.1	.054	1.9	.042	1.5	.028	1.0	30
31					.258	9.1			.048	1.7	.028	1.0			31
MEAN			.400	14.1	.319	11.3	.226	8.0	.110	3.9	.048	1.7	.029	1.0	MEAN
DAM^3			829.		853.		584.		296.		130.		76.		DAM^3
AF				672.		691.		474.		240.		105.		61.	AF

* Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 27
NORTH FORK PIT BELOW THOMS CREEK

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	

NO RECORD
AVAILABLE FOR
1978 SEASON

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 28
~~THOMS CREEK AT CEDARVILLE - ALTURAS HIGHWAY~~ N. FK. Pit above Parker Cr.

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1					.312	11.0	.099	3.5	.071	2.5	.008	.3	.006	.2	1
2					.312	11.0	.110	3.9	.068	2.4	.008	.3	.006	.2	2
3					.283	10.0	.130	4.6	.068	2.4	.011	.4	.006	.2	3
4					.269	9.5	.150	5.3	.065	2.3	.011	.4	.006	.2	4
5					.261	9.2	.173	6.1	.065	2.3	.008	.3	.006	.2	5
6					.255	9.0	.178	6.3	.065	2.3	.008	.3	.006	.2	6
7			.096 *	3.4	.241	8.5	.184	6.5	.059	2.1	.008	.3	.006	.2	7
8			.102	3.6	.224	7.9	.187	6.6	.059	2.1	.006		.006	.2	8
9			.102	3.6	.207	7.3	.181	6.4	.054	1.9	.006	.2	006	.2	9
10			.108	3.8	.201	7.1	.176	6.2	.051	1.8	.008	.3	.006	.2	10
11			.108	3.8	.193	6.8	.176	6.2	.051	1.8	.008	.3	.006	.2	11
12			.116	4.1	.190	6.7	.173	6.1	.054	1.9	.008	.3	.006	.2	12
13			.113	4.0	.181	6.4	.173	6.1	.048	1.7	.006	.2	.006	.2	13
14			.113	4.0	.178	6.3	.167	5.9	.042	1.5	.006	.2	.006	.2	14
15			.108	3.8	.173	6.1	.159	5.6	.040	1.4	.008	.3	.006	.2	15
16			.105	3.7	.156	5.5	.150	5.3	.037	1.3	.008	.3	.003	.1	16
17			.102	3.6	.142	5.0	.147	5.2	.034	1.2	.008	.3	.003	.1	17
18			.102	3.6	.133	4.7	.139	4.9	.028	1.0	.008	.3	.003	.1	18
19			.096	3.4	.119	4.2	.130	4.6	.023	.8	.006	.2	.003	.1	19
20			.099	3.5	.110	3.9	.122	4.3	.017	.6	.006	.2	.003	.1	20
21			.110	3.9	.099	3.5	.110	3.9	.020	.7	.008	.3	.003	.1	21
22			.122	4.3	.085	3.0	.105	3.7	.017	.6	.011	.4	.003	.1	22
23			.144	5.1	.076	2.7	.102	3.6	.017	.6	.008	.3	.003	.1	23
24			.167	5.9	.068	2.4	.093	3.3	.020	.7	.008	.3	.003	.1	24
25			.184	6.5	.057	2.0	.088	3.1	.017	.6	.008	.3	.003	.1	25
26			.201	7.1	.042	1.5	.079	2.8	.014	.5	.006	.2	.003	.1	26
27			.241	8.5	.045	1.6	.074	2.6	.014	.5	.006	.2	.003	.1	27
28			.283	10.0	.054	1.9	.071	2.5	.011	.4	.006	.2	.003	.1	28
29			.312	11.0	.065	2.3	.068	2.4	.011	.4	.006	.2	.003	.1	29
30			.340	12.0	.071	2.5	.071	2.5	.008	.3	.006	.2	.000	.0	30
31					.082	2.9			.008	.3	.006	.2			31
MEAN			.149	5.3	.157	5.6	.132	4.7	.037	1.3	.008	.3	.004	.1	MEAN
DAM^3			309.		422.		342.		100.		21.		11.		DAM^3
AF				250.		342.		278.		81.		17.		9.	AF

* Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 29
PARKER CREEK AT FOGARTY RANCH

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1					3.795	134.0	1.048	37.0	.255	9.0	.110	3.9	.057	2.0	1
2					3.512	124.0	.991	35.0	.255	9.0	.110	3.9	.068	2.4	2
3					3.285	116.0	.963	34.0	.255	9.0	.110	3.9	.076	2.7	3
4					2.917	103.0	.906	32.0	.272	9.6	.108	3.8	.085	3.0	4
5					2.549	90.0	.906	32.0	.272	9.6	.108	3.8	.096	3.4	5
6					2.266	80.0	.878	31.0	.272	9.6	.108	3.8	.102	3.6	6
7			1.614*	57.0	1.954	69.0	.850	30.0	.238	8.4	.105	3.7	.142	5.0	7
8			1.614	57.0	1.897	67.0	.850	30.0	.221	7.8	.105	3.7	.119	4.2	8
9			1.869	66.0	1.897	67.0	.793	28.0	.204	7.2	.105	3.7	.127	4.5	9
10			2.011	71.0	2.011	71.0	.765	27.0	.187	6.6	.102	3.6	.136	4.8	10
11			2.039	72.0	1.869	66.0	.765	27.0	.170	6.0	.102	3.6	.142	5.0	11
12			1.869	66.0	1.869	66.0	.708	25.0	.159	5.6	.102	3.6	.139	4.9	12
13			1.728	61.0	1.897	67.0	.680	24.0	.159	5.6	.099	3.5	.136	4.8	13
14			1.897	67.0	1.982	70.0	.680	24.0	.153	5.4	.099	3.5	.133	4.7	14
15			1.728	61.0	1.954	69.0	.623	22.0	.150	5.3	.096	3.4	.130	4.6	15
16			1.756	62.0	1.812	64.0	.595	21.0	.144	5.1	.091	3.2	.127	4.5	16
17			1.671	59.0	1.473	52.0	.566	20.0	.142	5.0	.091	3.2	.125	4.4	17
18			1.586	56.0	1.246	44.0	.538	19.0	.139	4.9	.088	3.1	.119	4.2	18
19			1.529	54.0	1.133	40.0	.510	18.0	.133	4.7	.088	3.1	.116	4.1	19
20			1.614	57.0	1.161	41.0	.453	16.0	.127	4.5	.085	3.0	.110	3.9	20
21			1.614	57.0	1.104	39.0	.425	15.0	.125	4.4	.082	2.9	.108	3.8	21
22			1.614	57.0	1.076	38.0	.396	14.0	.125	4.4	.079	2.8	.108	3.8	22
23			1.671	59.0	1.104	39.0	.340	12.0	.119	4.2	.076	2.7	.108	3.8	23
24			1.614	57.0	1.076	38.0	.312	11.0	.119	4.2	.074	2.6	.105	3.7	24
25			2.351	83.0	1.104	39.0	.272	9.6	.119	4.2	.074	2.6	.105	3.7	25
26			6.684	236.0	1.076	38.0	.238	8.4	.116	4.1	.071	2.5	.105	3.7	26
27			6.372	225.0	1.076	38.0	.238	8.4	.116	4.1	.071	2.5	.105	3.7	27
28			6.117	216.0	1.076	38.0	.238	8.4	.116	4.1	.068	2.4	.105	3.7	28
29			4.191	148.0	1.076	38.0	.238	8.4	.108	3.8	.065	2.3	.102	3.6	29
30			4.248	150.0	1.076	38.0	.255	9.0	.113	4.0	.062	2.2	.102	3.6	30
31					1.048	37.0			.110	3.9	.057	2.0			31
MEAN			2.542	.0	1.754	61.9	.601	21.2	.167	5.9	.090	3.2	.111	3.9	MEAN
DAM³			5267.		4695.		1556.		448.		241.		288.		DAM³
AF				4270.		3806.		1261.		363.		195.		234.	AF

* Beginning of Record

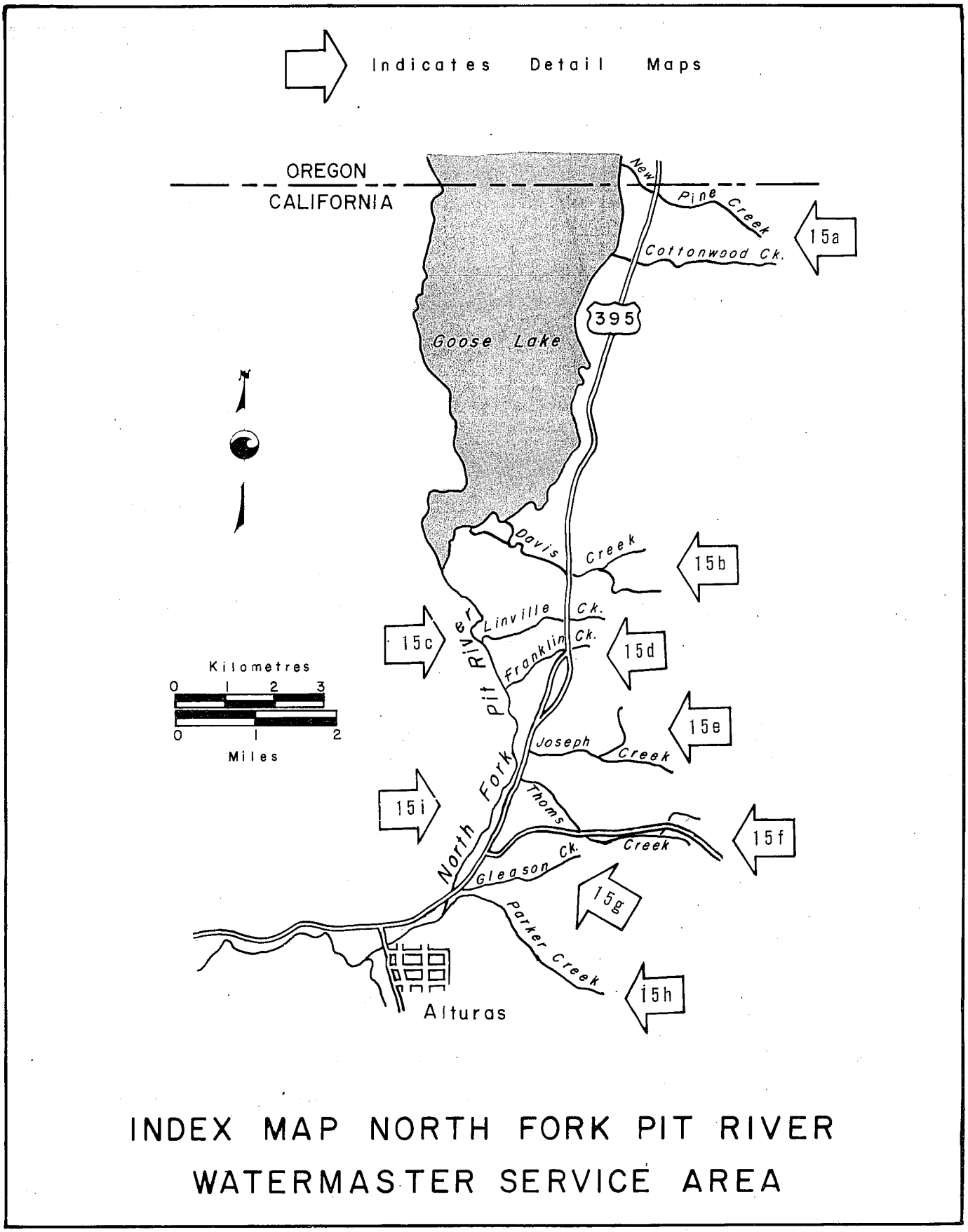
NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 30
SHIELDS CREEK ABOVE DIVERSION #93

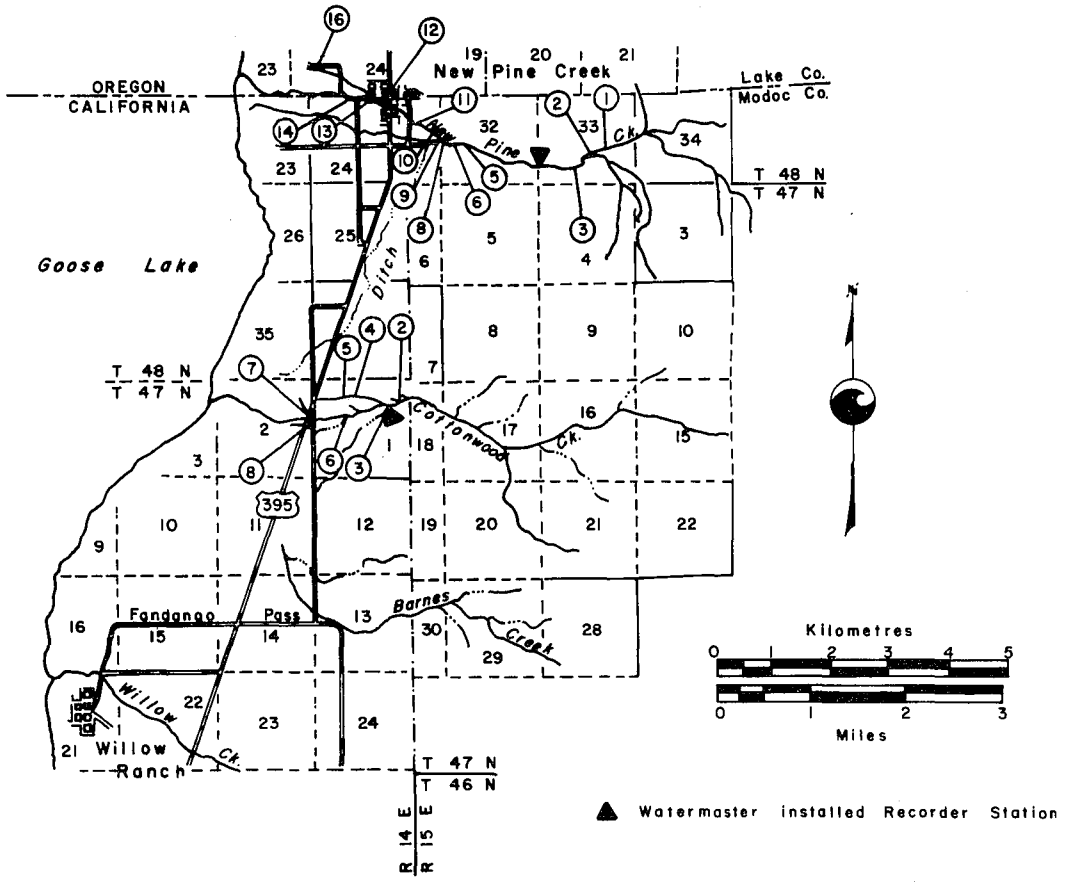
DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1							.210	7.4	.142	5.0	.099	3.5	.088	3.1	1
2							.204	7.2	.142	5.0	.105	3.7	.088	3.1	2
3							.195	6.9	.136	4.8	.105	3.7	.088	3.1	3
4							.195	6.9	.136	4.8	.099	3.5	.082	2.9	4
5							.195	6.9	.130	4.6	.099	3.5	.082	2.9	5
6							.181	6.4	.130	4.6	.099	3.5	.082	2.9	6
7							.181	6.4	.130	4.6	.093	3.3	.076	2.7	7
8					.280*	9.9	.181	6.4	.130	4.6	.093	3.3	.076	2.7	8
9					.280	9.9	.181	6.4	.122	4.3	.093	3.3	.076	2.7	9
10					.280	9.9	.190	6.7	.122	4.3	.093	3.3	.076	2.7	10
11					.272	9.6	.181	6.4	.116	4.1	.093	3.3	.076	2.7	11
12					.283	10.0	.181	6.4	.116	4.1	.093	3.3	.076	2.7	12
13					.312	11.0	.176	6.2	.116	4.1	.093	3.3	.076	2.7	13
14					.340	12.0	.176	6.2	.116	4.1	.093	3.3	.076	2.7	14
15					.340	12.0	.176	6.2	.116	4.1	.093	3.3	.074	2.6	15
16					.340	12.0	.176	6.2	.110	3.9	.093	3.3	.074	2.6	16
17					.312	11.0	.167	5.9	.110	3.9	.093	3.3	.074	2.6	17
18					.283	10.0	.167	5.9	.110	3.9	.093	3.3	.074	2.6	18
19					.283	10.0	.167	5.9	.105	3.7	.093	3.3	.074	2.6	19
20					.280	9.9	.161	5.7	.105	3.7	.093	3.3	.074	2.6	20
21					.283	10.0	.161	5.7	.099	3.5	.093	3.3	.074	2.6	21
22					.280	9.9	.156	5.5	.099	3.5	.088	3.1	.074	2.6	22
23					.280	9.9	.156	5.5	.099	3.5	.088	3.1	.074	2.6	23
24					.272	9.6	.156	5.5	.099	3.5	.088	3.1	.068	2.4	24
25					.255	9.0	.156	5.5	.099	3.5	.088	3.1	.068	2.4	25
26					.232	8.2	.147	5.2	.099	3.5	.088	3.1	.068	2.4	26
27					.218	7.7	.156	5.5	.099	3.5	.088	3.1	.068	2.4	27
28					.218	7.7	.147	5.2	.099	3.5	.088	3.1	.068	2.4	28
29					.218	7.7	.147	5.2	.099	3.5	.088	3.1	.068	2.4	29
30					.210	7.4	.142	5.0	.099	3.5	.088	3.1	.068	2.4	30
31					.210	7.4			.099	3.5	.088	3.1			31
MEAN					.273	9.7	.172	6.1	.114	4.0	.093	3.3	.075	2.7	MEAN
DAM³					567.		446.		305.		249.		195.		DAM³
AF						459.		362.		247.		202.		158.	AF

* Beginning of Record

Figure 15



INDEX MAP NORTH FORK PIT RIVER
WATERMASTER SERVICE AREA



NEW PINE CREEK

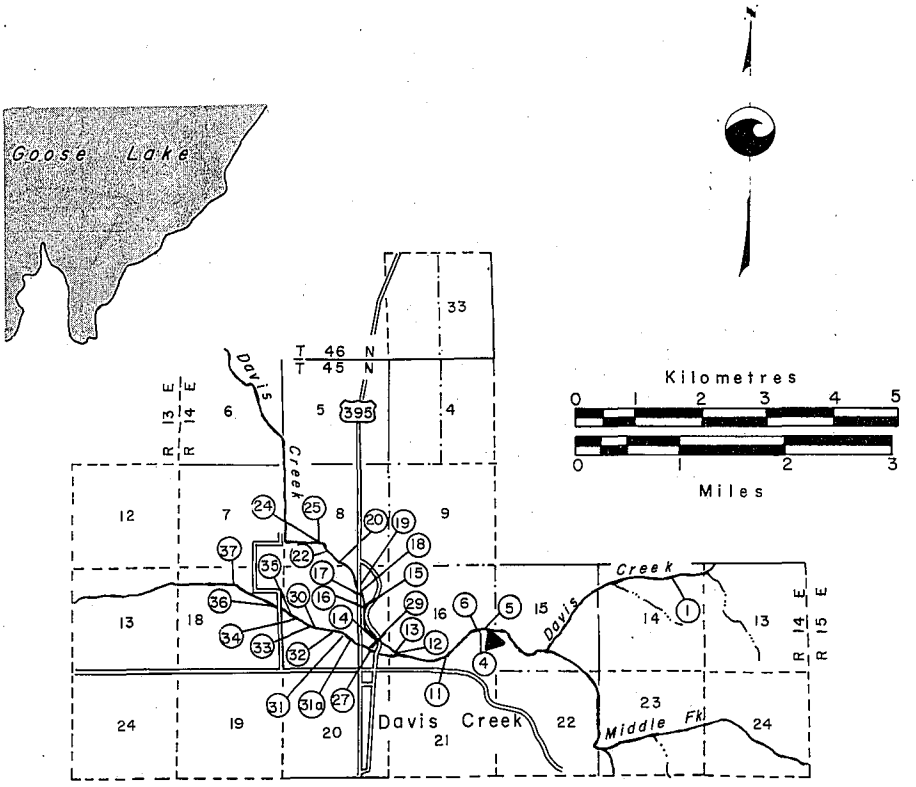
Diversion Number	Name	m³/s	cfs
1, 2, 3	Clemons, R.	0.006	0.23
5	Butler, W.	0.018	0.65
	Butler, T	0.014	0.51
6	Brocco, F.	0.0006	0.02
	Guerne, G.	0.0008	0.03
	Stevens, L.	0.009	0.33
	Beachler, B.	0.004	0.15
	Fernwood, S.	0.005	0.18
8	California Ditch		
	Nelson, L.	0.020	0.70
	Stringer, R.	0.039	1.39
	Cunduff, J.	0.016	0.57
	Roberts, A.	0.009	0.33
	Cundiff, H.	0.019	0.66
	Pochop, L.	0.008	0.30
	Smith, M.	0.002	0.08
	Cloud, C.	0.018	0.62
	Steward, P.	0.016	0.55
	Lawson, T.	0.029	1.04
9, 10	Beachler, B.	0.028	0.97 diverted at 8
11	Boutin, H.	0.0006	0.02 diverted at 6
12	Johnston, O.	0.0006	0.02 diverted at 6
13	Lawson, T.	0.240	8.48
14, 16	Lawson, T.	0.110	3.89

COTTONWOOD CREEK

Diversion Number	Name	m³/s	cfs
2	Allen	0.045	1.60
3	Fleming	0.130	4.60
	Perry	0.034	1.20
4	Weidner (Pipeline)	0.116	4.10
5	Fleming	0.033	1.15
6	U.R. Ranch	0.045	1.60
	Perry	0.031	1.10

Cottonwood Creek diversions 7 & 8 belong to Vincent and are used only during high flows.

DIVERSIONS FROM COTTONWOOD AND NEW PINE CREEKS NORTH FORK PIT RIVER WATERMASTER SERVICE AREA



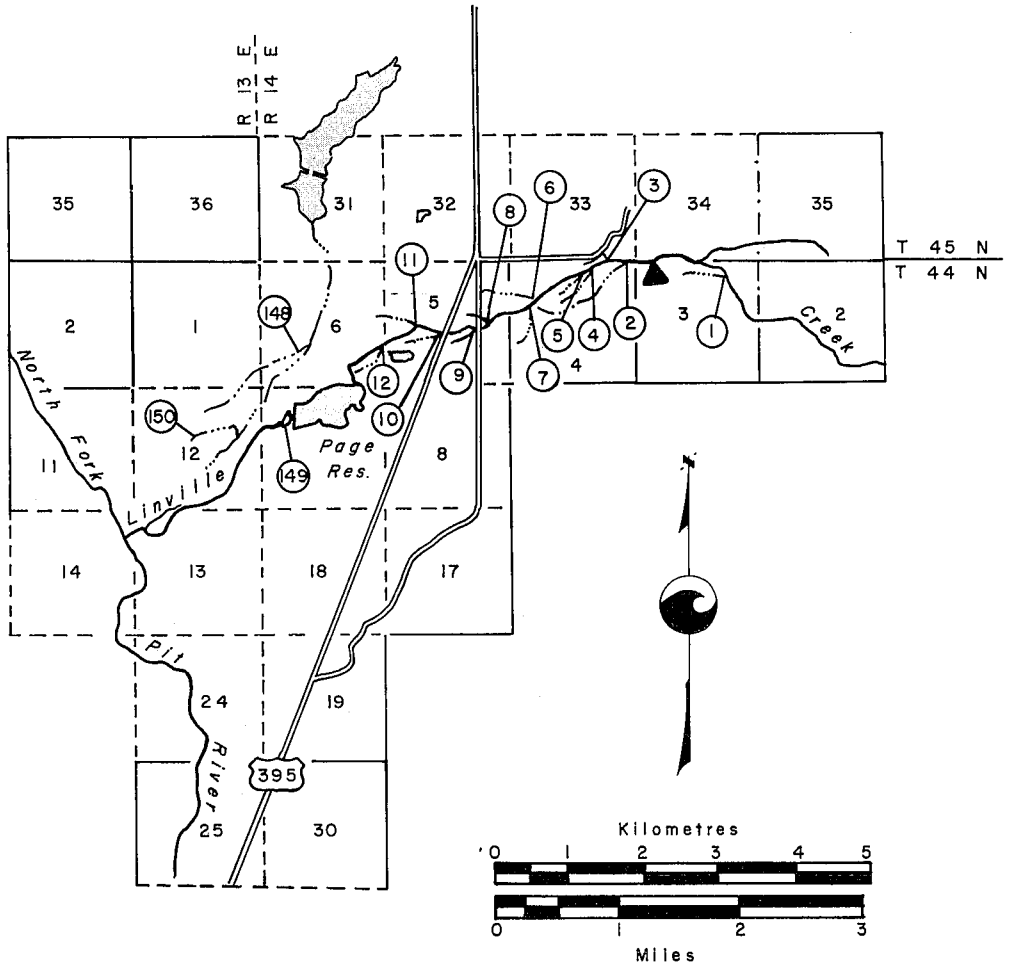
Diversion Number	Name	m^3/s	cfs
1	Pangborn	0.011	0.40
3	Gardner	0.011	0.40
4	Eddie	0.023	0.80
5	Tilson	0.003	0.10
6	Baker	0.011	0.40
	Dollarhide	0.002	0.06
8	Eddie	0.004	0.15
	Brunnemer	0.004	0.15
	Reith	0.006	0.20
	James	0.003	0.1125
	Shedd	0.001	0.0375
	King	0.004	0.15
	Brear	0.004	0.15
	Pointere	0.001	0.04

Diversion Number	Name	m^3/s	cfs
4, 5, 11, 16, 19, 20, 22, 24, 25	Davis	0.178	6.30
12, 13, 16, 27, 30, 31, 31a	Tilson	0.040	1.40
14	Eagleston	0.004	0.15
15, 17, 18, 19	Thompson	0.042	1.50
21	Foothill Plumbing	0.018	0.65
1, 27, 29, 32-37	Grace	1.117	39.45

▲ Watermaster installed recorder station

DIVERSIONS FROM DAVIS CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

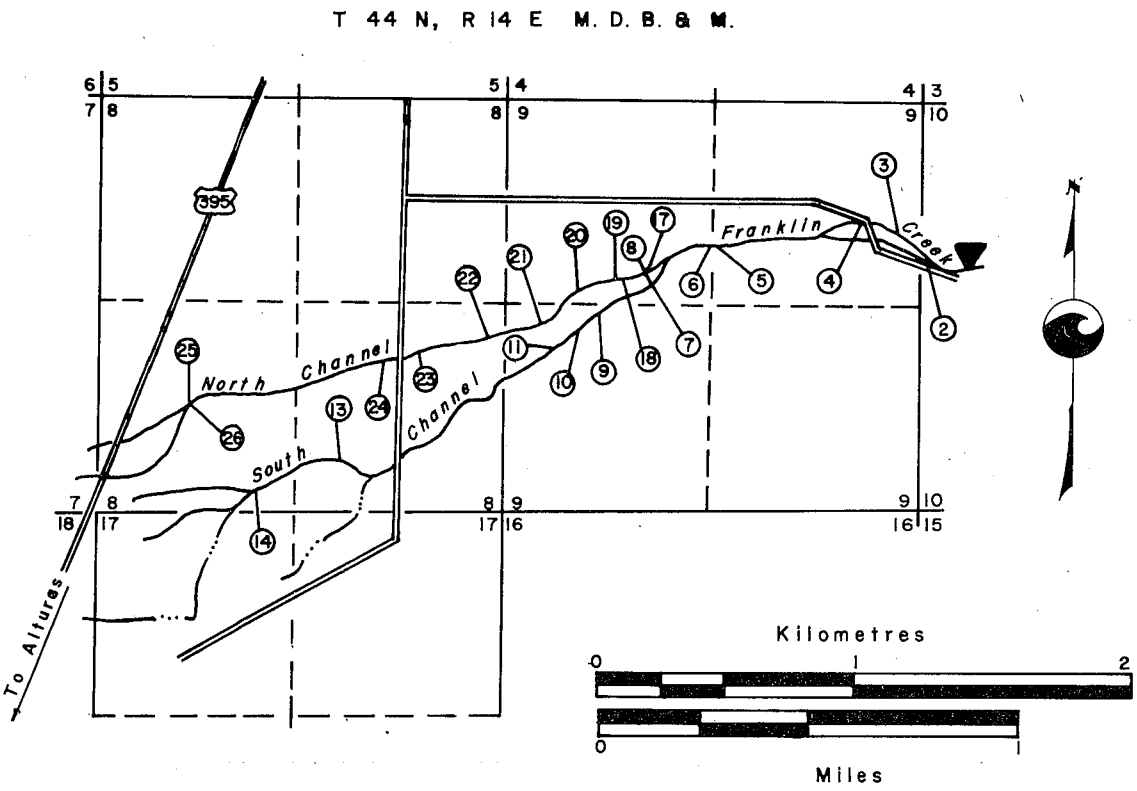
Figure 15c



Diversion Number	Name	m^3/s	cfs	Diversion Number	Name	m^3/s	cfs
1	Burns	0.003	0.1	11, 12	Capik	0.035	1.25
2–10	Gardner	0.108	3.8	12, 148 149, 150	Curtis	0.089	3.15

▲ Watermaster installed recorder station.

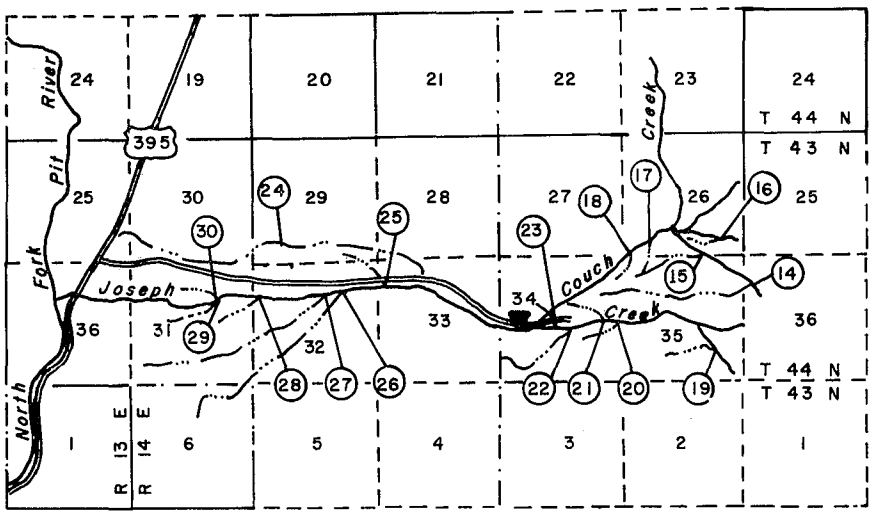
DIVERSIONS FROM LINVILLE CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA



Diversion Number	Name	m³/s	cfs
2–4	Curtis	0.015	0.53
5, 6	Curtis	0.013	0.46
7, 8	Gardner	0.077	2.72
9–11	Curtis	0.011	0.40
13,14	Goulding	0.028	1.00
17-22,25	Curtis	0.083	2.93
21	Diablo Vista	0.065	2.31
23,24,26	Goulding	0.037	1.31

▲ Watermaster installed recorder station

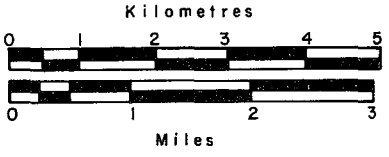
DIVERSIONS FROM FRANKLIN CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA



Diversion Number	Name	m³/s	cfs	Diversion Number	Name	m³/s	cfs
14 – 18	U.S. Forest Service	0.033	1.15*	24	Russell	0.014	0.50
19	McQueen	0.011	0.40	24	Franks	0.003	0.10
20–24	Armstrong	0.039	1.38*	26	U.S. Indian Service	0.037	1.30
22	Russell	0.011	0.40	24–30	Armstrong	0.194	6.85*

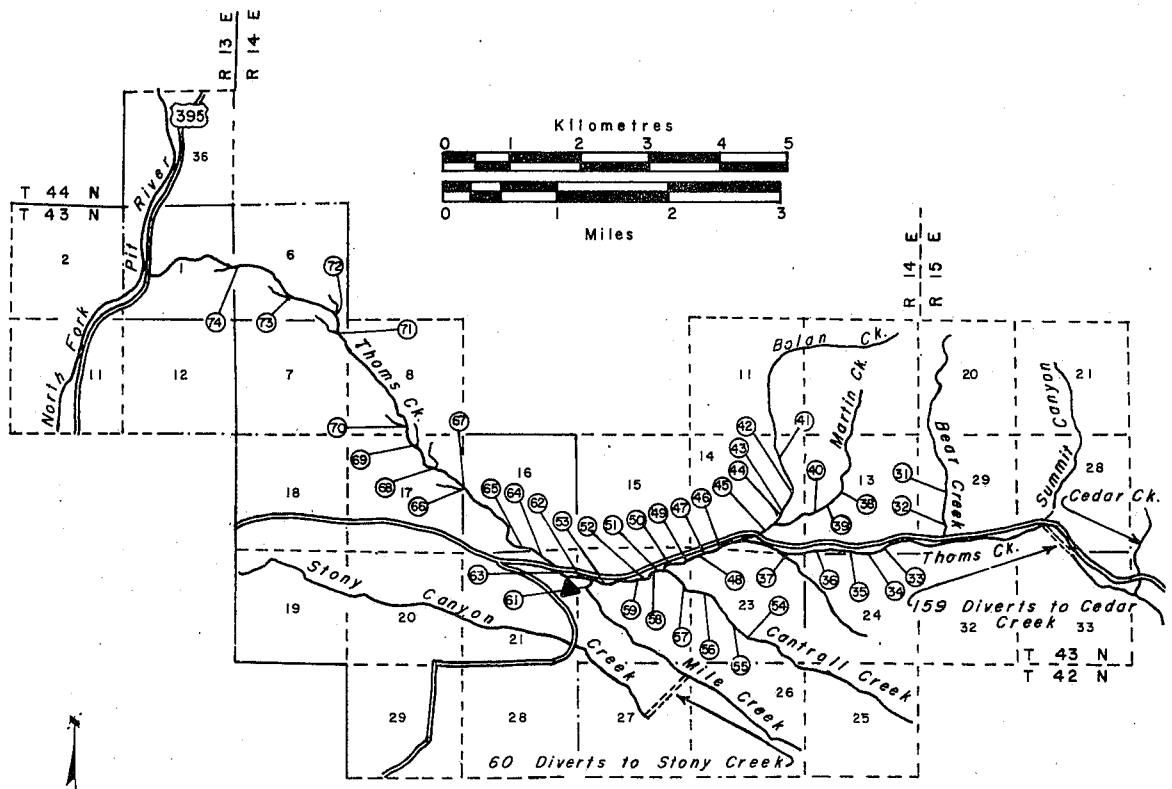
▲ Watermaster installed recorder station

* Net consumptive use



DIVERSIONS FROM JOSEPH CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 15f

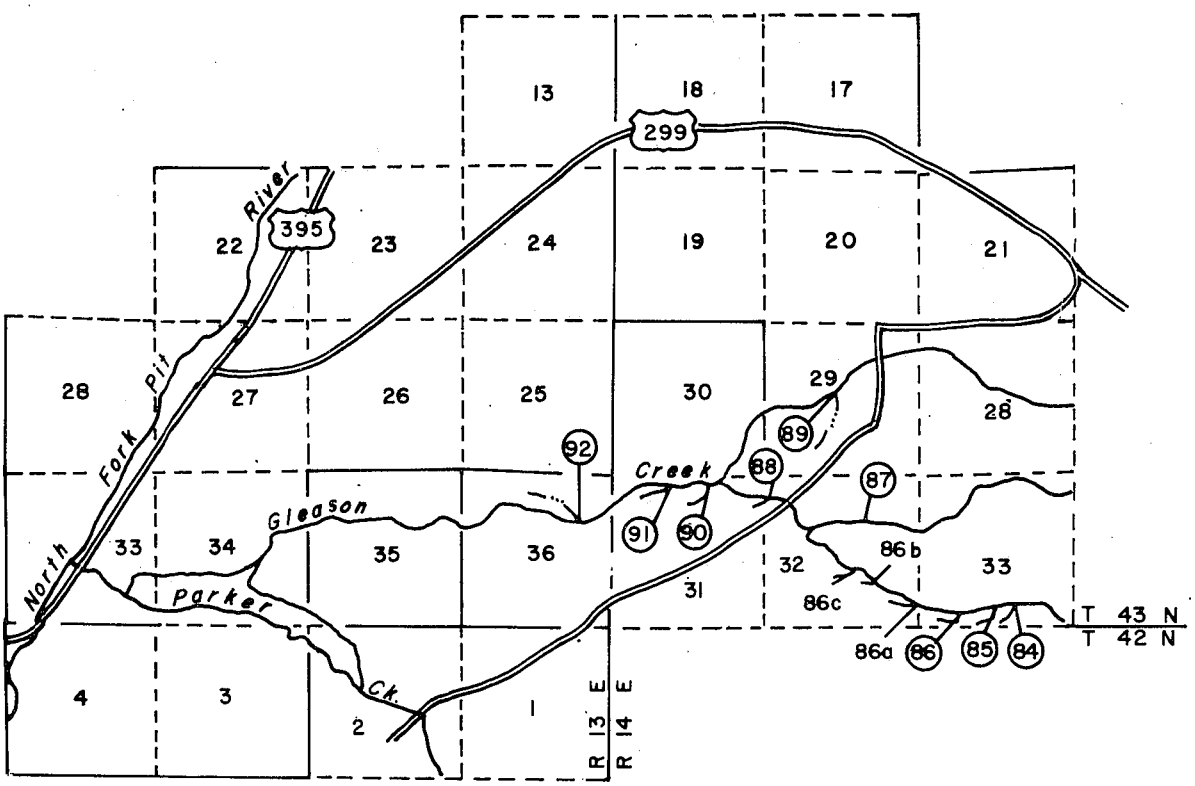


Diversion Number	Name	m^3/s	cfs
31-36,38-40	Neer	0.0354	1.25
54-56	Coppedge	0.0011	0.04
37	Armor	0.0006	0.02
37, 41-45	DeWitt	0.0379	1.34
46-53,57-59,61	Brown	0.0354	1.25
62,63	Hart	0.0071	0.25
64,65	Thoms Creek Ranch Co.	0.0113	0.40
66-70	Spaulding and Beebe	0.0323	1.14
71-74	Triple K Ranches	0.0212	0.75

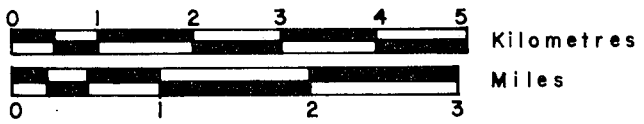
▲ Watermaster installed recorder station

DIVERSIONS FROM THOMS CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 15g



Diversion Number	Name	m^3/s	cfs
84-86	Russell	0.028	1.00
86 a,b,c	Stanton	0.006	0.20
87-91	Stains	0.057	2.00
82	U.S. Indian Service	0.038	1.35



DIVERSIONS FROM GLEASON CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

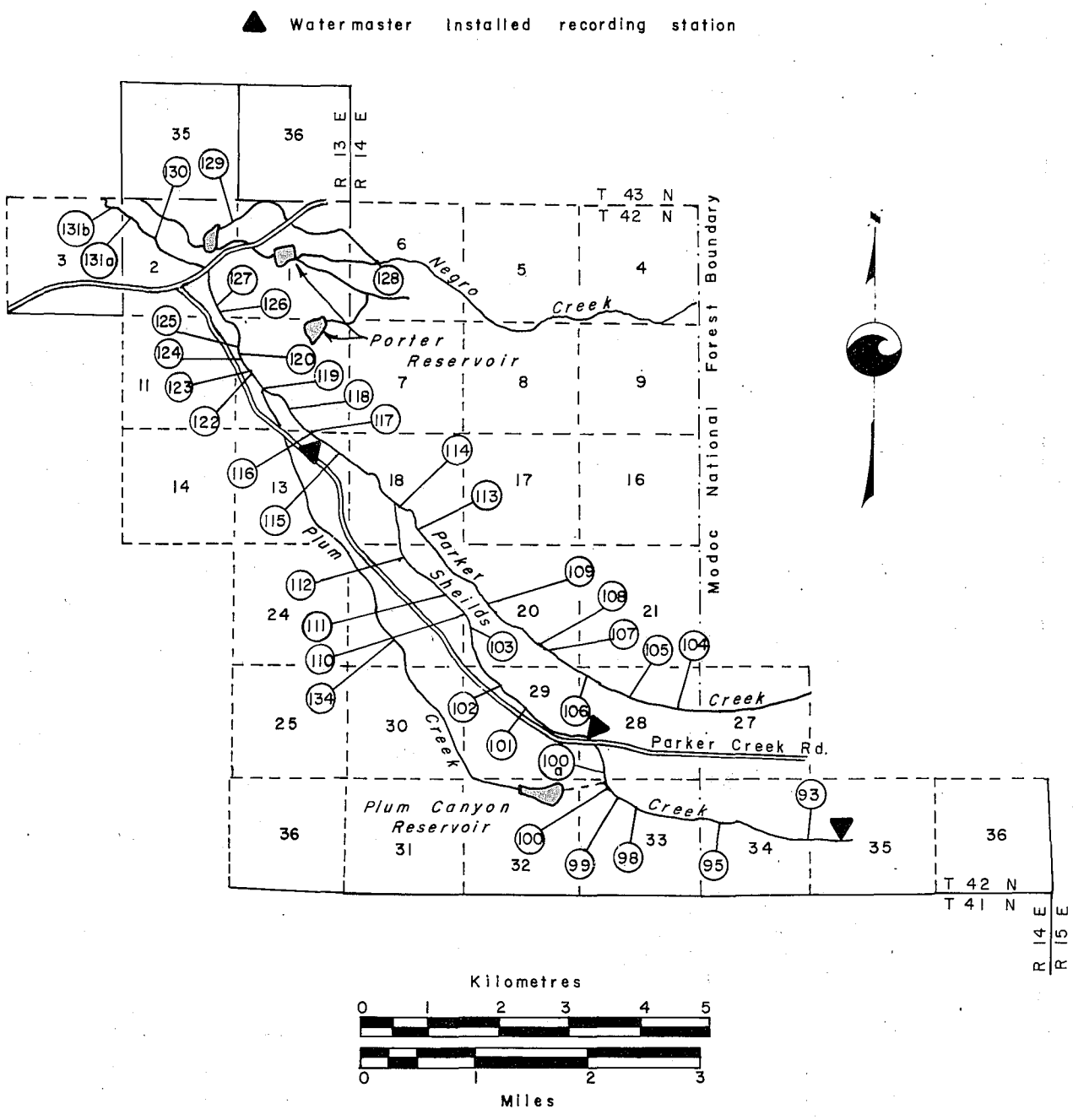
Parker Creek

Diversion Number	Name	m^3/s	Cfs
104,105,106	G. B. Dorris	0.510	1.80
105,107-109	H. Weber	0.043	1.50
109	R. Hicks	0.006	0.20
113	J. Weber	0.041	1.45
113, or 128	W. Volentine	0.046	1.61
116-118, 120-124	W. Weber	0.062	2.18
120	W. Volentine	0.024	0.83
	J. Monroe	0.269	9.49
126-131	W. Volentine	0.032	1.13
130-131a	U. S. Indian Service	0.084	2.97

Shields Creek

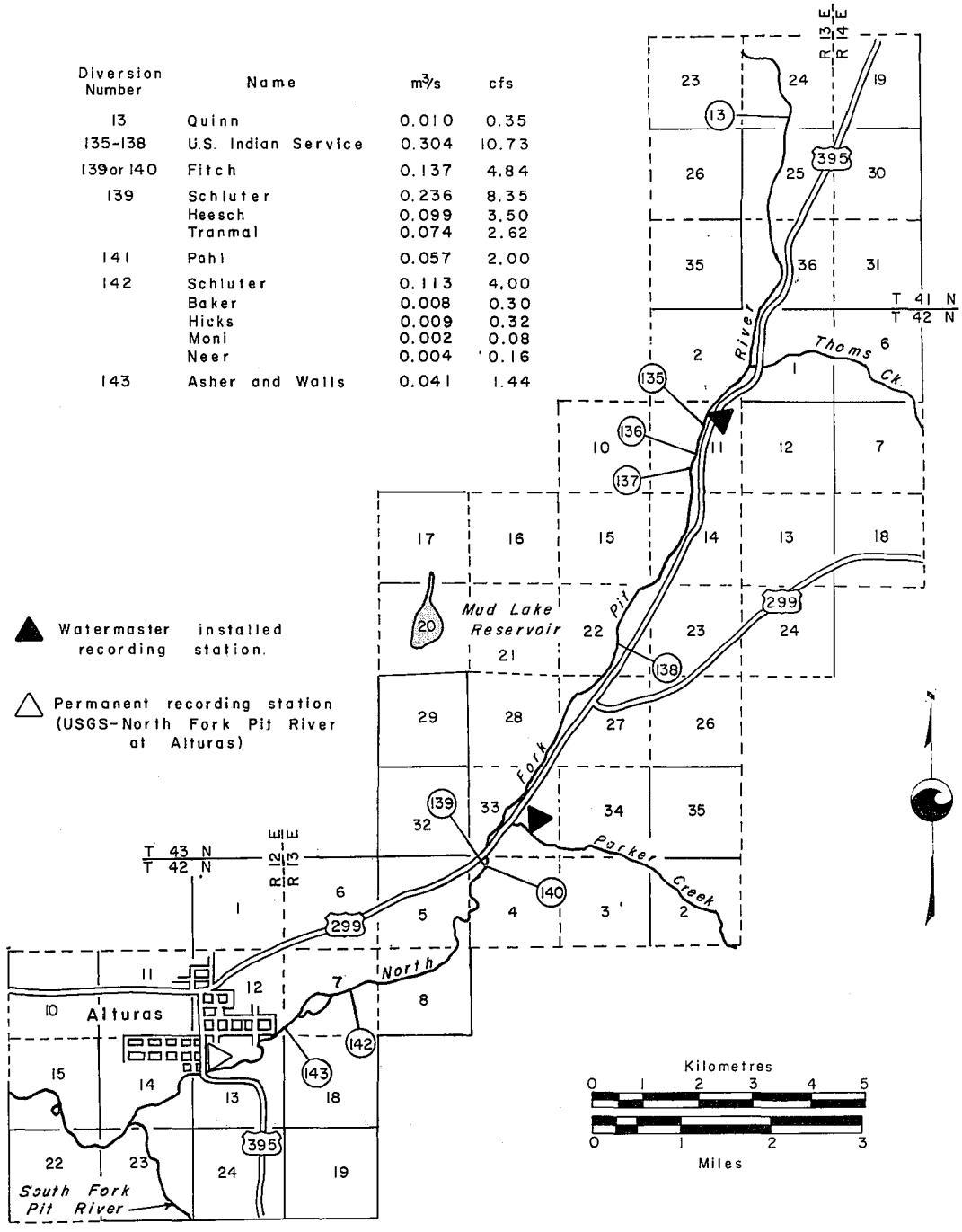
93,95,98-99	J. Weber	0.064	2.25
93,100-100a	R. Bicknell & G. Eagleston	0.020	0.70
101-103,110	H. Weber	0.049	1.70
100	C. Bailey	0.014	0.50*
134	C. Bailey	0.007	0.25*

* May be diverted at three (3) times these rates when water is available.



DIVERSIONS FROM PARKER CREEK AND SHIELDS CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Diversion Number	Name	m^3/s	cfs
13	Quinn	0.010	0.35
135-138	U.S. Indian Service	0.304	10.73
139or140	Fitch	0.137	4.84
139	Schluter	0.236	8.35
	Heesch	0.099	3.50
	Tranmal	0.074	2.62
141	Pahl	0.057	2.00
142	Schluter	0.113	4.00
	Baker	0.008	0.30
	Hicks	0.009	0.32
	Moni	0.002	0.08
	Neer	0.004	0.16
143	Asher and Walls	0.041	1.44



DIVERSIONS FROM NORTH FORK PIT RIVER
NORTH FORK PIT RIVER
WATERMASTER SERVICE AREA

SHACKLEFORD CREEK WATERMASTER SERVICE AREA

The Shackleford Creek service area is located in western Siskiyou County near the town of Fort Jones in Scott Valley. The major sources of water supply 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 3 kilometres (2 miles) wide by 10 km (6 miles) long with the main axis and drainage running from south to north. Elevations on the agricultural area range from about 945 metres (3,100 feet) at the south to about 808 m (2,650 feet) at the confluence of Shackleford Creek and Scott River.

A map of the Shackleford Creek stream system is presented as Figure 16, page 109.

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 Shackleford Creek group and Lower Shackleford Creek group each have seven priority classes, and the Upper Mill Creek group and Lower Mill Creek group each have three priority classes.

Along with these schedules of allotments during the irrigation season, the decree defines two storage rights upstream of all other diversions. This stored water is released late in the irrigation season and commingled with the natural flow of Shackleford Creek for use by the owners.

Water Supply

The water supply for Shackleford Creek is derived from snowmelt runoff, springs and seepage, and supplemental stored water released from Cliff Lake and Campbell Lake. These lakes are located near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system contains about 80 square kilometres (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 2 134 metres (7,000 feet) along its west rim to about 914 m (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 for second priority allotments 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 9 m (6 miles) and a capacity of about 339 litres per second (12 cubic feet per second).

1978 Distribution

Watermaster service began April 1 in the Shackleford Creek service area and continued until September 30. Lester L. Lighthall, Water Resources Technician II, was watermaster during this period.

The available water supply was far above normal for the season. Fourth priority water rights were shut off in the middle of July, with third priorities continuing for the remainder of the season.

In the middle of August, the Awender Buffalo and Cattle Ranch started releasing water from Campbell Lake to their Diversion No. 4, Shackleford Ditch.

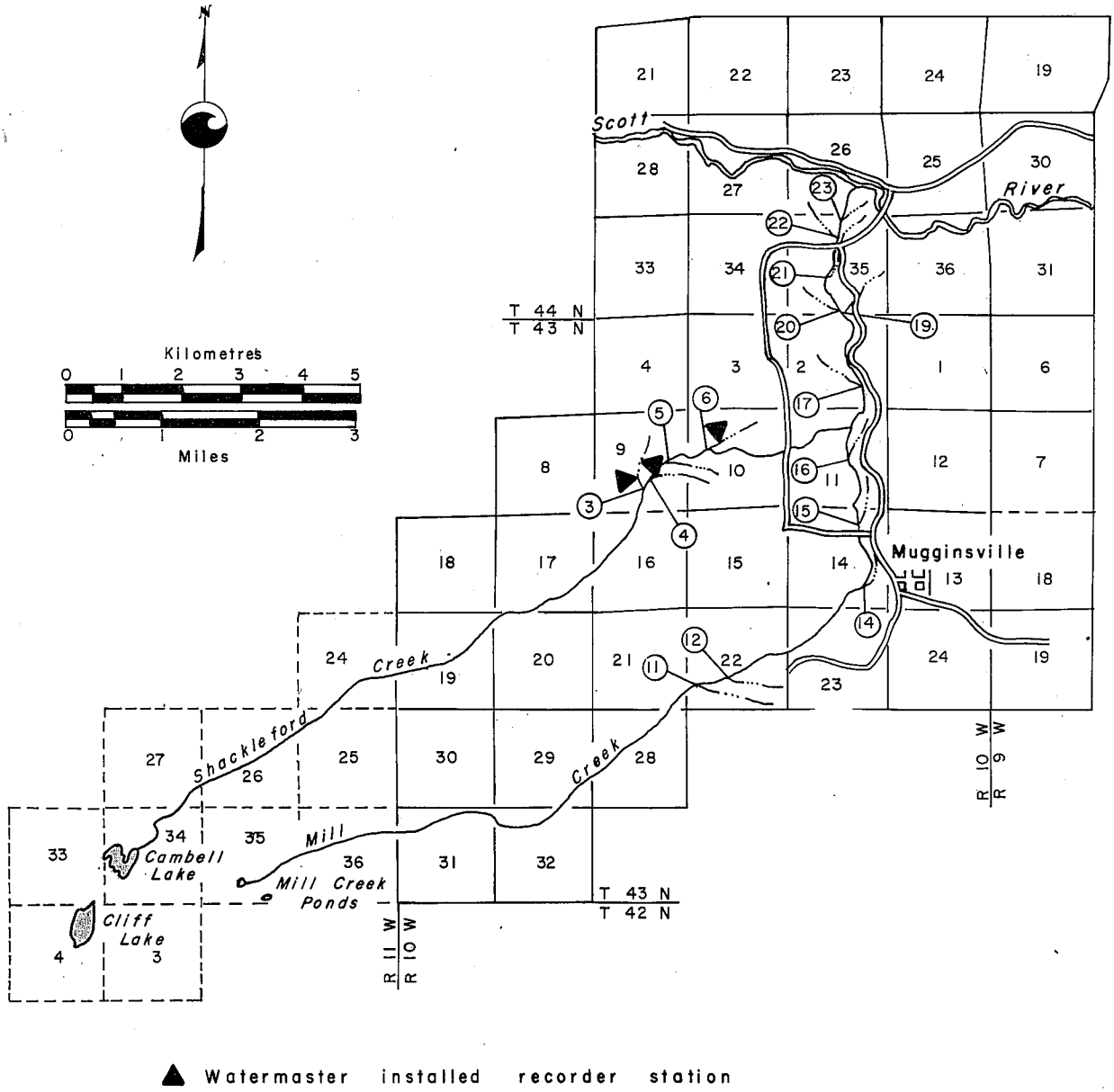
Diversion Number	Name	m^3/s	CFS
3	R. Eastlick Ditch	.099	3.50
4	Shackleford Ditch	.311	11.00
5	Howard-Jones Ditch	.147	5.20
6	Camp Ditch	.142	5.00
11	Eastlick Ditch	.301	10.62
12	Couch Ditch	.018	0.62*
14	China Ditch	.040	1.40
15	Dangel Ditch	.014	0.50
16	Denny Bar Ditch	.014	0.50
17	Freita Ditch	.187	6.60
19	Hammond-Crawford-Lewis Ditch	.102	3.60**
20	Burton-Meamber Ditch	.164	5.80
22	W. Burton	.034	1.20***
23	E. Burton		

* Out of 11 or 12

** Plus rights not in service area

*** In either 22 or 23

Figure 16



DIVERSIONS FROM SHACKLEFORD CREEK AND MILL CREEK SHACKLEFORD CREEK WATERMASTER SERVICE AREA

SHASTA RIVER WATERMASTER SERVICE AREA

The Shasta River service area is situated in the central part of Siskiyou County, south and east of the town of Yreka.

The source of water supply is 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 U. S. Highway 99, rises on the eastern slopes of the Trinity Mountains. All these streams join the main stem Shasta River above Dwinnell Reservoir near the town of Weed. As the Shasta River flows northward from Dwinnell Reservoir 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 western slopes of the mountainous area between Butte Valley and Shasta Valley, enters from the east near the town of Montague.

The place of use is in Shasta Valley which is approximately 48 kilometres (30 miles) long and 48 km (30 miles) wide. The valley has numerous small, coneshaped, volcanic hillocks scattered throughout its contral portion that produce the effect of dividing the area into a number of distinctively separate parts. Because of these formations, only about 47 000 hectares (141,000 acres) of the approximately 205 000 ha (507,000 acres) within the valley are irrigable. The valley floor elevation averages approximately 914 metres (3,000 feet).

Maps of the major stream systems in the Shasta River service area are presented as Figures 17 through 17g, pages 119 through 128.

Basis of Service

The Shasta River watermaster service area was created on March 1, 1933. The appropriateive water rights on this stream system were determined by a statutory adjudication which resulted in Decree No. 7035, Siskiyou County Superior Court, dated December 29, 1932.

The decree describes the water rights of the entire stream system in alphabetical order of 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 Dwinnell Reservoir (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 as well as for the district itself.

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. Owners of these rights are not subject to watermaster supervision, causing considerable distribution problems during seasons of short water supply.

Water Supply

The water supply for Shasta Valley is derived from snowmelt runoff, springs and underground flow, and occasional summer thundershowers. In several portions of the stream system the springs from underground flow are adequate to supply most allotments throughout the season. Much of the underground flow is derived from the northern slopes of Mount Shasta, which rises to an elevation of 4 317 metres (14,162 feet) at the south end of Shasta Valley. Although the snowpack on Mount Shasta is usually heavy, there is negligible surface runoff.

Parks Creek, Upper Shasta River, and Little Shasta River derive a major portion of their water supply from snowmelt runoff. This flow is usually adequate to supply allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Dwinnel Reservoir, Big Springs, and Lower Shasta River have enough runoff from springs to supply a large percentage of the allotments throughout the season.

Records of the daily mean discharge at several stream gaging stations in the Shasta River service area are presented in Tables 31, 32, 33, 35, and 36, pages 114 through 117. The daily mean storage in Dwinnell Reservoir is presented in Table 34, page 116.

Method of Distribution

Irrigation of permanent pasture and alfalfa lands is accomplished principally 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 derived primarily by diversion dams and then conveyed 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 1 699 litres per second (60 cfs) and a length of about 22 km (14 miles). Water is also supplied into 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 exist in the area. Water storage from these reservoirs is used to supplement continuous-flow allotments.

Because of their large rights, close surveillance of the two public agencies, Grenada and Big Springs Irrigation Districts, and the privately operated Shasta River Water Users Association, 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.

1978 Distribution

Lester L. Lighthall, Water Resources Technician II, was watermaster in the area from April 1 through September 30.

The available water supply in the service area was far above average during the season.

Parks Creek. The flow in Parks Creek was sufficient to supply all priorities until the middle of July, diminishing until the first priority allotments of .02 m^3/s (6 cfs) were being filled and some water continued fairly constant for the remainder of the season.

Upper Shasta River. During the early spring, enough water was available to satisfy all allotments (eight priorities). By the first of August, all the flow .8 m^3/s (29 cfs) was then diverted into the Yreka Ditch, filling third and fourth priorities. The flow continued fairly constant for the remainder of the season.

Shasta River from Boles Creek to Dwinnell Reservoir. Boles Creek and this portion of the Shasta River were operated as one stream, under a long-standing oral agreement among the water right owners. The water is distributed on a correlative, equal-priority basis. There was enough water available all season to fill their allotments.

Beaughan Creek. The flow of Beaughan Creek was sufficient to satisfy all demands (five priorities) for the entire season. The creek is routed through a mill pond owned by the International Paper Company which uses approximately 35 percent of the flow for industrial purposes.

Carrick Creek. The water supply in Carrick Creek was adequate to satisfy all allotments (13 priorities) during the entire irrigation season.

Little Shasta River. There was enough water available in Little Shasta River to satisfy five priority allotments (seven priorities in all) until the middle of June, at which time full regulation became necessary to adequately distribute this priority. The flow continued to decrease to 30 percent of fifth priority allotments by the first of August. It then stayed constant for the rest of the season.

The daily mean discharge of Little Shasta River near Montague is presented in Table 34, page 116. This runnoff is augmented by rising water along the river channel, and by substantial inflow from Cleland Springs, a tributary approximately 3 km (2 miles) below the stream gaging station. Therefore, considerably more water was available for distribution at downstream diversion points than is reported in the discharge table.

Dwinnell Reservoir. Releases from Dwinnell Reservoir to the Montague Water Conservation District commenced on April 25 and continued into October. Reservoir operation data for the 1978 season are shown in Table 34, page 116.

By agreement with the Montague Water Conservation District, water users on Shasta River below Dwinnell Reservoir received stored water from the reservoir on demand in lieu of their natural flow rights. The agreement allotment totals and the amount delivered to each user this season are shown in the tabulation on the following page.

Big Springs. The flow of Big Springs was sufficient to satisfy 100 percent of the 24 priority allotments through the entire season.

Lower Shasta River. The water supply in Lower Shasta River was sufficient to satisfy all allotments (29 priorities) for the entire season.

DELIVERIES TO NATURAL FLOW WATER RIGHT OWNERS BELOW DWINNELL RESERVOIR - 1978

Name of Water Right Owner	Allotment in dam³	Allotment in A/F	Allotment Delivered From Dwinnell Reservoir dam³	Allotment Delivered From Dwinnell Reservoir A/F	% of Allotment
Lake Shastina Properties Flying L Ranch	244	198	122	99	50
Ross Park Homes, Inc.	572	464	0	0 1/	0
J. N. Taylor	1 480	1,200	1 480	1,200	100
Lake Shastina Properties Hole-in-the-Ground Ranch	735	596	0	0 1/	0
Lake Shastina Properties Seldom Seen Ranch	1 140	924	0	0 1/	0
Totals	4 171	3,382	1 602	1,299	

1/ No releases were necessary to fill the needs of any of the users from the Shasta River below Dwinnell Reservoir.

SHASTA RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 31
SHASTA RIVER NEAR YREKA

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1	7.165	253.0	10.422	368.0	5.466	193.0	2.719	96.0	3.597	127.0	.878	31.0	2.266	80.0	1
2	7.250	256.0	11.413	403.0	4.814	170.0	2.634	93.0	3.682	130.0	.821	29.0	2.662	94.0	2
3	7.420	262.0	10.563	373.0	4.503	159.0	2.775	98.0	3.795	134.0	.765	27.0	2.832	100.0	3
4	7.307	258.0	10.280	363.0	4.418	156.0	2.889	102.0	3.880	137.0	.821	29.0	2.974	105.0	4
5	8.015	283.0	11.894	420.0	4.135	146.0	2.917	103.0	3.597	127.0	.906	32.0	4.701	166.0	5
6	9.289	328.0	14.868	525.0	3.455	122.0	2.775	98.0	3.087	109.0	.821	29.0	9.685	342.0	6
7	8.723	308.0	19.484	688.0	3.455	122.0	2.436	86.0	2.747	97.0	1.416	50.0	12.829	453.0	7
8	10.167	359.0	17.304	611.0	3.653	129.0	2.690	95.0	3.087	109.0	1.501	53.0	8.581	303.0	8
9	16.737	591.0	14.840	524.0	3.200	113.0	2.747	97.0	2.775	98.0	1.444	51.0	6.967	246.0	9
10	13.735	485.0	12.602	445.0	3.115	110.0	2.719	96.0	2.520	89.0	1.133	40.0	6.882	243.0	10
11	11.611	410.0	11.385	402.0	3.257	115.0	2.804	99.0	2.690	95.0	.878	31.0	7.052	249.0	11
12	10.988	388.0	10.507	371.0	3.002	106.0	2.860	101.0	2.634	93.0	.793	28.0	6.202	219.0	12
13	10.478	370.0	9.629	340.0	2.832	100.0	2.860	101.0	2.351	83.0	.878	31.0	5.834	206.0	13
14	9.770	345.0	9.091	321.0	2.634	93.0	2.492	88.0	2.152	76.0	1.020	36.0	5.721	202.0	14
15	9.204	325.0	8.524	301.0	3.200	113.0	2.804	99.0	1.869	66.0	.963	34.0	5.437	192.0	15
16	8.638	305.0	8.949	316.0	3.342	118.0	2.889	102.0	1.897	67.0	.935	33.0	5.126	181.0	16
17	8.241	291.0	9.346	330.0	3.597	127.0	2.945	104.0	1.388	49.0	.963	34.0	5.069	179.0	17
18	7.901	279.0	8.808	311.0	3.597	127.0	2.889	102.0	1.501	53.0	.878	31.0	4.984	176.0	18
19	7.760	274.0	8.581	303.0	3.597	127.0	2.634	93.0	1.189	42.0	.850	30.0	4.871	172.0	19
20	7.731	273.0	8.892	314.0	3.597	127.0	2.266	80.0	1.133	40.0	1.104	39.0	4.814	170.0	20
21	7.873	278.0	8.949	316.0	3.540	125.0	1.926	68.0	1.331	47.0	1.331	47.0	4.758	168.0	21
22	12.319	435.0	8.043	284.0	3.540	125.0	1.869	66.0	1.473	52.0	6.627	234.0	4.616	163.0	22
23	13.282	469.0	7.590	268.0	3.653	129.0	2.351	83.0	1.331	47.0	5.664	200.0	4.531	160.0	23
24	13.848	489.0	7.363	260.0	3.625	128.0	2.747	97.0	1.189	42.0	4.644	164.0	4.503	159.0	24
25	11.640	411.0	7.052	249.0	5.126	181.0	3.483	123.0	1.501	53.0	4.956	175.0	4.276	151.0	25
26	10.648	376.0	7.052	249.0	5.749	203.0	3.653	129.0	1.331	47.0	4.814	170.0	3.908	138.0	26
27	9.884	349.0	7.165	253.0	5.098	180.0	3.030	107.0	1.784	63.0	4.163	147.0	3.002	106.0	27
28	9.261	327.0	6.457	228.0	3.880	137.0	3.597	127.0	2.266	80.0	3.228	114.0	3.257	115.0	28
29	8.184	289.0	5.806	205.0	3.483	123.0	3.908	138.0	1.982	70.0	2.322	82.0	3.398	120.0	29
30	8.241	291.0	5.437	192.0	3.144	111.0	4.078	144.0	1.218	43.0	2.492	88.0	3.144	111.0	30
31	8.468	299.0			2.860	101.0			1.189	42.0	2.181	77.0			31
MEAN	9.735	343.7	9.943	351.1	3.760	132.8	2.846	100.5	2.199	77.6	2.006	70.8	5.163	182.3	MEAN
DAM³	26056.		25755.		10064.		7372.		5886.		5370.		13373.		DAM³
AF		21123.		20880.		8159.		5977.		4771.		4353.		10841.	AF

SHASTA RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 32
SHASTA RIVER AT EDGEWOOD

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1							2.690	95.0	2.379	84.0	.538	19.0	.396	14.0	1
2							2.690	95.0	3.115	110.0	.510	18.0	.368	13.0	2
3									2.719	96.0	.510	18.0	.368	13.0	3
4									2.379	84.0	.510	18.0	.481	17.0	4
5									2.067	73.0	.510	18.0	1.444	51.0	5
6									1.926	68.0	.510	18.0	1.812	64.0	6
7							**		2.209	78.0	.510	18.0	1.359	48.0	7
8									2.464	87.0	.425	15.0	.935	33.0	8
9									2.266	80.0	.368	13.0	2.719	96.0	9
10									2.209	78.0	.312	11.0	2.605	92.0	10
11									2.096	74.0	.283	10.0	1.643	58.0	11
12									1.869	66.0	.255	9.0	1.274	45.0	12
13							2.832	100.0	1.699	60.0	.340	12.0	1.161	41.0	13
14							2.690	95.0	1.529	54.0	.340	12.0	1.274	45.0	14
15			**		**		2.605	92.0	1.529	54.0	.368	13.0	1.048	37.0	15
16							2.407	85.0	1.529	54.0	.368	13.0	.935	33.0	16
17							2.266	80.0	1.444	51.0	.368	13.0	.935	33.0	17
18							2.322	82.0	1.388	49.0	.340	12.0	.906	32.0	18
19							2.266	80.0	1.388	49.0	.340	12.0	.793	28.0	19
20							2.322	82.0	1.303	46.0	.340	12.0	.765	27.0	20
21							2.266	80.0	1.274	45.0	.481	17.0	.708	25.0	21
22							2.407	85.0	1.133	40.0	.680	24.0	.651	23.0	22
23							2.549	90.0	.651	23.0	.510	18.0	.595	21.0	23
24							2.804	99.0	.623	22.0	.453	16.0	.538	19.0	24
25							2.379	84.0	.623	22.0	.425	15.0	.538	19.0	25
26							2.152	76.0	.538	19.0	.453	16.0	.510	18.0	26
27							2.266	80.0	.538	19.0	.425	15.0	.510	18.0	27
28							2.690	95.0	.623	22.0	.396	14.0	.538	19.0	28
29							2.464	87.0	.453	16.0	.368	13.0	.538	19.0	29
30							2.379	84.0	.453	16.0	.368	13.0	.538	19.0	30
31					2.690	95.0			.510	18.0	.396	14.0			31
MEAN					.087	3.1	1.648	58.2	1.514	53.5	.419	14.8	.963	34.0	MEAN
DAM³					232.		4269.		4052.		1122.		2494.		DAM³
AF						188.		3461.		3285.		910.		2022.	AF

** Mean Daily Flow from April 1 to May 30 and from June 3 to June 12 was in excess of 2.832 m /s (100 cfs).

SHASTA RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE ~~33~~ 34
PARKS CREEK ABOVE EDSON-FOULKE YREKA DITCH

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1									1.812*	64.0	.181	6.4	.159	5.6	1
2									2.549	90.0	.159	5.6	.142	5.0	2
3									2.266	80.0	.150	5.3	.125	4.4	3
4									1.812	64.0	.136	4.8	.170	6.0	4
5									1.444	51.0	.136	4.8	1.218	43.0	5
6									1.274	45.0	.130	4.6	1.048	37.0	6
7									1.812	64.0	.125	4.4	.651	23.0	7
8									2.067	73.0	.116	4.1	.396	14.0	8
9									1.614	57.0	.108	3.8	1.982	70.0	9
10									1.388	49.0	.110	3.9	1.982	70.0	10
11									1.218	43.0	.110	3.9	1.189	42.0	11
12									1.189	42.0	.110	3.9	.906	32.0	12
13									1.048	37.0	.110	3.9	.765	27.0	13
14									.878	31.0	.108	3.8	1.076	38.0	14
15									.850	30.0	.108	3.8	.765	27.0	15
16									.793	28.0	.108	3.8	.623	22.0	16
17									.765	27.0	.105	3.7	.623	22.0	17
18									.708	25.0	.105	3.7	.595	21.0	18
19									.651	23.0	.105	3.7	.566	20.0	19
20									.595	21.0	.108	3.8	.566	20.0	20
21									.538	19.0	.283	10.0	.510	18.0	21
22									.510	18.0	.453	16.0	.481	17.0	22
23									.510	18.0	.283	10.0	.453	16.0	23
24									.481	17.0	.195	6.9	.425	15.0	24
25									.368	13.0	.181	6.4	.396	14.0	25
26									.312	11.0	.170	6.0	.368	13.0	26
27									.283	10.0	.283	10.0	.368	13.0	27
28									.263	9.3	.159	5.6	.368	13.0	28
29									.212	7.5	.170	6.0	.368	13.0	29
30									.212	7.5	.181	6.4	.368	13.0	30
31									.212	7.5	.170	6.0			31
MEAN									.988	34.9	.160	5.6	.655	23.1	MEAN
DAM³									2645.		428.		1697.		DAM³
AF										2144.		347.		1376.	AF

* Beginning of Record

SHASTA RIVER WATERMASTER SERVICE AREA
Water Year 1978

TABLE 34
DAILY MEAN STORAGE IN DWINELL RESERVOIR

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1	650	1,300	3,370	11,030	34,245	42,490	48,400	49,804	45,785	40,331	33,055	25,850	1
2	630	1,351	3,472	11,180	34,330	42,541	48,760	49,696	45,554	40,229	32,656	25,700	2
3	610	1,405	3,550	11,470	34,398	42,609	48,832	49,660	45,374	40,178	32,368	25,520	3
4	604	1,465	3,610	11,820	34,551	42,728	48,904	49,570	45,160	40,110	32,048	25,325	4
5	600	1,528	3,670	13,310	34,840	43,126	49,120	49,480	45,048	39,940	31,760	25,310	5
6	574	1,591	3,736	13,805	35,775	43,450	49,066	49,336	44,868	39,770	31,440	25,370	6
7	542	1,645	3,772	14,223	37,135	43,666	49,030	49,210	44,800	39,600	31,160	25,400	7
8	532	1,699	3,820	14,600	38,750	43,900	49,030	49,090	44,688	39,464	30,840	25,370	8
9	530	1,750	3,880	15,860	39,600	44,584	49,066	48,940	44,576	39,345	30,635	25,400	9
10	534	1,801	3,952	17,350	40,110	44,908	49,138	48,845	44,440	39,192	30,315	25,475	10
11	546	1,855	4,048	17,935	40,399	45,124	49,228	48,760	44,260	39,083	29,995	25,505	11
12	555	1,900	4,192	18,350	40,688	45,394	49,372	48,648	44,080	38,920	29,720	25,505	12
13	602	1,939	4,348	18,770	40,841	45,520	49,462	48,536	43,839	38,716	29,510	25,505	13
14	638	1,967	5,026	20,324	41,011	45,592	49,588	48,468	43,625	38,461	29,270	25,520	14
15	652	2,026	6,598	23,975	41,130	45,628	49,750	48,400	43,360	38,172	29,045	25,520	15
16	664	2,068	7,318	28,175	41,232	45,664	50,056	48,305	43,085	37,951	28,820	25,505	16
17	674	2,110	7,678	30,160	41,351	45,700	50,182	48,220	42,830	37,662	28,550	25,475	17
18	684	2,149	7,993	30,960	41,487	45,736	50,182	48,040	42,575	37,390	28,365	25,460	18
19	694	2,188	8,191	31,760	41,506	45,772	50,200	47,796	42,371	37,135	27,980	25,430	19
20	708	2,224	8,353	32,240	41,674	45,826	50,254	47,680	42,150	36,829	27,725	25,400	20
21	716	2,301	8,578	32,640	41,776	45,916	50,290	47,534	41,980	36,489	27,530	25,355	21
22	740	2,375	8,767	32,851	41,861	46,204	50,290	47,439	41,810	36,200	27,395	25,325	22
23	764	2,455	9,380	33,072	41,946	46,546	50,290	47,320	41,640	35,911	27,320	25,295	23
24	816	2,538	9,730	33,242	42,065	46,852	50,254	47,174	41,470	35,588	27,125	25,250	24
25	860	2,650	9,950	33,429	42,252	46,996	50,110	47,096	41,385	35,248	26,900	25,190	25
26	930	2,800	10,110	33,548	42,303	47,122	50,056	46,865	41,198	34,925	26,865	25,070	26
27	974	2,965	10,330	33,752	42,371	47,248	50,020	46,685	41,028	34,636	26,630	24,950	27
28	1,030	3,175	10,480	33,820	42,439	47,374	49,948	46,505	40,858	34,296	26,480	24,890	28
29	1,096	3,190	10,680	33,956		47,554	49,876	46,325	40,688	33,956	26,300	24,830	29
30	1,165	3,268	10,800	34,058		47,842	49,840	46,145	40,501	33,684	26,150	24,770	30
31	1,234		10,920	34,143		47,986		45,965		33,565	26,000		31

Conversion Factor - 1 Acre-Foot = 1.2335 Dam^3

SHASTA RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 35
~~LITTLE SHASTA RIVER NEAR MONTAGUE~~ deleted 1979

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1			3.115*	110.0	1.189	42.0	.595	21.0	.283	10.0	.159	5.6	.136	4.8	1
2			2.181	77.0	1.161	41.0	.566	20.0	.312	11.0	.153	5.4	.133	4.7	2
3			1.897	67.0	1.104	39.0	.566	20.0	.312	11.0	.153	5.4	.130	4.6	3
4			2.039	72.0	1.048	37.0	.538	19.0	.283	10.0	.153	5.4	.133	4.7	4
5			1.954	69.0	1.020	36.0	.538	19.0	.266	9.4	.153	5.4	.159	5.6	5
6			2.011	71.0	1.020	36.0	.510	18.0	.258	9.1	.150	5.3	.173	6.1	6
7			2.039	72.0	1.048	37.0	.481	17.0	.255	9.0	.147	5.2	.167	5.9	7
8			2.464	87.0	1.048	37.0	.453	16.0	.263	9.3	.147	5.2	.159	5.6	8
9			2.832	100.0	1.104	39.0	.453	16.0	.246	8.7	.144	5.1	.153	5.4	9
10			2.804	99.0	1.076	38.0	.453	16.0	.238	8.4	.142	5.0	.178	6.3	10
11			2.379	84.0	1.048	37.0	.425	15.0	.232	8.2	.144	5.1	.153	5.4	11
12			1.954	69.0	1.048	37.0	.425	15.0	.227	8.0	.147	5.2	.142	5.0	12
13			1.812	64.0	1.048	37.0	.396	14.0	.221	7.8	.150	5.3	.142	5.0	13
14			1.671	59.0	1.048	37.0	.396	14.0	.215	7.6	.147	5.2	.144	5.1	14
15			1.614	57.0	1.303	46.0	.396	14.0	.212	7.5	.147	5.2	.139	4.9	15
16			1.586	56.0	1.133	40.0	.368	13.0	.210	7.4	.150	5.3	.133	4.7	16
17			1.529	54.0	1.020	36.0	.368	13.0	.204	7.2	.144	5.1	.139	4.9	17
18			1.529	54.0	.935	33.0	.368	13.0	.195	6.9	.142	5.0	.144	5.1	18
19			1.529	54.0	.878	31.0	.368	13.0	.190	6.7	.142	5.0	.139	4.9	19
20			1.416	50.0	.878	31.0	.340	12.0	.184	6.5	.144	5.1	.133	4.7	20
21			1.416	50.0	.850	30.0	.340	12.0	.181	6.4	.159	5.6	.133	4.7	21
22			1.473	52.0	.850	30.0	.312	11.0	.178	6.3	.201	7.1	.133	4.7	22
23			1.586	56.0	.821	29.0	.340	12.0	.176	6.2	.153	5.4	.130	4.6	23
24			1.699	60.0	.878	31.0	.368	13.0	.173	6.1	.142	5.0	.130	4.6	24
25			1.756	62.0	.878	31.0	.312	11.0	.173	6.1	.153	5.4	.130	4.6	25
26			1.473	52.0	.793	28.0	.312	11.0	.178	6.3	.144	5.1	.130	4.6	26
27			1.416	50.0	.736	26.0	.312	11.0	.176	6.2	.142	5.0	.127	4.5	27
28			1.331	47.0	.708	25.0	.396	14.0	.167	5.9	.139	4.9	.127	4.5	28
29			1.274	45.0	.680	24.0	.396	14.0	.164	5.8	.136	4.8	.125	4.4	29
30			1.246	44.0	.651	23.0	.312	11.0	.161	5.7	.144	5.1	.125	4.4	30
31					623	22.0			.161	5.7	.139	4.9			31
MEAN			1.834	64.8	.956	33.7	.413	14.6	.216	7.6	.149	5.3	.141	5.0	MEAN
DAM³			4751.		2558.		1071.		578.		398.		364.		DAM³
AF				3852.		2073.		868.		469.		323.		295.	AF

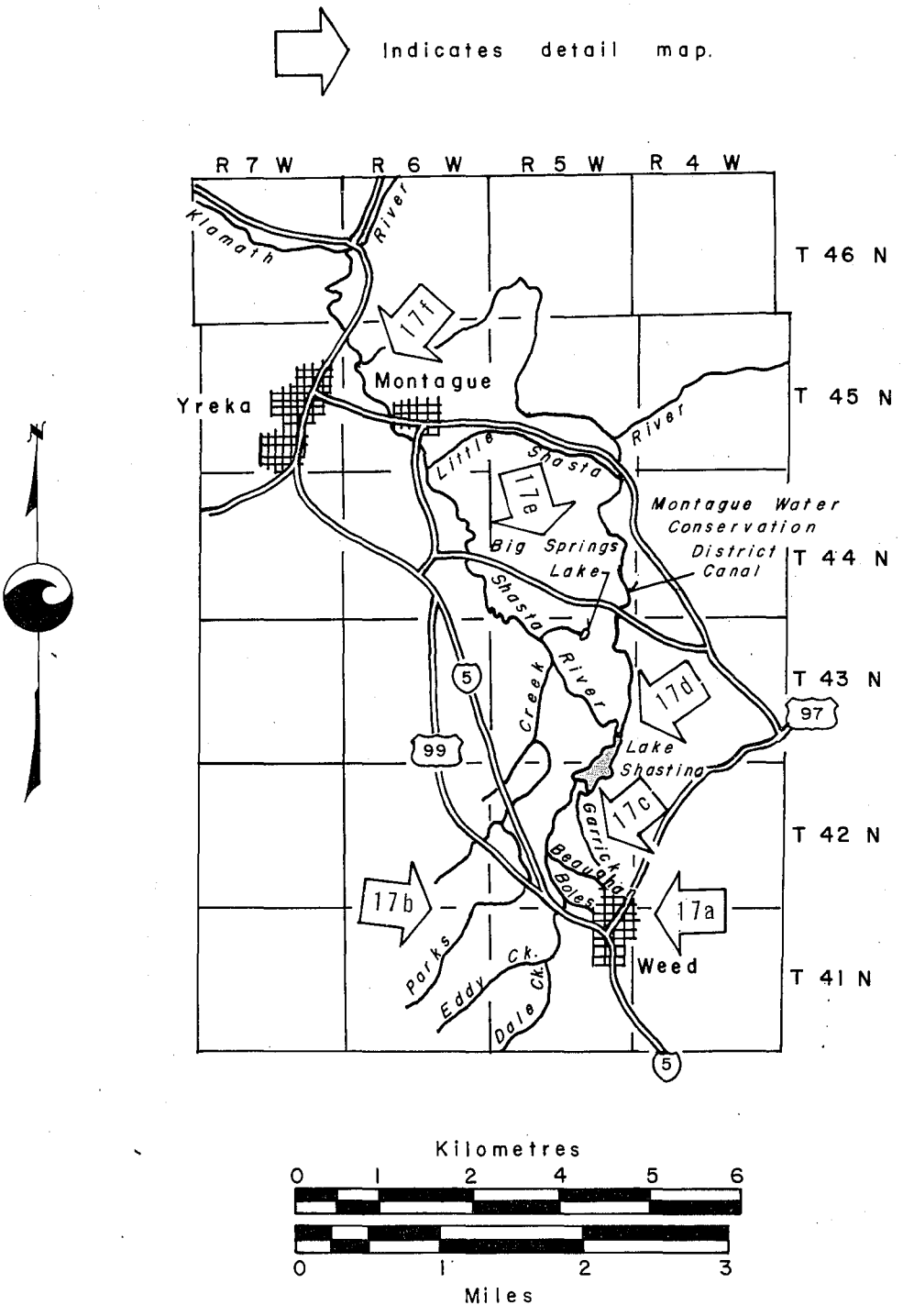
* Beginning of Record

SHASTA RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 36
SHASTA RIVER AT MONTAGUE-GRENADA BRIDGE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1							2.152	76.0	2.832	100.0	.566	20.0			1
2							2.351	83.0	2.832	100.0	.566	20.0			2
3							2.549	90.0	3.059	108.0	.566	20.0			3
4							2.436	86.0	3.257	115.0	.566	20.0			4
5							2.662	94.0	2.719	96.0	.453	16.0			5
6							2.436	86.0	2.152	76.0	.736	26.0			6
7							2.492	88.0	1.982	70.0	1.020	36.0			7
8							2.549	90.0	1.926	68.0	.935	33.0			8
9							2.436	86.0	1.756	62.0	.736	26.0			9
10							2.492	88.0	1.756	62.0	.595	21.0			10
11							2.492	88.0	1.756	62.0	.425	15.0			11
12							2.492	88.0	1.643	58.0	.453	16.0			12
13							2.096	74.0	1.756	62.0	.481	17.0			13
14							1.982	70.0	1.133	40.0	.510	18.0			14
15			*		*		2.549	90.0	.935	33.0	.510	18.0	**		15
16							2.351	83.0	.906	32.0	.510	18.0			16
17							2.351	83.0	.878	31.0	.510	18.0			17
18							2.096	74.0	.963	34.0	.566	20.0			18
19							1.756	62.0	.906	32.0	.566	20.0			19
20							1.303	46.0	.935	33.0					20
21							1.246	44.0	1.218	43.0					21
22							1.388	49.0	1.104	39.0					22
23							1.614	57.0	.793	28.0					23
24							2.096	74.0	.963	34.0					24
25							3.172	112.0	.963	34.0	**				25
26							2.832	100.0	.793	28.0					26
27							2.436	86.0	1.897	67.0					27
28							3.257	115.0	1.643	58.0					28
29							3.172	112.0	1.303	46.0					29
30							2.832	100.0	.793	28.0					30
31									.736	26.0					31
MEAN							2.335	82.5	1.558	55.0	.364	12.8			MEAN
DAM³							6049.		4169.		973.				DAM³
AF								4904.		3380.		789.			AF

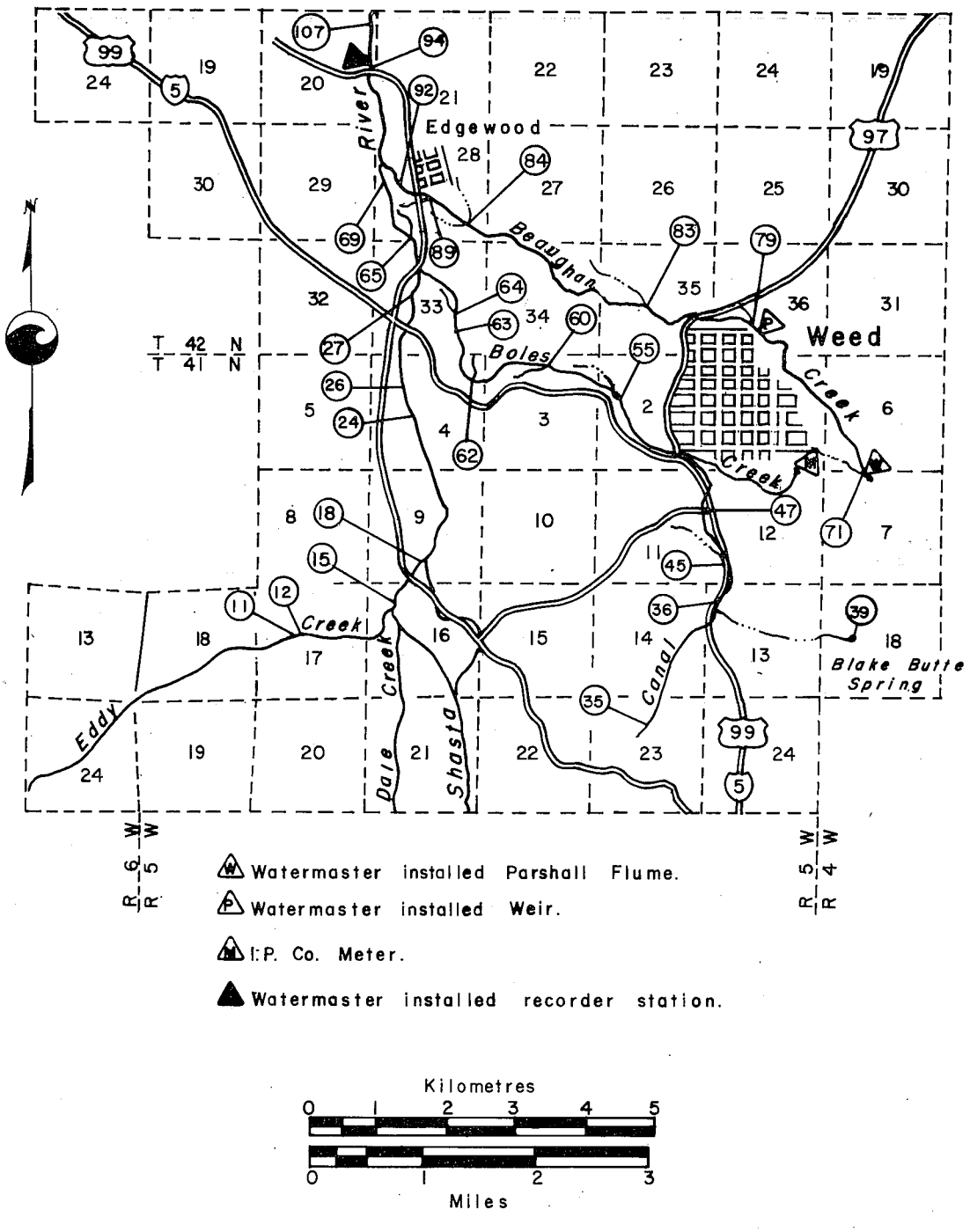
* Mean Daily Flow From April 1 to May 30 And From Aug. 20 to Sept. 24 Was In Excess of 100 cfs.
** Mean Daily Flow From Sept. 24 to Sept. 30 Was In Excess of 50 cfs.



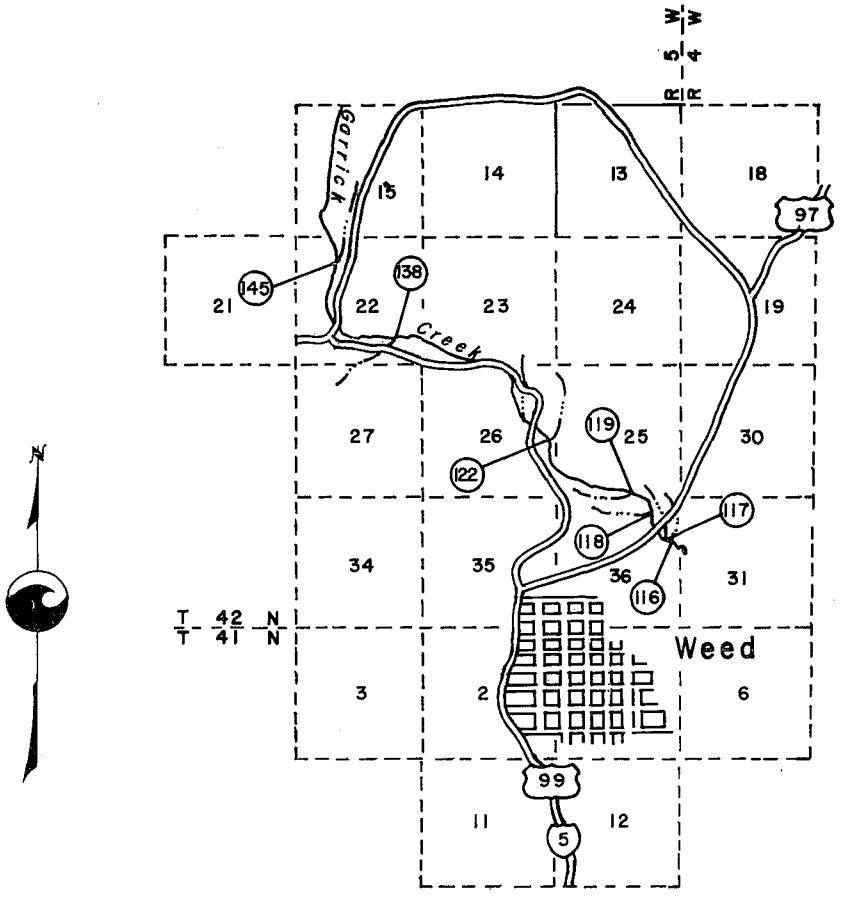
INDEX MAP SHASTA RIVER WATERMASTER SERVICE AREA

Diversion Number	Name	m^3/s	Cfs
11	Dow Ditch	0.044	1.55
12	Hammond-Scott Ditch	0.265	9.36
15	Dobkin Ditch	0.017	0.60
18	Yreka Ditch	0.850	30.00
24	Dillman	0.011	0.40
26	Mazzini	0.176	6.21
27	West Neal Ditch	0.028	1.00
35	Jones	0.011	0.40
36	International Paper Company	0.113	4.00
39	Black Butte Spring	0.014	0.50
45	Thompson Ditch	0.030	1.05
47	Sullivan Ditch	0.009	0.30
55	Salanti Ditch	0.033	1.175
60	Davidson Ditch	0.020	0.70*
62	Belcastro Ditch	0.003	0.10*
63	Upper Lemos Ditch	0.074	2.60
64	Lower Lemos Ditch	0.031	1.10
65	East Neal Ditch	0.023	0.80
69	Alexander Ditch	0.045	1.60
71-78	International Paper Company	0.115	4.07
79	Linville	0.020	0.70
83	Belcastro	0.016	0.55
84-87	Jackson	0.110	3.87
89	Ordway	0.011	0.40
92	Ordway	0.024	0.86
94	Davis	0.018	0.65
107	Mills Ranch	0.017	0.60

* Not in use

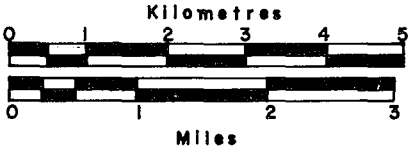


DIVERSIONS FROM SHASTA RIVER BEAUGHAN CREEK AND BOLES CREEK SHASTA RIVER WATERMASTER SERVICE AREA

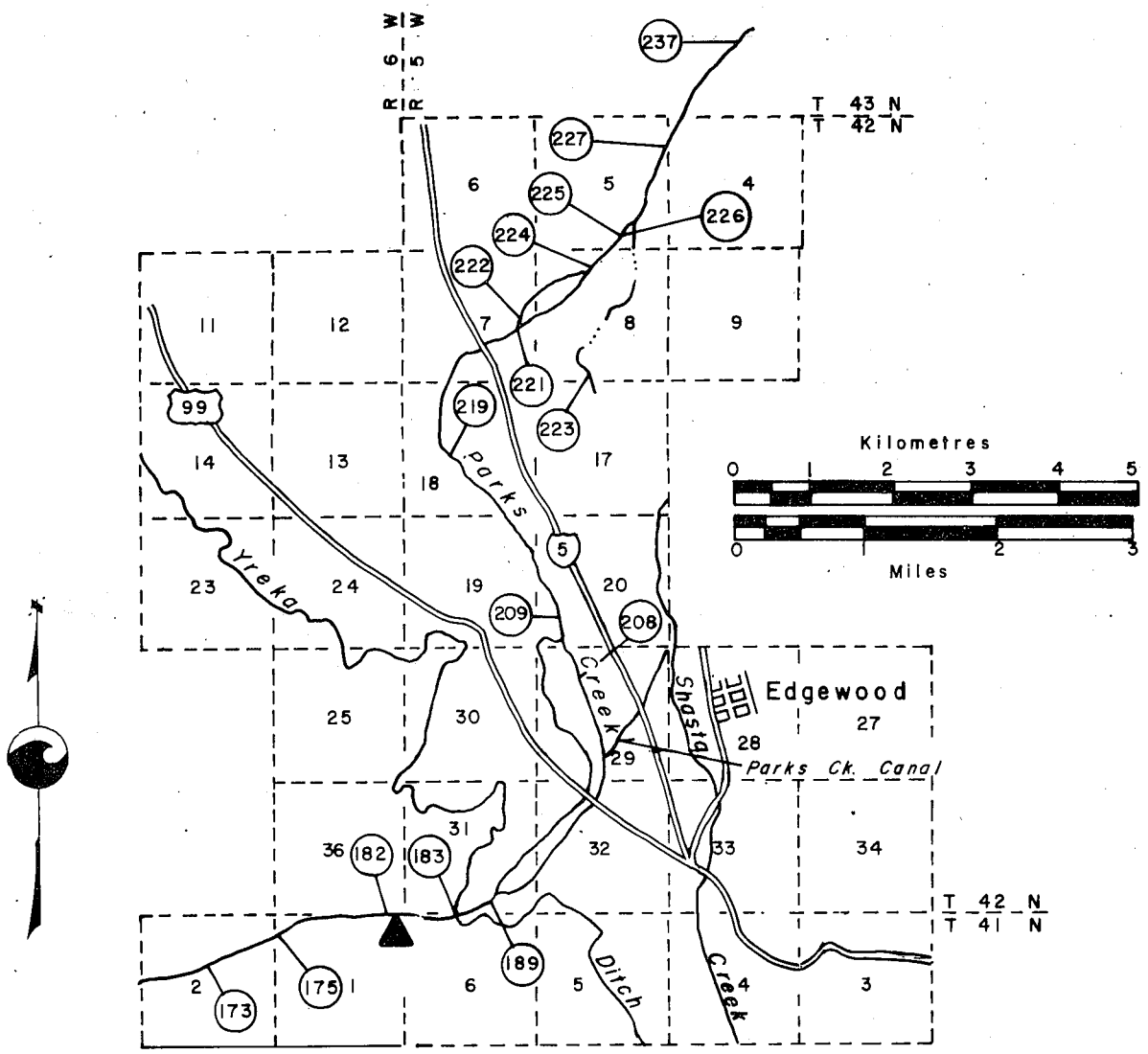


Diversion Number	Name	m³/s	cfs
116	Zwanziger	0.062	2.20
117	Goltz	0.062	2.20
118	Belcastro-Luiz	0.011	0.40
119	Luiz	0.011	0.40
122	Hoy	0.024	0.86
138	Jackson	0.034	1.20
145	Mills	0.031	1.10

Garrick Creek is shown as Carrick in the Decree.



DIVERSIONS FROM GARRICK CREEK SHASTA RIVER WATERMASTER SERVICE AREA

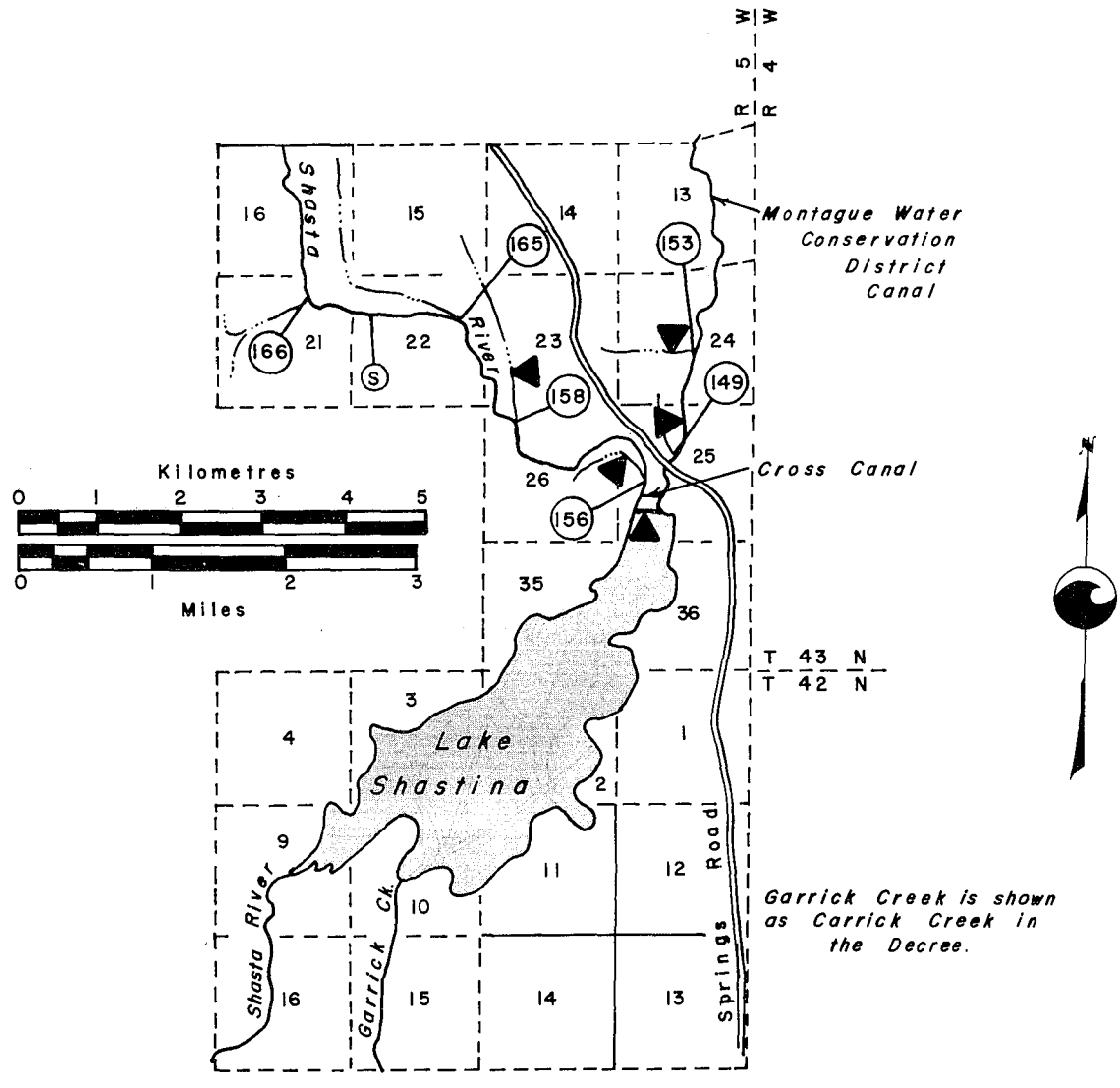


Diversion Number	Name	m3/s	cfs	Diversion Number	Name	m3/s	cfs
173	Vanderbilt	0.020	0.70	221-227	Gragnani	0.496	17.50
175	Vanderbilt	0.036	1.275	208	Lemos	0.040	1.40
182	Duke North	*	*	209	Bettencourt	0.026	0.90
183	Yreka ditch	0.430	15.20	219	Whitsett	0.024	0.85
189	Duke South	*	*	237	Cardoza	0.084	2.98

* Allotment of 0.119 m^3/s (6.00 cfs) in either ditch.

▲ Watermaster installed recorder station.

DIVERSIONS FROM PARKS CREEK SHASTA RIVER WATERMASTER SERVICE AREA

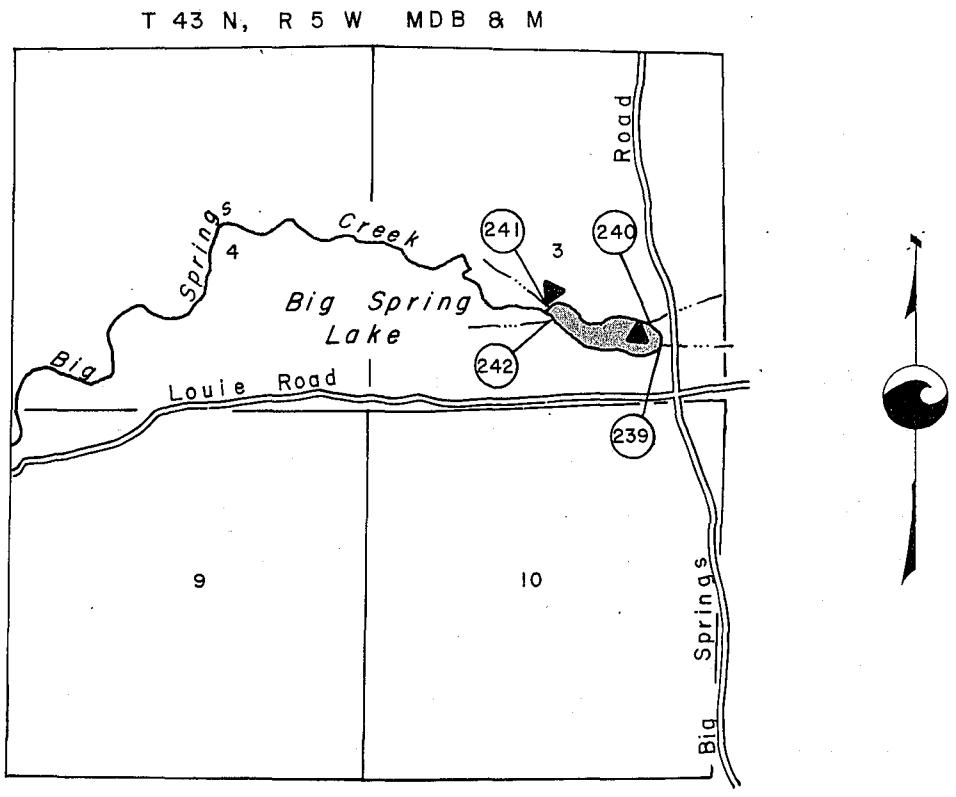


Diversion Number	Name	hm^3	Ac/Ft
149	Flying L Ranch	0.24	.198
153	Taylor ditch	1.48	1 200
156	Seldom-Seen Ranch	1.14	924
158	Ross Homes Inc.	0.57	464
165,166*	Hole-in-the-Ground Ranch	0.74	596
(S)	Clear spring	0.01	5.

* (3 Pumps)

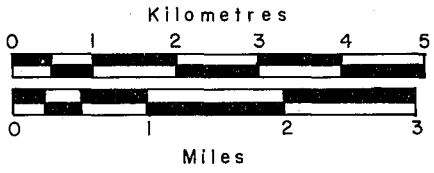
▲ Watermaster installed recorder station.

PRIOR RIGHTS BELOW LAKE SHASTINA
SHASTA RIVER WATERMASTER SERVICE AREA



Diversion Number	Name	m^3/s	cfs
239	Brahs etal Pump	0.212	7.5
240	Big Springs I.D.	0.850	30.0
241,242	E. Louie ditch	0.283	10.0

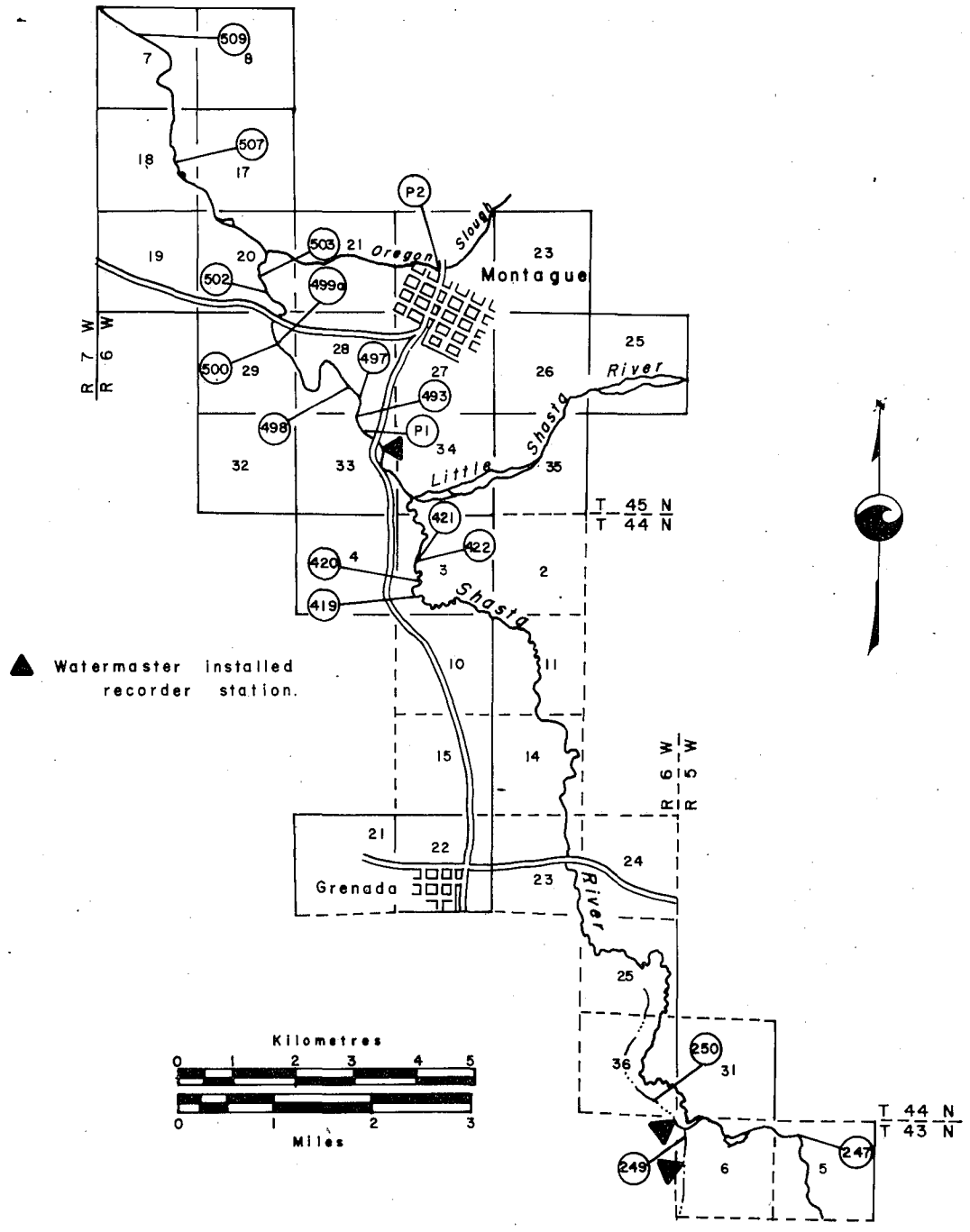
▲ Watermaster installed recorder station



DIVERSIONS FROM BIG SPRINGS LAKE SHASTA RIVER WATERMASTER SERVICE AREA

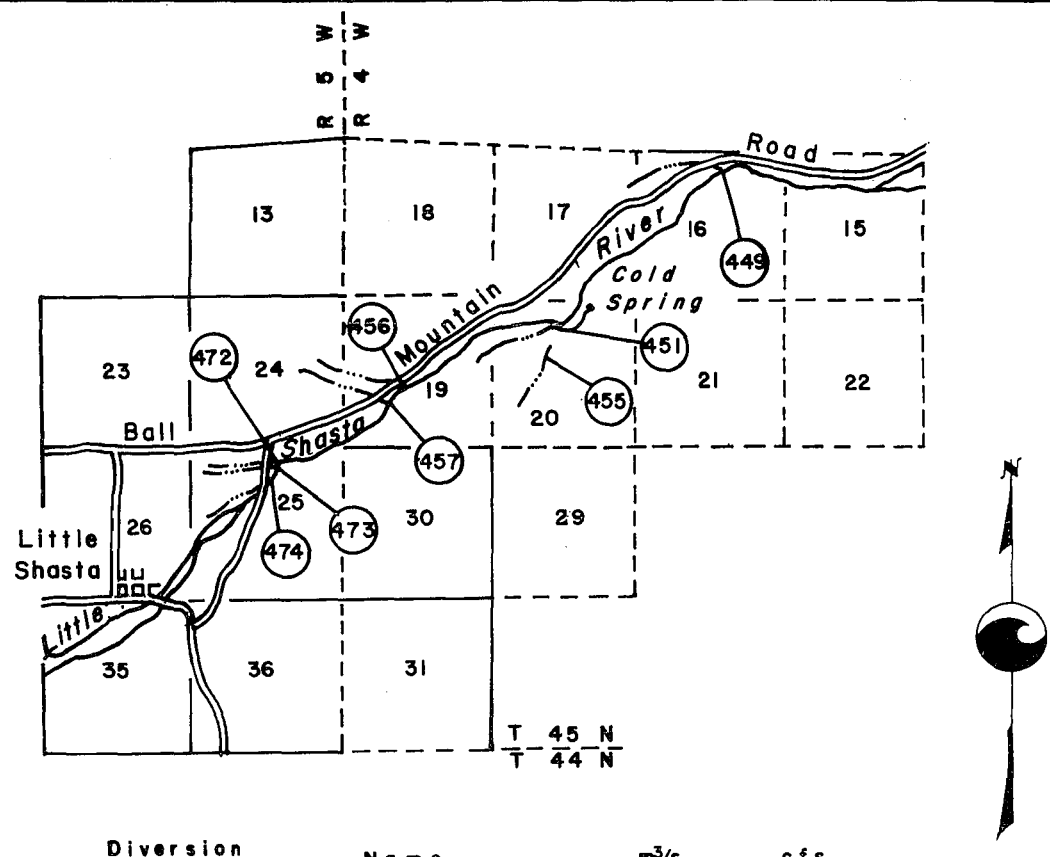
Diversion Number	Name	m^3/s	Cfs
247	Nelson (pump)	0.067	2.37
249	Granada Irrigation District Pumps	1.133	40.00
250	Huesman Ditch	0.309	10.91*
419	Shasta River Water Users Association Pumps	1.189	42.00
420	Banhart	0.006	0.20
421,422	Kuck	0.064	2.25
493	Easton	0.003	0.10
497	Fiock (pump)	0.133	4.69
498	Fiock	0.034	1.20
499a,500	Lemos	0.020	0.70
502	Fiock - Alley	0.108	3.80
503	Fiock	0.167	5.90
507	Fiock	0.007	0.25
509	Peters - Johnson	0.050	1.75
P1	Meamber (pump)	0.006	0.22 *
P2	Meamber (pump)	0.028	1.00

* Plus undefined riparian rights

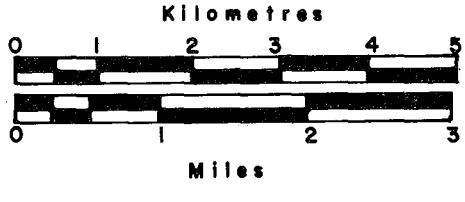


DIVERSIONS FROM LOWER SHASTA RIVER SHASTA RIVER WATERMASTER SERVICE AREA

Figure 17g



Diversion Number	Name	m³/s	cfs
449	Harp ditch	0.045	1.60
451	Terwilliger ditch	0.032	1.12
455	Martin ditch	0.170	6.00
456	Dimmick ditch	0.003	0.12
457	S & T ditch	0.187	6.60
472	M & L ditch	0.555	19.60
473	BMS ditch	0.203	7.19
474	HHP ditch	0.283	10.00



DIVERSIONS FROM LITTLE SHASTA RIVER SHASTA RIVER WATERMASTER SERVICE AREA

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

The South Fork Pit River service area is located primarily in southeastern Modoc County, with a small portion extending into northeastern Lassen County, Figures 18 through 18e, pages 133 through 138, show the South Fork and its tributaries, with roads, etc.

The major source of water for this service area is the South Fork Pit River and its tributaries which rise on the western slopes of the Warner Mountains. The river flows in a westerly direction, entering South Fork Valley near Likely. It then flows north through the valley to its confluence with the North Fork Pit River just south of Alturas. The South Fork Pit River is joined from the east by Fitzhugh Creek near the middle of the valley and by Pine Creek near Alturas.

The major area of water use is in South Fork Valley between Likely and Alturas. South Fork Valley is about 26 kilometres (16 miles) long and 5 km (3 miles) wide, with the valley floor lying at an elevation of about 1 400 metres (4,500 feet). The valley is bounded on both sides by a rocky plateau that separates it from the surrounding mountains.

Basis of Service

The Pine Creek agreement established water rights on Pine Creek November 22, 1933, and this stream system was added to the South Fork Pit River area on January 12, 1935. Pine Creek Reservoir, a small reservoir above all diversions, was originally used for power generation. This reservoir, now a recreation site, has a small water right but is not in the service area.

A large reservoir, West Valley Reservoir, was built in 1937 to increase the supply and extend the season for irrigation in the South Fork Irrigation District. The water rights for use from West Valley Reservoir total 2 815 cubic hectometres (23,100 acre-feet).

The South Fork Pit River decree and the Pine Creek agreement establish two priorities on the respective systems.

Water Supply

The water supply for Pine Creek is derived mostly from snowmelt runoff. Therefore, runoff is usually small in the early spring, increases to a peak in May as temperatures rise, and then gradually decreases throughout the remainder of the season. Water users supplement their irrigation supplies from other sources whenever possible.

The water supply for Fitzhugh Creek consists of snowmelt runoff early in the season and supplemental water diverted from Mill Creek above Jess Valley later in the season. Surplus water from Fitzhugh Creek is diverted into the Payne and French Reservoirs through Payne-French Ditch (Diversion 136) until about June, when the diversion is adjusted to allow sufficient flow to supply downstream allotments. By July the creek has normally receded until only first priority allotments are available.

Payne Ditch (Diversion 1) is opened to import water from Mill Creek to Fitzhugh Creek when the snow has melted enough to allow access. This imported water is rediverted from North Fork Fitzhugh Creek through the Bowman Ditch to the Bowman Ranch. Return flow from Bowman Ranch to the creek is rediverted through Diversion 136.

The water supply for the South Fork Pit River is derived primarily from snowmelt runoff, supplemented by water released from West Valley Reservoir. A number of streams, which rise at high elevations, collect at the mouth of Jess Valley to form the South Fork Pit River. West Valley Reservoir is located on West Valley Creek which enters the river below Jess Valley.

Most of the water users on the South Fork Pit River, except those in Jess

Valley, are in the South Fork Irrigation District. The District stores water in West Valley Reservoir and releases it to the South Fork Pit River as a supplemental supply when the natural flow becomes insufficient to meet demands. This usually occurs during the middle of June. Reservoir releases, together with the natural flow, are distributed by the watermaster in cooperation with the Board of Directors of the irrigation district. Except for extremely dry years, natural flow, combined with stored water, is sufficient to supply all demands for water on the South Fork Pit River throughout the irrigation season.

Akers Land and Cattle Company imports water from the Tule Reservoir to West Valley Reservoir via Cedar Creek. This water, 2 500 dam^3 (2,000 AF) is then rediverted from South Fork Pit River to undecreed lands.

Method of Distribution

Irrigation of the lands along tributary streams is accomplished by flooding through the use of small lateral ditches. The water is distributed on a continuous-flow basis to each user through gravity-flow diversion systems. In some cases, rotation is practiced among several users.

Most irrigation in the South Fork Pit River area is by the check and border method. The lands receive water essentially on demand by supplementing natural flow with releases from West Valley Reservoir. However, irrigation must be coordinated between the various ranches to eliminate large peak demands from the reservoir and to use the return flow as much as possible. Actual distribution varies each year as there is no specific irrigation schedule in use.

1978 Distribution

Watermaster service began on March 17 and continued until mid-October. L. L. Bates, Water Resources Engineering Associate, was watermaster.

The precipitation at Alturas was normal for the July 1977 through June 1978 period.

Pine Creek. The flow was extremely high at the beginning of the season and many diversion structures were destroyed or badly damaged. The flow was sufficient to fill all needs and store some surplus in Dorris Reservoir until the end of June. From July until the end of the season, the water receded from full first rights to 50 percent of first rights. With rotation due to haying, all users enjoyed some good supplies.

Fitzhugh Creek. The flow satisfied both priorities until June 1. From June 2 until July 7, all first and a decreasing amount of seconds were available. From July 8 until the end of the season, the first right supply receded from 100 percent to 30 percent.

South Fork Pit River. West Valley Reservoir had 16 200 dam^3 (13,100 AF) in storage on April 1. The filling gained slowly until it peaked at 28 500 dam^3 (23,100 AF) on June 12. The first releases were made on June 20 and continued on a demand basis until the end of the season.

Akers Land & Cattle Company is currently using the South Fork Irrigation District's system to transport 2 500 dam^3 (2,000 AF) of water from Tule Reservoir. This water is siphoned from Tule Reservoir to West Valley Reservoir via Cedar Creek. The water is then released into the river/canals to be rediverted onto undecreed lands. The right to this water is in litigation and will be resolved with the Tule Reservoir/Madeline Plains adjudication, now in progress.

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 37
SOUTH FORK PIT RIVER NEAR LIKELY

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1	.178	6.3	3.880	137.0	3.115	110.0	3.228	114.0	3.710	131.0	4.758	168.0	3.710	131.0	1
2	.249	8.8	2.662	94.0	2.945	104.0	3.228	114.0	3.625	128.0	4.729	167.0	3.738	132.0	2
3	.249	8.8	1.756	62.0	3.200	113.0	3.200	113.0	3.653	129.0	4.701	166.0	3.625	128.0	3
4	.238	8.4	1.558	55.0	3.342	118.0	3.200	113.0	3.568	126.0	4.616	163.0	3.568	126.0	4
5	.312	11.0	1.416	50.0	3.002	106.0	3.342	118.0	3.398	120.0	4.588	162.0	3.540	125.0	5
6	.396	14.0	1.416	50.0	2.804	99.0	3.455	122.0	3.342	118.0	4.503	159.0	3.738	132.0	6
7	.130	4.6	1.331	47.0	2.974	105.0	3.427	121.0	3.370	119.0	4.560	161.0	3.767	133.0	7
8	.102	3.6	1.076	38.0	3.342	118.0	3.398	120.0	3.342	118.0	3.965	140.0	3.795	134.0	8
9	.161	5.7	1.104	39.0	3.767	133.0	3.455	122.0	3.257	115.0	3.483	123.0	3.852	136.0	9
10	.244	8.6	1.388	49.0	4.135	146.0	3.285	116.0	3.200	113.0	3.427	121.0	4.021	142.0	10
11	.246	8.7	1.756	62.0	4.361	154.0	3.059	108.0	3.030	107.0	3.398	120.0	2.662	94.0	11
12	.340	12.0	1.869	66.0	4.361	154.0	3.398	120.0	2.804	99.0	3.313	117.0	1.501	53.0	12
13	.340	12.0	1.926	68.0	4.871	172.0	3.767	133.0	2.719	96.0	3.342	118.0	1.444	51.0	13
14	.224	7.9	1.926	68.0	5.862	207.0	3.512	124.0	2.577	91.0	3.342	118.0	1.671	59.0	14
15	.150	5.3	1.784	63.0	7.108	251.0	3.285	116.0	2.605	92.0	3.653	129.0	1.614	57.0	15
16	.125	4.4	1.784	63.0	7.731	273.0	3.427	121.0	2.634	93.0	3.993	141.0	1.529	54.0	16
17	.119	4.2	1.643	58.0	6.768	239.0	3.059	108.0	2.690	95.0	3.965	140.0	1.501	53.0	17
18	.170	6.0	1.388	49.0	5.862	207.0	3.002	106.0	3.172	112.0	3.908	138.0	1.558	55.0	18
19	.227	8.0	1.331	47.0	5.891	208.0	2.889	102.0	3.682	130.0	3.880	137.0	1.586	56.0	19
20	.312	11.0	1.388	49.0	5.692	201.0	3.540	125.0	3.852	136.0	3.852	136.0	1.529	54.0	20
21	.453	16.0	1.359	48.0	5.636	199.0	4.418	156.0	3.965	140.0	3.823	135.0	1.501	53.0	21
22	1.246	44.0	1.189	42.0	5.834	206.0	4.305	152.0	3.936	139.0	3.823	135.0	1.388	49.0	22
23	1.218	43.0	1.104	39.0	6.117	216.0	4.135	146.0	3.908	138.0	3.880	137.0	1.388	49.0	23
24	1.020	36.0	1.189	42.0	6.117	216.0	4.021	142.0	3.823	135.0	3.823	135.0	1.388	49.0	24
25	.708	25.0	1.388	49.0	5.947	210.0	4.078	144.0	3.653	129.0	3.795	134.0	1.388	49.0	25
26	.736	26.0	5.409	191.0	5.409	191.0	3.908	138.0	4.191	148.0	3.738	132.0	1.388	49.0	26
27	.793	28.0	6.457	228.0	4.729	167.0	3.625	128.0	4.814	170.0	3.738	132.0	1.388	49.0	27
28	.793	28.0	3.823	135.0	4.446	157.0	3.682	130.0	4.758	168.0	3.738	132.0	1.416	50.0	28
29	1.020	36.0	3.285	116.0	4.163	147.0	3.795	134.0	4.814	170.0	3.710	131.0	1.444	51.0	29
30	1.331	47.0	3.257	115.0	3.852	136.0	3.795	134.0	4.758	168.0	3.682	130.0	1.104	39.0	30
31	1.869	66.0			3.398	120.0			4.758	168.0	3.682	130.0			31
MEAN	.506	17.9	2.095	74.0	4.735	167.2	3.531	124.7	3.600	127.1	3.916	138.3	2.258	79.7	MEAN
DAM^3	1355.		5426.		12673.		9145.		9636.		10482.		5849.		DAM^3
AF		1099.		4399.		10274.		7414.		7812.		8498.		4742.	AF

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 38
WEST VALLEY CREEK BELOW WEST VALLEY RESERVOIR

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1									1.982	70.0	4.899	173.0	3.682	130.0	1
2									1.982	70.0	4.843	171.0	3.682	130.0	2
3									1.982	70.0	4.786	169.0	3.682	130.0	3
4									1.982	70.0	4.701	166.0	3.682	130.0	4
5									1.982	70.0	4.701	166.0	3.625	128.0	5
6									1.982	70.0	4.644	164.0	3.625	128.0	6
7									1.982	70.0	4.644	164.0	3.512	124.0	7
8									1.982	70.0	3.936	139.0	3.512	124.0	8
9									1.982	70.0	3.483	123.0	3.512	124.0	9
10									1.982	70.0	3.483	123.0	3.512	124.0	10
11									1.982	70.0	3.483	123.0	1.982	70.0	11
12							.108 *	3.8	1.982	70.0	3.483	123.0	.878	31.0	12
13							.125	4.4	1.982	70.0	3.455	122.0	.878	31.0	13
14							.110	3.9	1.926	68.0	3.455	122.0	.878	31.0	14
15							.110	3.9	1.926	68.0	3.682	130.0	.878	31.0	15
16							.127	4.5	1.926	68.0	3.993	141.0	.878	31.0	16
17							.133	4.7	1.926	68.0	3.993	141.0	.878	31.0	17
18							.130	4.6	2.464	87.0	3.936	139.0	.850	30.0	18
19							.133	4.7	3.144	111.0	3.936	139.0	.850	30.0	19
20							1.133	40.0	3.313	117.0	3.936	139.0	.850	30.0	20
21							2.039	72.0	3.342	118.0	3.908	138.0	.850	30.0	21
22							2.011	71.0	3.342	118.0	3.852	136.0	.850	30.0	22
23							2.011	71.0	3.342	118.0	3.852	136.0	.850	30.0	23
24							1.982	70.0	3.342	118.0	3.795	134.0	.850	30.0	24
25							1.982	70.0	3.342	118.0	3.795	134.0	.850	30.0	25
26							1.982	70.0	4.078	144.0	3.767	133.0	.850	30.0	26
27							1.982	70.0	4.956	175.0	3.767	133.0	.850	30.0	27
28							1.982	70.0	4.956	175.0	3.767	133.0	.850	30.0	28
29							1.982	70.0	4.956	175.0	3.710	131.0	.850	30.0	29
30							1.982	70.0	4.899	173.0	3.710	131.0	.425	15.0	30
31									4.899	173.0	3.710	131.0			31
MEAN							1.160	41.0	2.834	100.1	3.971	140.2	1.796	63.4	MEAN
DAM^3							1904.		7585.		10629.		4653.		DAM^3
AF								1543.		6149.		8617.		3772.	AF

* Beginning of Record

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 39
FITZHUGH CREEK BELOW DIVERSION NO. 137

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			3.455	122.0	1.586	56.0	.453	16.0	.176	6.2	.045	1.6	.130	4.6	1
2			1.444	51.0	1.331	47.0	.425	15.0	.170	6.0	.045	1.6	.125	4.4	2
3			.538	19.0	1.331	47.0	.425	15.0	.170	6.0	.045	1.6	.116	4.1	3
4			.283	10.0	1.218	43.0	.396	14.0	.181	6.4	.042	1.5	.116	4.1	4
5			.269	9.5	1.076	38.0	.396	14.0	.153	5.4	.042	1.5	.119	4.2	5
6			.278	9.8	.963	34.0	.312	11.0	.105	3.7	.042	1.5	.125	4.4	6
7			.566	20.0	.935	33.0	.312	11.0	.102	3.6	.042	1.5	.042	1.5	7
8			.252	8.9	.906	32.0	.312	11.0	.110	3.9	.040	1.4	.028	1.0	8
9			.224	7.9	.906	32.0	.340	12.0	.091	3.2	.040	1.4	.028	1.0	9
10			.453	16.0	.963	34.0	.340	12.0	.079	2.8	.040	1.4	.028	1.0	10
11			.425	15.0	.906	32.0	.340	12.0	.071	2.5	.037	1.3	.028	1.0	11
12			.396	14.0	.878	31.0	.312	11.0	.054	1.9	.037	1.3	.028	1.0	12
13			.396	14.0	.878	31.0	.340	12.0	.051	1.8	.034	1.2	.028	1.0	13
14			.425	15.0	.906	32.0	.312	11.0	.045	1.6	.034	1.2	.028	1.0	14
15			.425	15.0	.963	34.0	.283	10.0	.045	1.6	.031	1.1	.028	1.0	15
16			.481	17.0	.991	35.0	.312	11.0	.045	1.6	.031	1.1	.028	1.0	16
17			.538	19.0	.878	31.0	.269	9.5	.045	1.6	.031	1.1	.028	1.0	17
18			.566	20.0	.736	26.0	.252	8.9	.045	1.6	.031	1.1	.028	1.0	18
19			.453	16.0	.736	26.0	.261	9.2	.045	1.6	.028	1.0	.028	1.0	19
20			.481	17.0	.708	25.0	.204	7.2	.045	1.6	.028	1.0	.028	1.0	20
21			.538	19.0	.651	23.0	.187	6.6	.045	1.6	.028	1.0	.028	1.0	21
22			.538	19.0	.651	23.0	.187	6.6	.045	1.6	.037	1.3	.028	1.0	22
23			.481	17.0	.736	26.0	.187	6.6	.045	1.6	.042	1.5	.028	1.0	23
24			.453	16.0	.623	22.0	.181	6.4	.045	1.6	.037	1.3	.028	1.0	24
25	.048*	1.7	.566	20.0	.821	29.0	.193	6.8	.045	1.6	.037	1.3	.028	1.0	25
26	.051	1.8	4.418	156.0	.708	25.0	.193	6.8	.045	1.6	.074	2.6	.028	1.0	26
27	.051	1.8	3.512	124.0	.595	21.0	.187	6.6	.045	1.6	.130	4.6	.028	1.0	27
28	.051	1.8	1.784	63.0	.566	20.0	.181	6.4	.045	1.6	.125	4.4	.028	1.0	28
29	.054	1.9	1.529	54.0	.538	19.0	.215	7.6	.045	1.6	.125	4.4	.028	1.0	29
30	.085	3.0	1.586	56.0	.510	18.0	.210	7.4	.045	1.6	.125	4.4	.028	1.0	30
31	.130	4.6			.453	16.0			.045	1.6	.130	4.6			31
MEAN	.067	2.4	.925	32.7	.860	30.4	.284	10.0	.075	2.7	.053	1.9	.048	1.7	MEAN
DAM^3	41.		2397.		2301.		735.		201.		141.		125.		DAM^3
AF		33.		1943.		1865.		596.		163.		115.		102.	AF

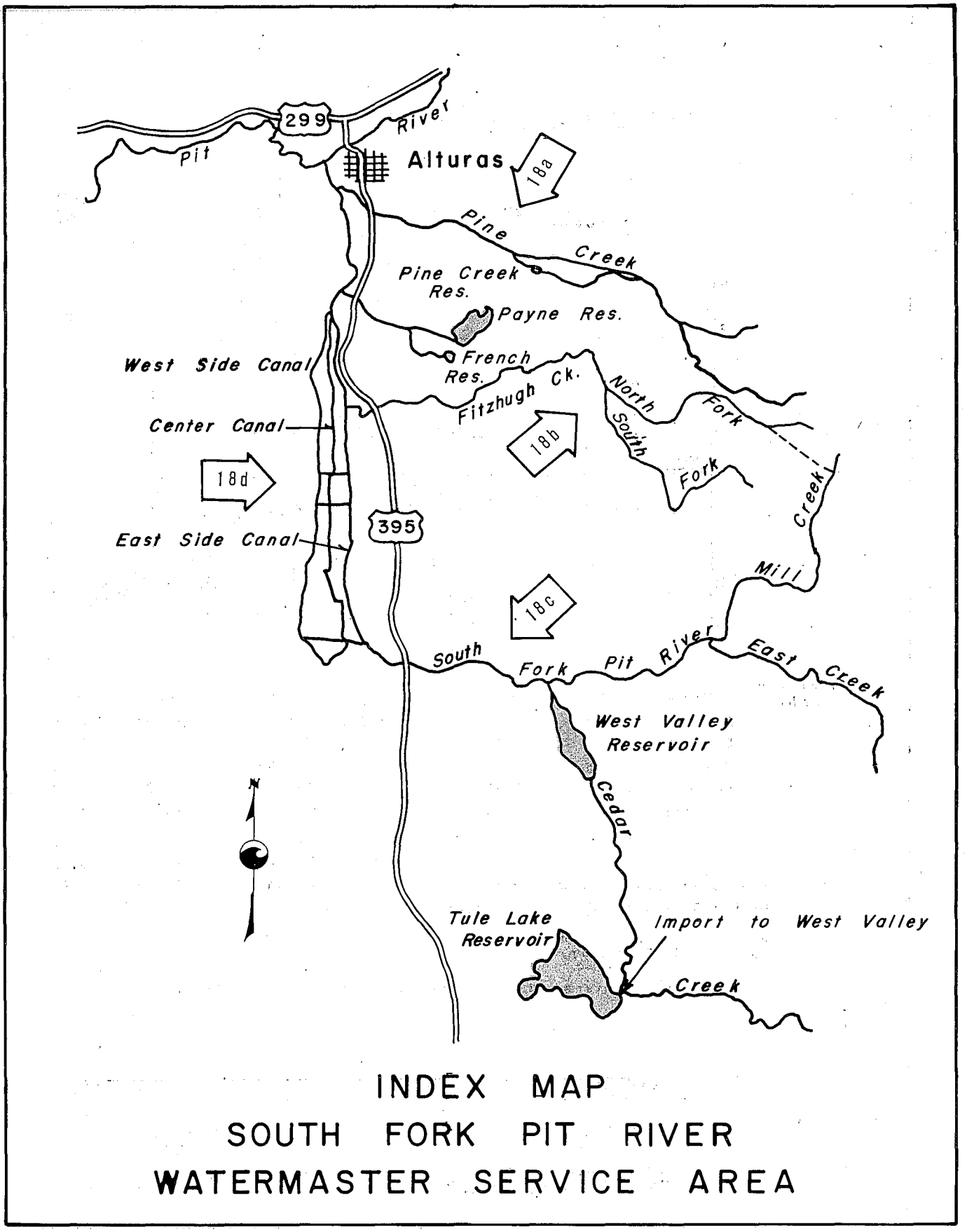
* Beginning of Record

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

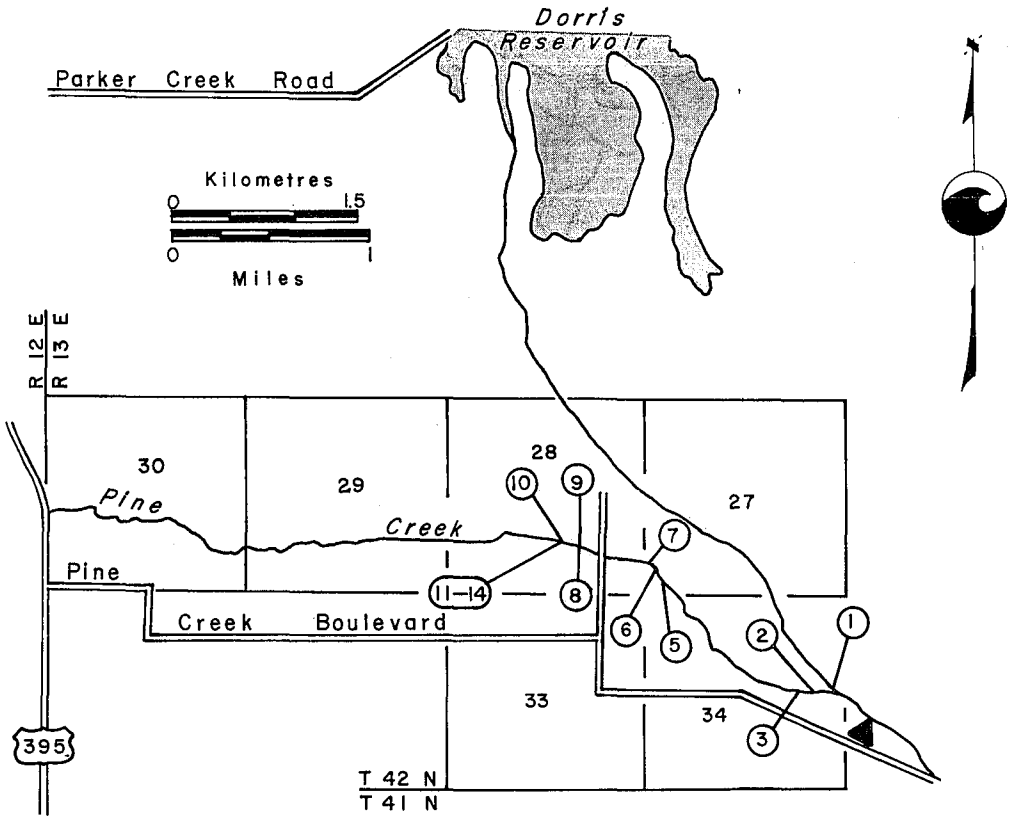
TABLE 40
PINE CREEK NEAR ALTURAS

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1	.246	8.7	1.416	50.0	1.076	38.0	1.331	47.0	.793	28.0	.481	17.0	.340	12.0	1
2	.272	9.6	.850	30.0	.906	32.0	1.359	48.0	.878	31.0	.453	16.0	.340	12.0	2
3	.261	9.2	.453	16.0	.906	32.0	1.388	49.0	.906	32.0	.453	16.0	.340	12.0	3
4	.283	10.0	.396	14.0	.878	31.0	1.444	51.0	.878	31.0	.453	16.0	.340	12.0	4
5	.340	12.0	.368	13.0	.878	31.0	1.529	54.0	.850	30.0	.453	16.0	.368	13.0	5
6	.481	17.0	.396	14.0	.821	29.0	1.586	56.0	.821	29.0	.453	16.0	.396	14.0	6
7	.340	12.0	.623	22.0	.793	28.0	1.699	60.0	.821	29.0	.453	16.0	.368	13.0	7
8	.283	10.0	.425	15.0	.793	28.0	1.812	64.0	.821	29.0	.425	15.0	.368	13.0	8
9	.283	10.0	.368	13.0	.850	30.0	1.897	67.0	.821	29.0	.425	15.0	.340	12.0	9
10	.269	9.5	.368	13.0	.906	32.0	1.926	68.0	.821	29.0	.425	15.0	.396	14.0	10
11	.278	9.8	.425	15.0	.935	33.0	1.897	67.0	.821	29.0	.425	15.0	.368	13.0	11
12	.283	10.0	.425	15.0	.906	32.0	1.784	63.0	.793	28.0	.396	14.0	.340	12.0	12
13	.312	11.0	.425	15.0	1.048	37.0	1.614	57.0	.793	28.0	.425	15.0	.368	13.0	13
14	.312	11.0	.481	17.0	1.218	43.0	1.473	52.0	.793	28.0	.396	14.0	.368	13.0	14
15	.278	9.8	.453	16.0	1.416	50.0	1.388	49.0	.765	27.0	.396	14.0	.340	12.0	15
16	.266	9.4	.566	20.0	1.388	49.0	1.359	48.0	.765	27.0	.396	14.0	.340	12.0	16
17	.252	8.9	.566	20.0	1.444	51.0	1.303	46.0	.765	27.0	.396	14.0	.312	11.0	17
18	.258	9.1	.481	17.0	1.501	53.0	1.246	44.0	.765	27.0	.396	14.0	.340	12.0	18
19	.258	9.1	.453	16.0	1.501	53.0	1.161	41.0	.765	27.0	.368	13.0	.340	12.0	19
20	.266	9.4	.453	16.0	1.473	52.0	1.104	39.0	.736	26.0	.368	13.0	.312	11.0	20
21	.280	9.9	.510	18.0	1.558	55.0	1.076	38.0	.680	24.0	.368	13.0	.312	11.0	21
22	.453	16.0	.481	17.0	1.501	53.0	1.048	37.0	.595	21.0	.396	14.0	.312	11.0	22
23	.623	22.0	.425	15.0	1.529	54.0	1.048	37.0	.595	21.0	.396	14.0	.312	11.0	23
24	.453	16.0	.425	15.0	1.473	52.0	1.048	37.0	.566	20.0	.368	13.0	.312	11.0	24
25	.368	13.0	.538	19.0	1.501	53.0	1.020	36.0	.538	19.0	.368	13.0	.283	10.0	25
26	.340	12.0	4.220	149.0	1.416	50.0	1.020	36.0	.538	19.0	.368	13.0	.283	10.0	26
27	.340	12.0	2.379	84.0	1.388	49.0	.991	35.0	.538	19.0	.368	13.0	.283	10.0	27
28	.340	12.0	1.048	37.0	1.359	48.0	.991	35.0	.510	18.0	.340	12.0	.283	10.0	28
29	.340	12.0	.878	31.0	1.359	48.0	.963	34.0	.510	18.0	.340	12.0	.280	9.9	29
30	.340	12.0	.935	33.0	1.303	46.0	.906	32.0	.481	17.0	.368	13.0	.280	9.9	30
31	.425	15.0			1.274	45.0			.481	17.0	.368	13.0			31
MEAN	.327	11.5	.741	26.2	1.203	42.5	1.347	47.6	.716	25.3	.403	14.2	.332	11.7	MEAN
DAM^3	874.		1919.		3220.		3489.		1917.		1078.		860.		DAM^3
AF		708.		1556.		2611.		2829.		1554.		874.		697.	AF

Figure 18



INDEX MAP
SOUTH FORK PIT RIVER
WATERMASTER SERVICE AREA



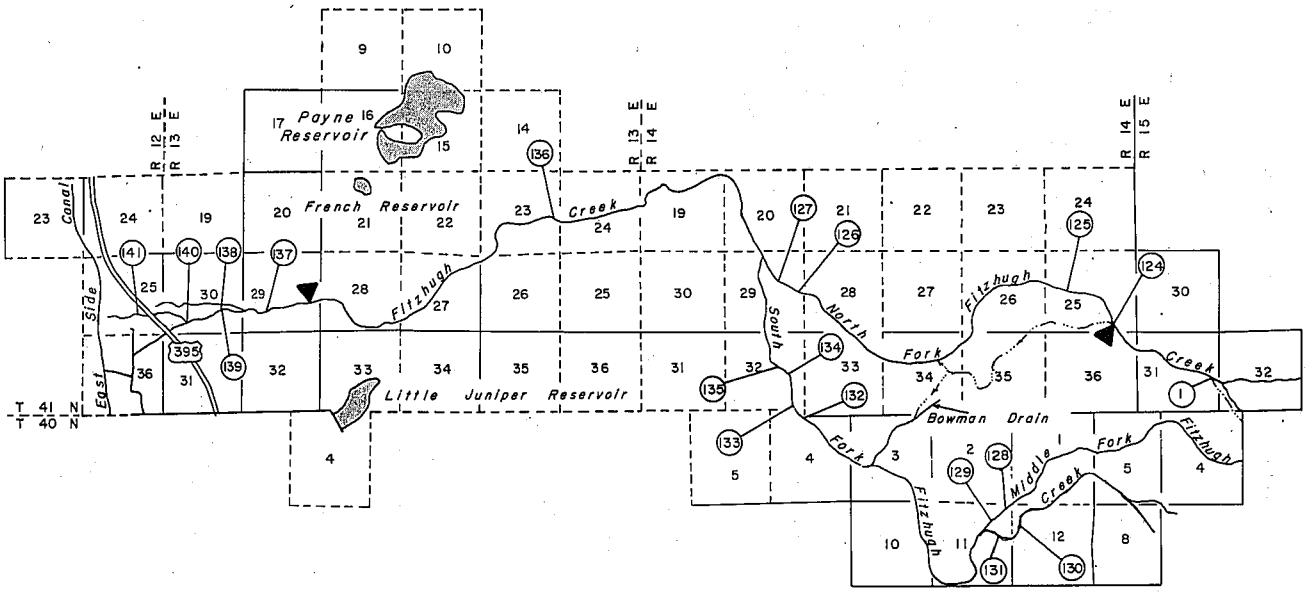
Diversion Number	Name	m³/s	cfs
	Anninos	0.009	0.30
	Bagwell	0.003	0.10
	Boyle	0.085	3.00
	Lemon	0.009	0.30
	Stephens	0.095	3.35
	Wall	0.003	0.10
2,3,6-9	Rice	0.137	4.85
5	Nelson	0.107	3.77
	Swanson	0.039	1.37
	Weber	0.125	4.40
	Younger	0.097	3.42
10	Wildlife Ref.	0.906	32.00
11	Weber	0.003	0.10
12-14	Swanson	0.083	2.94

Note: Pine Creek channel capacity below Number 5 is about 0.566 m^3/s (20cfs).

Surplus Pine Creek flow is diverted into Dorris Reservoir.

▲ Watermaster installed recorder station.

DIVERSIONS FROM PINE CREEK SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA



Diversion Number	Name	m^3/s	cfs
1	Jobe	0.066	2.34 [1]
124	Jobe	0.017 *	0.60 *
125	Swanson	0.045	1.60
126-127	Weber Bros.	0.014	0.50
128-131	Harris	0.034	1.20
132-135	Weber Bros.	0.012	0.42
	Swanson	0.008	0.28
136	Nevis Corp.	**	**
137-141	Bell	0.141	5.00
142	Akers Land & Cattle Company	0.152	5.40

[1] Water is imported from Mill Creek.

* Plus imported water from Mill Creek.

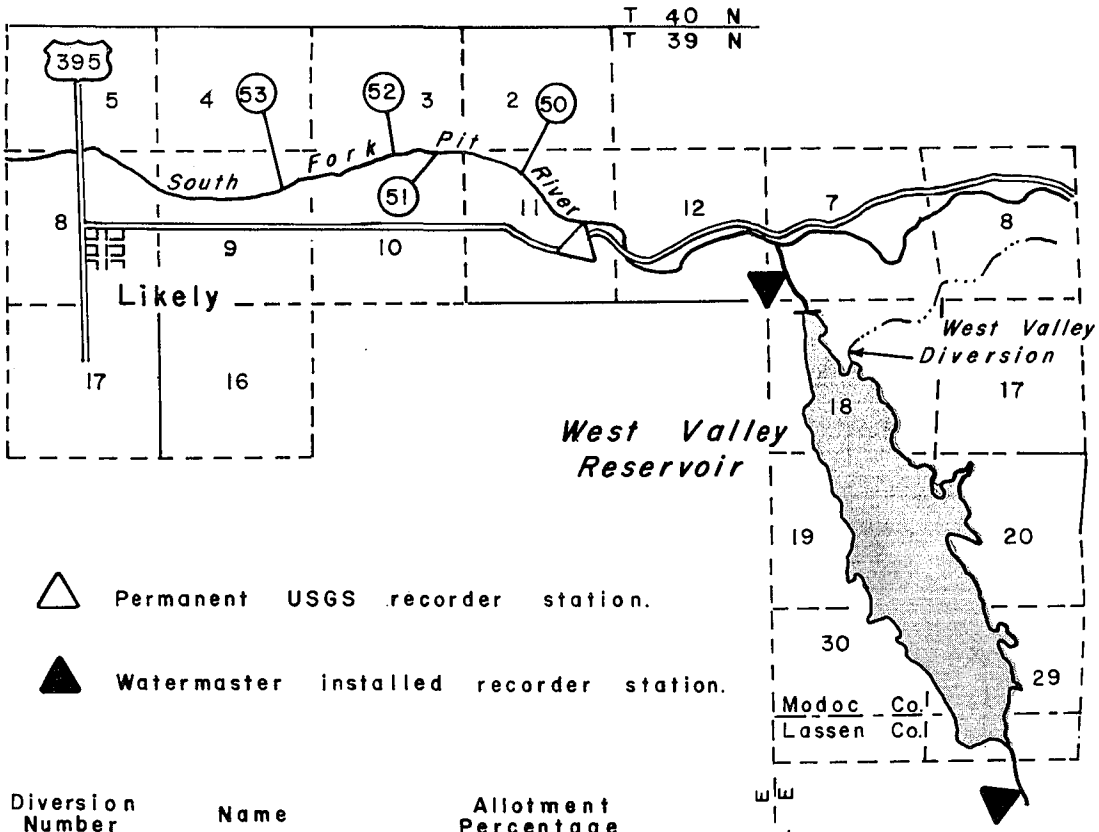
** Surplus water plus water from Bowman Drain due to imported water from Mill Creek.

▲ Watermaster installed recorder station.

Kilometres 0 1 2 3 4 5

Miles 0 1 2 3

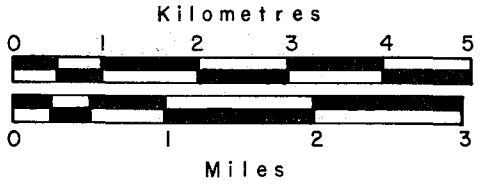
DIVERSIONS FROM FITZHUGH CREEK SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA



△ Permanent USGS recorder station.

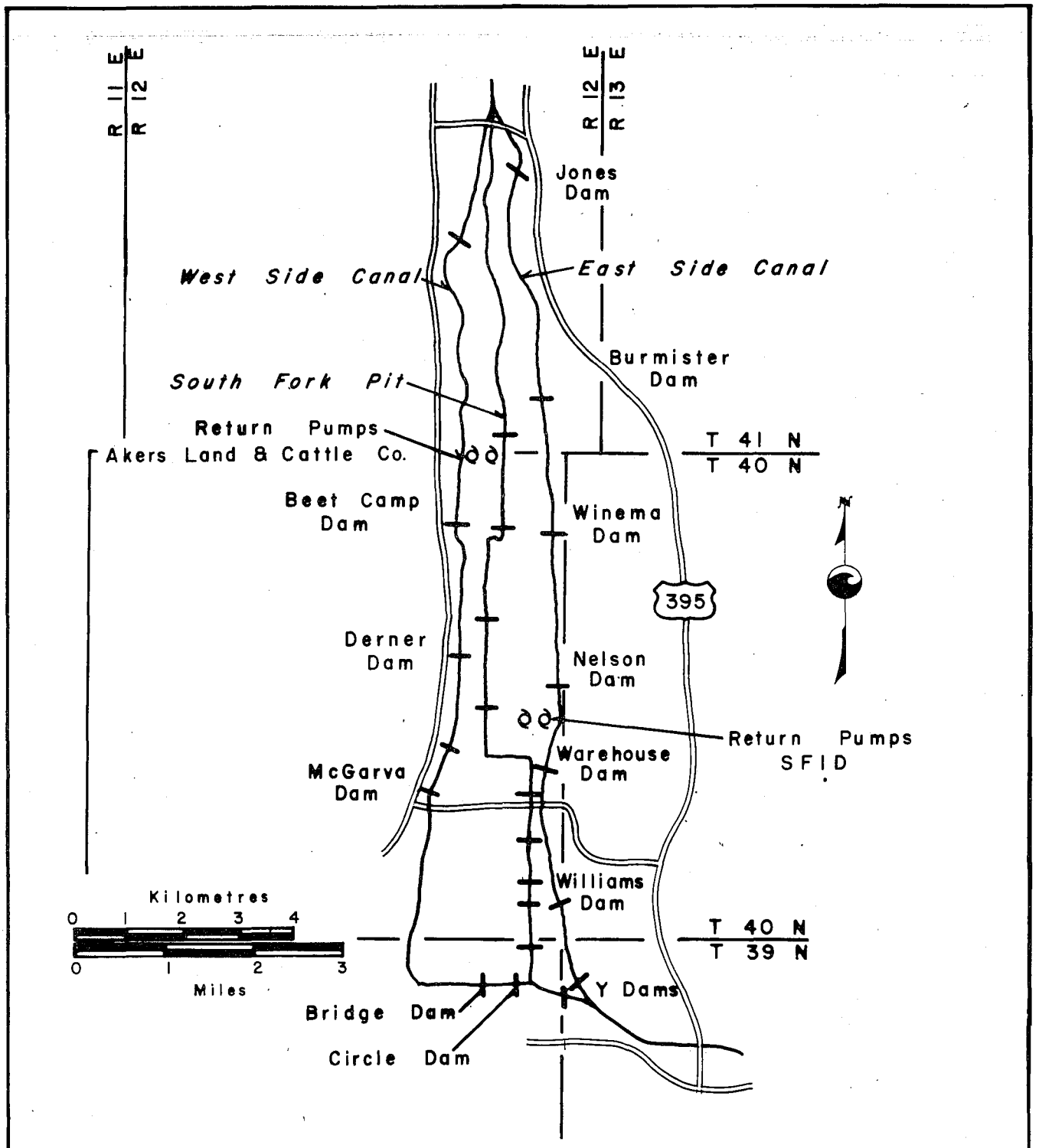
▲ Watermaster installed recorder station.

Diversion Number	Name	Allotment Percentage
50	Van Loan	34.50
	Flournoy Brothers	65.50
51	Van Loan	100.00
52	Van Loan	33.33
	Hamel	33.33
	Monroe	16.66
	McGarva Brothers	16.66
53	Flourney	33.33
	Van Loan	66.66

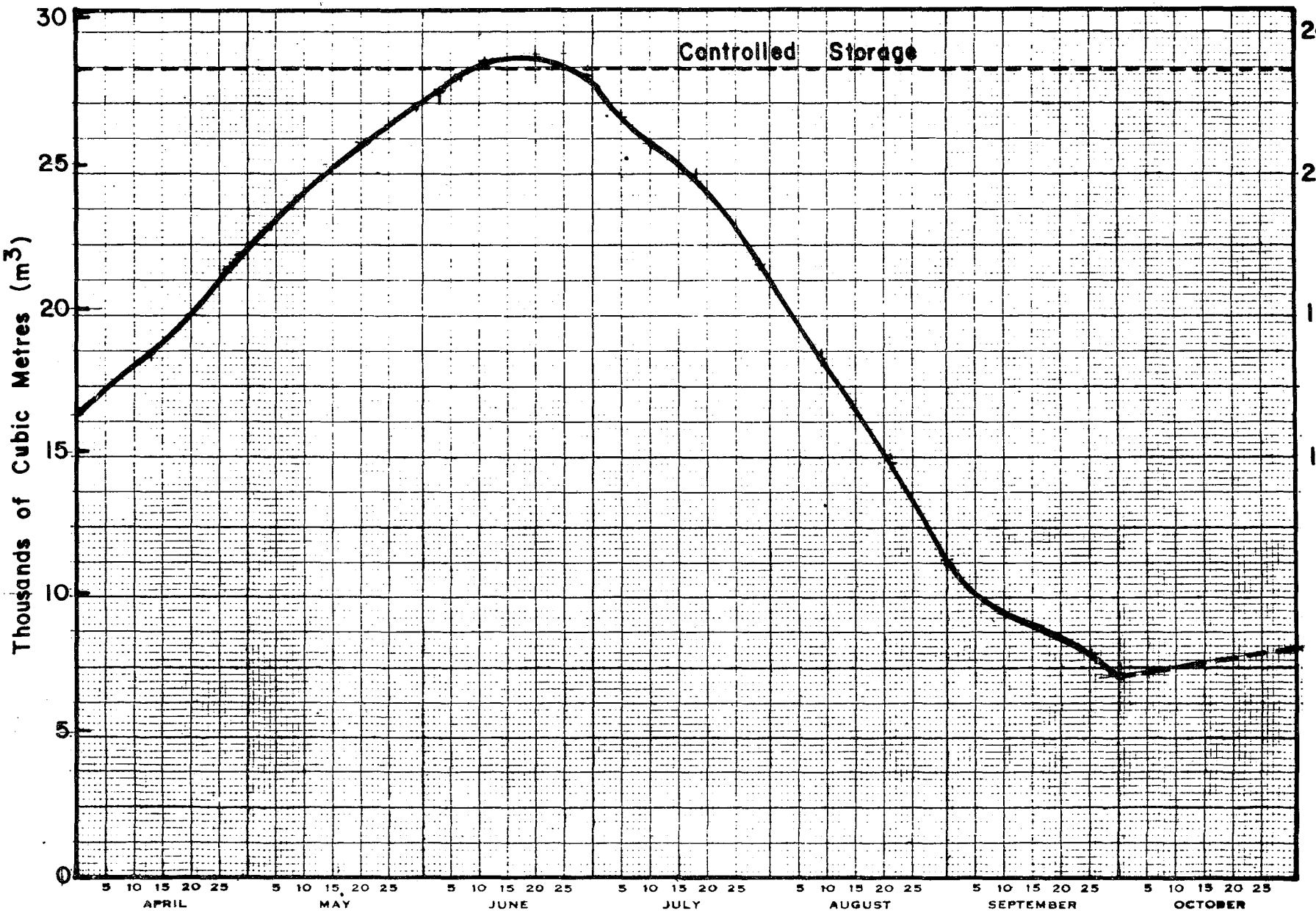


DIVERSIONS FROM SOUTH FORK PIT RIVER
SOUTH FORK PIT RIVER
WATERMASTER SERVICE AREA

Figure 18d



DIVERSIONS FROM SOUTH FORK PIT RIVER
SOUTH FORK PIT RIVER
WATERMASTER SERVICE AREA



West Valley Reservoir 1978

Figure 18a

SURPRISE VALLEY WATERMASTER SERVICE AREA

The Surprise Valley service area is situated in extreme eastern Modoc County, east of the Warner Mountains. Figure 18, page 149, shows the service area, the streams serving it, and the towns and roads of the valley.

Ten individual stream systems rising on the eastern slope of the Warner Mountains supply water to the area. These streams are fed by snowmelt runoff and traverse a fast, precipitous course 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, including Mill, Soldier, Pine, Cedar, Deep, Owl, Rader, and Emerson Creeks, all of which previously had watermaster service individually. Service was started on Eagle Creek at that time. Bidwell Creek was added to the service area March 16, 1960. Each of the 10 stream systems are under separate decrees. See Table 41, page 140, for specific data regarding the decrees and water rights on the individual creeks.

Water Supply

The water supply is derived almost entirely from snowmelt runoff, with only minor spring-fed flows occurring in the latter part of the season. Due to the steep eastern slope of the Warner Mountains, there are no known economically justified 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. An extreme diurnal temperature variation causes extensive variation in snowmelt runoff. This problem is further aggravated by the relatively short, steep drainage area. In addition, occasional summer thundershowers may cause a creek to discharge a flow of mammoth proportions for several hours. These flashes are apt to cause considerable damage in the form of washouts and debris deposition and are of such short duration that no beneficial use can be made of the water.

Records of the daily mean dishcarge at several stream gaging stations within the service area are presented in Tables 42 through 53, pages 143 through 148A.

Method of Distribution

The continuous-flow method of distribution is employed on most creeks; however, in a few instances the available water supply is rotated among the users in accordance with either decree schedules or by mutual agreement.

Alfalfa and meadow hay, the major crops grown 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 employ 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, headgages, and measuring devices has been stressed during recent years. Although these structures do not solve the problems of discharge variation and debris deposition, they do provide significant assistance in solving water measurement and distribution problems. The individual streams and locations of the diversions are shown on Figures 19 through 19k, pages 149 through 163.

TABLE 41

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 m^3/s	Total Cfs	Remarks
Bidwell	6420	1-13-60	S	3-16-60[b]	46	1.805	63.74	(Schedule 3) 3 priorities March 15-July 19. (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	1.051	37.13	One priority on Brown Creek, tributary to Rutherford Creek, 7 priorities on Rutherford Creek, tributary to Mill Creek, 4 priorities on Mill Creek, 1st and 2nd for year-round use, 3rd and 4th April through September.
Soldier	2045	11-28-28	CR	9-11-29	13 4[c]	0.949 0.124	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	3391	12-07-36	CR	1-13-37	5 1[c]	[d] 0.002	[d] 0.08	One full rotation totalling 850 dam^3 (693 AF). Rotation continues until flow decreases to 0.113 m^3/s (4 cfs), then all water goes to Cal-Vada Ranch until flow decreases to 0.045 m^3/s (1.60 cfs), then all water goes to the R. Bordwell Ranch.
Cedar	1206 2343 [d]	5-22-01 2-15-23	CA CA	9-11-29	12	0.818	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. 0.818 m^3/s (28.90 cfs) includes 0.142 m^3/s (5.00 cfs) imported from Thoms Creek on west slope of Warner Mountains.
Deep	3101	1-25-34	CR	12-29-34	11	0.832	29.37	Schedule 2 establishes 5 priorities, year-round.
Cottonwood	6903	12-01-64	CA	7-01-77[b]	8	[d]	[d]	Water rights based on a percentage of flow in an equal priority.
Owl	2410	5-29-29	CA	9-11-29	8 1[c]	1.181	41.70	21 priorities; all year-round but 8th, under which each of 3 owners receives his allotment for an 8-day period. Appropriative License No. 2842, 0.015 m^3/s (0.54 cfs).
Rader	3626	6-04-37	CR	6-12-37	6	0.595	21.00	7 priorities. 7th is for surplus water. Diversions No. 1, 3, 6, and 7 have seasonal limitations.
Eagle	2304 3284	4-05-26 11-05-37	CA CR	1-10-39	36	0.866	30.57	Decree No. 3284 added rights in all priority classes, and established 4 classes. 0.127 m^3/s (4.50 cfs) right of Betford Corp. is for use March 1 to July 1. Eagleville 'town users', Schedule 2 may divert through Gee & Grider ditches March 16 to October 14 each year. Set 1st priority rights of Gee & Grider ditches, Par. XVII & XVIII, for use April 15 to October 1.
Emerson	2840	3-25-30	CR	4-11-30	10	0.698	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.
b/ Added to existing Surprise Valley service area.
c/ Appropriative rights junior to the decreed rights.
d/ See remarks.

Although the Owl Creek Flood Control and Water Conservation District did not become official until August 7, 1961, the District's diversion and distribution project was completed in February, 1961. The project reduced the number of diversions from 17 to 2 and the number of ditches from 17 to 8. This makes distribution easier and more equitable. The users say that they receive twice as much water as they did before the project. It is possible to divert and distribute 2.26 m^3/s (80 cfs) in the lower seven ditches.

1978 Distribution

Watermaster service began in the Surprise Valley area on March 19 and continued until September 30. Charles Hodge, Water Resources Technicial II, was watermaster.

Streams in the northern half ran about 100 percent of normal, and in the southern half the runoff was 81 to 119 percent of normal. Very good crop yields were experienced throughout the valley despite the cool temperatures and low precipitation in the early part of the season.

Bidwell Creek. Total stream runoff April 1 to September 30 was 20 010 dam^3 (16,220 AF). Streamflow was adequate to supply 100 percent of first priority during most of April; all three priorities were filled from April 26 through June 19 on Schedule 3. Schedule 4 became effective on July 10 with 65 percent of third priority being filled, then on August 5 only first priority was filled, with a steady decline to 66 percent of first on September 30.

Mill Creek. The total streamflow available from April 1 through September 30 was 6 230 dam^3 (5,050 AF). The average flow from April 1 to April 26 filled first, second, and 65 percent of third priorities. All four priorities were filled from April 27 through June 11 with a steady decline to full first priority on September 30.

Soldier Creek. The total streamflow available March 19 through September 30 was 5 304 dam^3 (4,300 AF). The flow was adequate to supply both uppers and lowers at full eight priorities from April 1 to May 31. When the season outside of the general irrigation season started on June 19, 50 percent of fourth priorities were filled. The flow receded to full first priority on July 18 and 45 percent of first at the end of the season.

Pine Creek. The total streamflow available March 20 through September 30 was 1 880 dam^3 (1,520 AF). There was sufficient water for each of the water users to receive four irrigations on rotation by May 31. The flow then receded until no water was at the highway on June 14. Pine Creek was dry from July 10 through September 30.

Cedar Creek. The total streamflow available April 1 through September 30 was 3 120 dam^3 (2,530 AF). The flow was sufficient to fill second priority for nine days in April and seven days in May. All water was turned in No. 1 diversion on June 8. Cedar Creek flow was .006 m^3/s (0.2 cfs) on September 30.

Deep Creek. The total streamflow available April 1 through September 30 was 3 430 dam^3 (2,780 AF). The flow in North Deep was adequate to satisfy full first priority seven days in April and three days in May. Only 50 percent of first were filled on May 24, with a steady recession to .003 m^3/s (0.3 cfs) at the end of the season.

The supply in South Deep was sufficient to fill partial second priority in April and partial third priority in May. Only first priorities could be filled on June 11 and only 33 percent on July 1. The flow receded to a small portion of first at the end of the season.

Owl Creek. The total streamflow available from April 1 through September 30 was 7 910 dam^3 (6,140 AF). The supply fluctuated between the 8th and 15th priorities during April and between 13th

and ?ist during May. More than enough flow was available to fill all priorities during the first half of June. The flow then receded to third priority at the end of the season.

Cottonwood Creek. The total streamflow available from April 1 through September 30 was 5 400 dam^3 (4,380 AF). A very good irrigation season was experienced due to the slow even runoff from the watershed.

Rader Creek. The total streamflow available from April 1 through September 30 was 4 890 dam^3 (3,960 AF). During April the supply was enough to fill 50 percent of third priority, and from the middle of May to the end of June all of fifth priorities were filled. Stock water only was available during August and September.

Eagle Creek. The total streamflow from April 1 through September 30 was 6 000 dam^3 (4,860 AF). The supply was adequate during April to satisfy first and second priorities. The flow fluctuated from May 1 to July 20, satisfying third and partial third priorities. Fourth priorities were satisfied June 5 through June 10. The supply receded steadily with only first priorities being filled on September 30.

Emerson Creek. The total streamflow available from April 1 through September 30 was 3 680 dam^3 (2,980 AF). Partial second priorities were filled until the middle of May, then partial third priorities were filled. Only a few days could fill third priorities be satisfied. Stock water only was available during August and September.

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 42
BIDWELL CREEK NEAR FORT BIDWELL

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			3.087*	109.0	2.209	78.0	2.549	90.0	1.020	36.0	.241	8.5	.164	5.8	1
2			2.520	89.0	2.237	79.0	2.492	88.0	.963	34.0	.229	8.1	.159	5.6	2
3			2.067	73.0	2.492	88.0	2.549	90.0	.963	34.0	.215	7.6	.156	5.5	3
4			1.784	63.0	2.549	90.0	2.747	97.0	.906	32.0	.212	7.5	.150	5.3	4
5			1.473	52.0	2.322	82.0	2.945	104.0	.821	29.0	.204	7.2	.173	6.1	5
6			1.303	46.0	2.124	75.0	3.285	116.0	.765	27.0	.212	7.5	.181	6.4	6
7			1.104	39.0	2.039	72.0	3.710	131.0	.736	26.0	.207	7.3	.184	6.5	7
8			.991	35.0	2.209	78.0	3.710	131.0	.708	25.0	.201	7.1	.176	6.2	8
9			1.020	36.0	2.549	90.0	3.625	128.0	.680	24.0	.198	7.0	.176	6.2	9
10			1.104	39.0	2.747	97.0	3.512	124.0	.623	22.0	.204	7.2	.210	7.4	10
11			1.246	44.0	2.917	103.0	3.059	108.0	.595	21.0	.190	6.7	.187	6.6	11
12			1.444	51.0	2.719	96.0	2.690	95.0	.566	20.0	.190	6.7	.170	6.0	12
13			1.643	58.0	3.115	110.0	2.464	87.0	.510	18.0	.215	7.6	.178	6.3	13
14			1.784	63.0	4.786	169.0	2.351	83.0	.481	17.0	.218	7.7	.184	6.5	14
15			1.671	59.0	4.418	156.0	2.209	78.0	.481	17.0	.218	7.7	.167	5.9	15
16			1.558	55.0	3.767	133.0	2.067	73.0	.453	16.0	.232	8.2	.159	5.6	16
17			1.359	48.0	3.342	118.0	1.897	67.0	.453	16.0	.221	7.8	.161	5.7	17
18			1.246	44.0	3.087	109.0	1.869	66.0	.425	15.0	.215	7.6	.178	6.3	18
19			1.246	44.0	3.172	112.0	1.841	65.0	.396	14.0	.204	7.2	.170	6.0	19
20			1.246	44.0	3.115	110.0	1.756	62.0	.368	13.0	.198	7.0	.161	5.7	20
21			1.189	42.0	3.172	112.0	1.728	61.0	.368	13.0	.193	6.8	.153	5.4	21
22			1.133	40.0	3.342	118.0	1.699	60.0	.340	12.0	.227	8.0	.144	5.1	22
23			1.104	39.0	3.228	114.0	1.643	58.0	.312	11.0	.207	7.3	.144	5.1	23
24			1.133	40.0	2.889	102.0	1.558	55.0	.312	11.0	.193	6.8	.136	4.8	24
25			1.303	46.0	2.549	90.0	1.388	49.0	.312	11.0	.193	6.8	.133	4.7	25
26			2.322	82.0	2.237	79.0	1.246	44.0	.312	11.0	.190	6.7	.133	4.7	26
27			2.945	104.0	2.096	74.0	1.218	43.0	.283	10.0	.181	6.4	.136	4.8	27
28			2.662	94.0	2.266	80.0	1.189	42.0	.278	9.8	.173	6.1	.136	4.8	28
29			2.492	88.0	2.520	89.0	1.189	42.0	.263	9.3	.164	5.8	.136	4.8	29
30			2.407	85.0	2.577	91.0	1.133	40.0	.246	8.7	.173	6.1	.136	4.8	30
31					2.549	90.0			.229	8.1	.173	6.1			31
MEAN			1.653	58.4	2.817	99.5	2.244	79.2	.522	18.4	.203	7.2	.161	5.7	MEAN
DAM^3			4281.		7541.		5812.		1396.		543.		417.		DAM^3
AF				3471.		6113.		4712.		1132.		440.		338.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 43
MILL CREEK ~~NEAR LAKE CITY~~ above all diversions

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.736*	26.0	.651	23.0	.821	29.0	.396	14.0	.102	3.6	.062	2.2	1
2			.651	23.0	.595	21.0	.850	30.0	.396	14.0	.099	3.5	.057	2.0	2
3			.595	21.0	.708	25.0	.878	31.0	.368	13.0	.099	3.5	.057	2.0	3
4			.538	19.0	.680	24.0	.878	31.0	.368	13.0	.093	3.3	.057	2.0	4
5			.481	17.0	.651	23.0	.878	31.0	.340	12.0	.093	3.3	.068	2.4	5
6			.481	17.0	.595	21.0	.878	31.0	.340	12.0	.082	2.9	.071	2.5	6
7			.453	16.0	.595	21.0	.850	30.0	.340	12.0	.079	2.8	.071	2.5	7
8			.425	15.0	.623	22.0	.821	29.0	.312	11.0	.079	2.8	.071	2.5	8
9			.453	16.0	.708	25.0	.821	29.0	.312	11.0	.076	2.7	.071	2.5	9
10			.425	15.0	.793	28.0	.821	29.0	.283	10.0	.076	2.7	.088	3.1	10
11			.481	17.0	.821	29.0	.765	27.0	.275	9.7	.074	2.6	.076	2.7	11
12			.481	17.0	.821	29.0	.708	25.0	.255	9.0	.074	2.6	.071	2.5	12
13			.481	17.0	.935	33.0	.651	23.0	.244	8.6	.074	2.6	.071	2.5	13
14			.481	17.0	1.020	36.0	.623	22.0	.235	8.3	.074	2.6	.071	2.5	14
15			.453	16.0	.991	35.0	.595	21.0	.218	7.7	.074	2.6	.065	2.3	15
16			.453	16.0	.878	31.0	.595	21.0	.215	7.6	.074	2.6	.059	2.1	16
17			.481	17.0	.821	29.0	.566	20.0	.210	7.4	.074	2.6	.059	2.1	17
18			.481	17.0	.850	30.0	.538	19.0	.204	7.2	.074	2.6	.065	2.3	18
19			.453	16.0	.850	30.0	.538	19.0	.193	6.8	.071	2.5	.065	2.3	19
20			.453	16.0	.850	30.0	.510	18.0	.187	6.6	.071	2.5	.059	2.1	20
21			.453	16.0	.935	33.0	.510	18.0	.181	6.4	.068	2.4	.059	2.1	21
22			.481	17.0	.906	32.0	.510	18.0	.176	6.2	.076	2.7	.057	2.0	22
23			.481	17.0	.878	31.0	.510	18.0	.167	5.9	.071	2.5	.057	2.0	23
24			.481	17.0	.793	28.0	.510	18.0	.153	5.4	.068	2.4	.054	1.9	24
25			.510	18.0	.765	27.0	.481	17.0	.142	5.0	.068	2.4	.054	1.9	25
26			.850	30.0	.765	27.0	.481	17.0	.139	4.9	.068	2.4	.054	1.9	26
27			1.076	38.0	.793	28.0	.453	16.0	.136	4.8	.065	2.3	.054	1.9	27
28			.850	30.0	.821	29.0	.453	16.0	.127	4.5	.065	2.3	.054	1.9	28
29			.793	28.0	.850	30.0	.425	15.0	.122	4.3	.062	2.2	.057	2.0	29
30			.736	26.0	.850	30.0	.425	15.0	.116	4.1	.065	2.3	.054	1.9	30
31					.850	30.0			.110	3.9	.065	2.3			31
MEAN			.555	19.6	.795	28.1	.645	22.8	.234	8.3	.076	2.7	.063	2.2	MEAN
DAM^3			1438.		2127.		1670.		627.		203.		163.		DAM^3
AF				1166.		1725.		1354.		508.		165.		132.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 44
SOLDIER CREEK ABOVE ALL DIVERSIONS

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1			.736	26.0	.623	22.0	.595	21.0	.108	3.8	.051	1.8	.045	1.6	1
2			.680	24.0	.680	24.0	.595	21.0	.108	3.8	.051	1.8	.045	1.6	2
3			.651	23.0	.765	27.0	.538	19.0	.108	3.8	.051	1.8	.045	1.6	3
4			.566	20.0	.623	22.0	.538	19.0	.091	3.2	.051	1.8	.040	1.4	4
5			.510	18.0	.538	19.0	.538	19.0	.082	2.9	.051	1.8	.045	1.6	5
6			.481	17.0	.538	19.0	.510	18.0	.082	2.9	.051	1.8	.045	1.6	6
7			.453	16.0	.566	20.0	.453	16.0	.082	2.9	.051	1.8	.051	1.8	7
8			.453	16.0	.736	26.0	.425	15.0	.082	2.9	.051	1.8	.051	1.8	8
9			.510	18.0	.793	28.0	.453	16.0	.082	2.9	.051	1.8	.051	1.8	9
10			.623	22.0	.878	31.0	.396	14.0	.082	2.9	.051	1.8	.082	2.9	10
11			.680	24.0	.765	27.0	.340	12.0	.091	3.2	.051	1.8	.059	2.1	11
12			.623	22.0	.736	26.0	.283	10.0	.091	3.2	.051	1.8	.051	1.8	12
13			.623	22.0	.906	32.0	.280	9.9	.082	2.9	.051	1.8	.051	1.8	13
14			.595	21.0	.935	33.0	.255	9.0	.082	2.9	.051	1.8	.051	1.8	14
15			.538	19.0	.878	31.0	.232	8.2	.082	2.9	.051	1.8	.051	1.8	15
16			.481	17.0	.736	26.0	.221	7.8	.082	2.9	.051	1.8	.045	1.6	16
17			.453	16.0	.680	24.0	.210	7.4	.074	2.6	.051	1.8	.045	1.6	17
18			.453	16.0	.793	28.0	.210	7.4	.065	2.3	.051	1.8	.045	1.6	18
19	.340*	12.0	.453	16.0	.878	31.0	.210	7.4	.065	2.3	.045	1.6	.045	1.6	19
20	.368	13.0	.453	16.0	1.189	42.0	.198	7.0	.065	2.3	.045	1.6	.045	1.6	20
21	.425	15.0	.453	16.0	1.303	46.0	.176	6.2	.065	2.3	.045	1.6	.045	1.6	21
22	.510	18.0	.453	16.0	.935	33.0	.176	6.2	.065	2.3	.051	1.8	.040	1.4	22
23	.453	16.0	.453	16.0	.736	26.0	.176	6.2	.065	2.3	.051	1.8	.040	1.4	23
24	.396	14.0	.481	17.0	.680	24.0	.156	5.5	.065	2.3	.045	1.6	.040	1.4	24
25	.368	13.0	.680	24.0	.736	26.0	.125	4.4	.065	2.3	.045	1.6	.040	1.4	25
26	.453	16.0	.708	25.0	.595	21.0	.125	4.4	.065	2.3	.045	1.6	.040	1.4	26
27	.538	19.0	.793	28.0	.651	23.0	.125	4.4	.065	2.3	.045	1.6	.040	1.4	27
28	.651	23.0	.708	25.0	.651	23.0	.125	4.4	.065	2.3	.045	1.6	.040	1.4	28
29	.651	23.0	.708	25.0	.680	24.0	.116	4.1	.059	2.1	.045	1.6	.040	1.4	29
30	.736	26.0	.623	22.0	.651	23.0	.108	3.8	.059	2.1	.045	1.6	.040	1.4	30
31	.793	28.0			.623	22.0			.059	2.1	.045	1.6			31
MEAN	.514	18.2	.569	20.1	.757	26.7	.296	10.5	.077	2.7	.049	1.7	.046	1.6	MEAN
DAM³	577.		1474.		2027.		767.		206.		131.		120.		DAM³
AF		468.		1195.		1643.		622.		167.		106.		98.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 45
PINE CREEK AT DIVISION OF NORTH AND SOUTH CHANNELS

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1			.340	12.0	.368	13.0	.057	2.0	.006	.2					1
2			.340	12.0	.396	14.0	.048	1.7	.006	.2					2
3			.312	11.0	.396	14.0	.048	1.7	.003	.1					3
4			.269	9.5	.340	12.0	.048	1.7	.003	.1					4
5			.246	8.7	.269	9.5	.045	1.6	.003	.1					5
6			.241	8.5	.227	8.0	.045	1.6	.003	.1					6
7			.212	7.5	.244	8.6	.040	1.4	.003	.1					7
8			.218	7.7	.261	9.2	.034	1.2	.003	.1					8
9			.263	9.3	.275	9.7	.028	1.0	.003	.1					9
10			.396	14.0	.283	10.0	.025	.9							10
11			.425	15.0	.261	9.2	.023	.8							11
12			.368	13.0	.255	9.0	.023	.8							12
13			.340	12.0	.261	9.2	.020	.7							13
14			.312	11.0	.241	8.5	.017	.6							14
15			.269	9.5	.235	8.3	.017	.6							15
16			.249	8.8	.229	8.1	.017	.6							16
17			.229	8.1	.198	7.0	.014	.5							17
18			.235	8.3	.167	5.9	.014	.5							18
19			.241	8.5	.142	5.0	.014	.5							19
20	.340*	12.0	.249	8.8	.139	4.9	.011	.4							20
21	.340	12.0	.235	8.3	.133	4.7	.011	.4							21
22	.425	15.0	.235	8.3	.116	4.1	.008	.3							22
23	.510	18.0	.241	8.5	.147	5.2	.008	.3							23
24	.481	17.0	.269	9.5	.147	5.2	.008	.3							24
25	.425	15.0	.396	14.0	.167	5.9	.008	.3							25
26	.425	15.0	.425	15.0	.133	4.7	.006	.2							26
27	.425	15.0	.566	20.0	.125	4.4	.006	.2							27
28	.453	16.0	.510	18.0	.119	4.2	.006	.2							28
29	.368	13.0	.453	16.0	.099	3.5	.006	.2							29
30	.396	14.0	.368	13.0	.093	3.3	.006	.2							30
31	.368	13.0			.074	2.6									31
MEAN	.413	14.6	.315	11.1	.211	7.4	.022	.8	.001	.0					MEAN
DAM³	428.		816.		565.		57.		3.						DAM³
AF		347.		662.		458.		46.		2.					AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 46
CEDAR CREEK NEAR CEDARVILLE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.651*	23.0	.736	26.0	.184	6.5	.062	2.2	.014	.5	.006	.2	1
2			.623	22.0	.736	26.0	.176	6.2	.059	2.1	.014	.5	.006	.2	2
3			.595	21.0	.708	25.0	.170	6.0	.062	2.2	.011	.4	.006	.2	3
4			.566	20.0	.680	24.0	.164	5.8	.062	2.2	.011	.4	.006	.2	4
5			.538	19.0	.651	23.0	.159	5.6	.057	2.0	.011	.4	.008	.3	5
6			.510	18.0	.595	21.0	.156	5.5	.054	1.9	.011	.4	.011	.4	6
7			.510	18.0	.566	20.0	.150	5.3	.054	1.9	.011	.4	.011	.4	7
8			.481	17.0	.538	19.0	.142	5.0	.054	1.9	.008	.3	.014	.5	8
9			.510	18.0	.538	19.0	.136	4.8	.048	1.7	.008	.3	.011	.4	9
10			.510	18.0	.538	19.0	.139	4.9	.045	1.6	.008	.3	.020	.7	10
11			.538	19.0	.510	18.0	.136	4.8	.042	1.5	.008	.3	.014	.5	11
12			.538	19.0	.481	17.0	.127	4.5	.040	1.4	.008	.3	.011	.4	12
13			.538	19.0	.481	17.0	.122	4.3	.040	1.4	.008	.3	.011	.4	13
14			.538	19.0	.510	18.0	.116	4.1	.037	1.3	.008	.3	.014	.5	14
15			.510	18.0	.510	18.0	.113	4.0	.037	1.3	.008	.3	.011	.4	15
16			.510	18.0	.481	17.0	.113	4.0	.034	1.2	.008	.3	.008	.3	16
17			.481	17.0	.425	15.0	.105	3.7	.034	1.2	.011	.4	.008	.3	17
18			.481	17.0	.396	14.0	.102	3.6	.034	1.2	.008	.3	.014	.5	18
19			.453	16.0	.368	13.0	.099	3.5	.031	1.1	.008	.3	.014	.5	19
20			.453	16.0	.368	13.0	.093	3.3	.031	1.1	.006	.2	.011	.4	20
21			.481	17.0	.340	12.0	.085	3.0	.028	1.0	.006	.2	.011	.4	21
22			.481	17.0	.340	12.0	.082	2.9	.028	1.0	.011	.4	.008	.3	22
23			.481	17.0	.312	11.0	.079	2.8	.025	.9	.008	.3	.008	.3	23
24			.481	17.0	.312	11.0	.079	2.8	.023	.8	.008	.3	.008	.3	24
25			.510	18.0	.283	10.0	.076	2.7	.023	.8	.008	.3	.008	.3	25
26			.765	27.0	.280	9.9	.074	2.6	.023	.8	.008	.3	.006	.2	26
27			.906	32.0	.261	9.2	.071	2.5	.020	.7	.008	.3	.006	.2	27
28			.850	30.0	.252	8.9	.068	2.4	.017	.6	.006	.2	.006	.2	28
29			.821	29.0	.238	8.4	.068	2.4	.017	.6	.006	.2	.006	.2	29
30			.765	27.0	.218	7.7	.065	2.3	.014	.5	.008	.3	.006	.2	30
31					.201	7.1			.014	.5	.008	.3			31
MEAN			.569	20.1	.447	15.8	.115	4.1	.037	1.3	.009	.3	.010	.3	MEAN
DAM^3	0.		1474.		1196.		298.		99.		24.		25.		DAM^3
AF		0.		1195.		970.		241.		80.		20.		20.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 47
NORTH DEEP CREEK ABOVE ALL DIVERSIONS

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.229*	8.1	.246	8.7	.102	3.6	.023	.8	.011	.4	.008	.3	1
2			.269	9.5	.238	8.4	.102	3.6	.023	.8	.011	.4	.008	.3	2
3			.252	8.9	.238	8.4	.102	3.6	.028	1.0	.011	.4	.008	.3	3
4			.229	8.1	.229	8.1	.102	3.6	.028	1.0	.011	.4	.008	.3	4
5			.212	7.5	.229	8.1	.102	3.6	.023	.8	.011	.4	.011	.4	5
6			.198	7.0	.212	7.5	.108	3.8	.023	.8	.011	.4	.014	.5	6
7			.176	6.2	.198	7.0	.108	3.8	.023	.8	.011	.4	.011	.4	7
8			.170	6.0	.207	7.3	.108	3.8	.023	.8	.011	.4	.008	.3	8
9			.170	6.0	.212	7.5	.108	3.8	.023	.8	.011	.4	.008	.3	9
10			.170	6.0	.238	8.4	.122	4.3	.023	.8	.011	.4	.023	.8	10
11			.170	6.0	.246	8.7	.102	3.6	.017	.6	.011	.4	.014	.5	11
12			.170	6.0	.246	8.7	.093	3.3	.017	.6	.011	.4	.014	.5	12
13			.161	5.7	.269	9.5	.093	3.3	.017	.6	.014	.5	.011	.4	13
14			.156	5.5	.278	9.8	.093	3.3	.017	.6	.014	.5	.014	.5	14
15			.150	5.3	.261	9.2	.088	3.1	.017	.6	.014	.5	.011	.4	15
16			.142	5.0	.212	7.5	.088	3.1	.017	.6	.011	.4	.008	.3	16
17			.127	4.5	.190	6.7	.082	2.9	.017	.6	.011	.4	.008	.3	17
18			.122	4.3	.190	6.7	.074	2.6	.017	.6	.011	.4	.011	.4	18
19			.108	3.8	.190	6.7	.074	2.6	.017	.6	.011	.4	.011	.4	19
20			.122	4.3	.184	6.5	.068	2.4	.017	.6	.008	.3	.011	.4	20
21			.116	4.1	.184	6.5	.059	2.1	.017	.6	.008	.3	.008	.3	21
22			.116	4.1	.170	6.0	.054	1.9	.017	.6	.011	.4	.006	.2	22
23			.108	3.8	.156	5.5	.054	1.9	.017	.6	.011	.4	.006	.2	23
24			.116	4.1	.127	4.5	.054	1.9	.014	.5	.011	.4	.008	.3	24
25			.142	5.0	.108	3.8	.054	1.9	.014	.5	.011	.4	.008	.3	25
26			.261	9.2	.102	3.6	.048	1.7	.014	.5	.011	.4	.008	.3	26
27			.283	10.0	.102	3.6	.042	1.5	.014	.5	.011	.4	.008	.3	27
28			.278	9.8	.102	3.6	.042	1.5	.014	.5	.008	.3	.008	.3	28
29			.269	9.5	.102	3.6	.037	1.3	.014	.5	.008	.3	.008	.3	29
30			.252	8.9	.102	3.6	.031	1.1	.014	.5	.011	.4	.008	.3	30
31					.102	3.6			.014	.5	.011	.4			31
MEAN			.181	6.4	.189	6.7	.080	2.8	.018	.7	.011	.4	.010	.4	MEAN
DAM^3	0.		470.		507.		207.		49.		30.		26.		DAM^3
AF		0.		381.		411.		168.		40.		24.		21.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 48
SOUTH DEEP CREEK BELOW NO.2 DIVERSION

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.425*	15.0	.340	12.0	.275	9.7	.045	1.6	.011	.4	.014	.5	1
2			.396	14.0	.340	12.0	.275	9.7	.051	1.8	.011	.4	.014	.5	2
3			.340	12.0	.368	13.0	.275	9.7	.057	2.0	.011	.4	.014	.5	3
4			.283	10.0	.340	12.0	.275	9.7	.057	2.0	.011	.4	.014	.5	4
5			.266	9.4	.312	11.0	.275	9.7	.051	1.8	.011	.4	.014	.5	5
6			.255	9.0	.312	11.0	.283	10.0	.045	1.6	.011	.4	.017	.6	6
7			.255	9.0	.283	10.0	.283	10.0	.057	2.0	.011	.4	.017	.6	7
8			.266	9.4	.283	10.0	.283	10.0	.051	1.8	.011	.4	.014	.5	8
9			.275	9.7	.312	11.0	.283	10.0	.042	1.5	.011	.4	.014	.5	9
10			.312	11.0	.340	12.0	.227	8.0	.037	1.3	.011	.4	.023	.8	10
11			.283	10.0	.340	12.0	.173	6.1	.037	1.3	.011	.4	.017	.6	11
12			.227	8.0	.340	12.0	.139	4.9	.031	1.1	.011	.4	.014	.5	12
13			.218	7.7	.368	13.0	.139	4.9	.031	1.1	.014	.5	.014	.5	13
14			.218	7.7	.425	15.0	.125	4.4	.031	1.1	.014	.5	.017	.6	14
15			.210	7.4	.425	15.0	.116	4.1	.031	1.1	.014	.5	.014	.5	15
16			.201	7.1	.396	14.0	.108	3.8	.031	1.1	.014	.5	.014	.5	16
17			.181	6.4	.368	13.0	.099	3.5	.031	1.1	.014	.5	.014	.5	17
18			.173	6.1	.340	12.0	.091	3.2	.028	1.0	.014	.5	.017	.6	18
19			.164	5.8	.340	12.0	.082	2.9	.028	1.0	.014	.5	.017	.6	19
20			.173	6.1	.340	12.0	.071	2.5	.025	.9	.011	.4	.017	.6	20
21			.173	6.1	.340	12.0	.068	2.4	.023	.8	.011	.4	.014	.5	21
22			.164	5.8	.340	12.0	.068	2.4	.023	.8	.014	.5	.014	.5	22
23			.164	5.8	.312	11.0	.062	2.2	.023	.8	.014	.5	.014	.5	23
24			.164	5.8	.312	11.0	.062	2.2	.020	.7	.014	.5	.014	.5	24
25			.201	7.1	.283	10.0	.062	2.2	.020	.7	.014	.5	.014	.5	25
26			.425	15.0	.283	10.0	.062	2.2	.017	.6	.014	.5	.014	.5	26
27			.566	20.0	.283	10.0	.057	2.0	.017	.6	.014	.5	.014	.5	27
28			.510	18.0	.283	10.0	.057	2.0	.017	.6	.011	.4	.014	.5	28
29			.453	16.0	.275	9.7	.057	2.0	.014	.5	.011	.4	.014	.5	29
30			.368	13.0	.275	9.7	.051	1.8	.014	.5	.014	.5	.014	.5	30
31					.275	9.7			.014	.5	.014	.5			31
MEAN			.277	9.8	.328	11.6	.149	5.3	.032	1.1	.013	.4	.015	.5	MEAN
DAM³	0.		717.		878.		387.		86.		34.		39.		DAM³
AF		0.		582.		712.		314.		70.		28.		32.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 49
COTTONWOOD CREEK FLUME BELOW PAGE DITCH DIVERSION

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.481*	17.0	.340	12.0	.510	18.0	.595	21.0	.113	4.0	.037	1.3	1
2			.453	16.0	.368	13.0	.623	22.0	.566	20.0	.102	3.6	.028	1.0	2
3			.368	13.0	.425	15.0	.651	23.0	.538	19.0	.173	6.1	.028	1.0	3
4			.312	11.0	.396	14.0	.765	27.0	.481	17.0	.122	4.3	.023	.8	4
5			.261	9.2	.340	12.0	.963	34.0	.481	17.0	.164	5.8	.088	3.1	5
6			.283	10.0	.312	11.0	1.020	36.0	.481	17.0	.130	4.6	.088	3.1	6
7			.261	9.2	.340	12.0	1.048	37.0	.538	19.0	.108	3.8	.082	2.9	7
8			.261	9.2	.425	15.0	1.048	37.0	.538	19.0	.093	3.3	.076	2.7	8
9			.249	8.8	.481	17.0	1.020	36.0	.510	18.0	.082	2.9	.108	3.8	9
10			.340	12.0	.510	18.0	.935	33.0	.538	19.0	.082	2.9	.139	4.9	10
11			.425	15.0	.623	22.0	.821	29.0	.538	19.0	.076	2.7	.108	3.8	11
12			.368	13.0	.623	22.0	.793	28.0	.481	17.0	.062	2.2	.062	2.2	12
13			.340	12.0	.821	29.0	.878	31.0	.425	15.0	.071	2.5	.071	2.5	13
14			.312	11.0	.963	34.0	.821	29.0	.425	15.0	.062	2.2	.088	3.1	14
15			.261	9.2	.736	26.0	.793	28.0	.396	14.0	.051	1.8	.057	2.0	15
16			.249	8.8	.538	19.0	.680	24.0	.368	13.0	.057	2.0	.042	1.5	16
17			.224	7.9	.453	16.0	.651	23.0	.340	12.0	.071	2.5	.037	1.3	17
18			.198	7.0	.453	16.0	.708	25.0	.312	11.0	.062	2.2	.051	1.8	18
19			.198	7.0	.453	16.0	.680	24.0	.283	10.0	.051	1.8	.042	1.5	19
20			.198	7.0	.595	21.0	.708	25.0	.275	9.7	.037	1.3	.042	1.5	20
21			.198	7.0	.736	26.0	.736	26.0	.249	8.8	.037	1.3	.042	1.5	21
22			.198	7.0	.680	24.0	.765	27.0	.198	7.0	.102	3.6	.034	1.2	22
23			.224	7.9	.651	23.0	.793	28.0	.156	5.5	.062	2.2	.034	1.2	23
24			.249	8.8	.481	17.0	.680	24.0	.147	5.2	.045	1.6	.028	1.0	24
25			.396	14.0	.425	15.0	.566	20.0	.147	5.2	.042	1.5	.028	1.0	25
26			.425	15.0	.368	13.0	.566	20.0	.147	5.2	.042	1.5	.028	1.0	26
27			.396	14.0	.396	14.0	.595	21.0	.147	5.2	.037	1.3	.028	1.0	27
28			.340	12.0	.566	20.0	.595	21.0	.139	4.9	.037	1.3	.028	1.0	28
29			.340	12.0	.595	21.0	.566	20.0	.139	4.9	.028	1.0	.028	1.0	29
30			.340	12.0	.538	19.0	.595	21.0	.130	4.6	.045	1.6	.028	1.0	30
31					.510	18.0			.130	4.6	.045	1.6			31
AN			.305	10.8	.521	18.4	.752	26.6	.350	12.3	.074	2.6	.054	1.9	MEAN
M³	0.		790.		1394.		1949.		936.		198.		139.		DAM³
F		0.		640.		1130.		1580.		759.		161.		112.	AF

Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 50
OWL CREEK BELOW ALLEN-ARRECHE DITCH

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1			.566*	20.0	.396	14.0	.821	29.0	.623	22.0	.142	5.0	.074	2.6	1
2			.481	17.0	.566	20.0	.793	28.0	.595	21.0	.142	5.0	.065	2.3	2
3			.453	16.0	.651	23.0	.991	35.0	.566	20.0	.215	7.6	.065	2.3	3
4			.283	10.0	.595	21.0	4.078	144.0 ✓	.538	19.0	.238	8.4	.059	2.1	4
5			.252	8.9	.510	18.0	4.248	150.0 ✓	.453	16.0	.340	12.0	.201	7.1	5
6			.283	10.0	.453	16.0	2.662	94.0 ✓	.453	16.0	.283	10.0	.184	6.5	6
7			.283	10.0	.510	18.0	1.699	60.0 ✓	.510	18.0	.227	8.0	.167	5.9	7
8			.368	13.0	.680	24.0	2.662	94.0 ✓	.453	16.0	.170	6.0	.150	5.3	8
9			.368	13.0	.850	30.0	2.662	94.0 ✓	.453	16.0	.113	4.0	.133	4.7	9
10			.510	18.0	.878	31.0	2.662	94.0 ✓	.453	16.0	.091	3.2	.187	6.6	10
11			.708	25.0	.793	28.0	2.039	72.0 ✓	.425	15.0	.091	3.2	.164	5.8	11
12			.595	21.0	.736	26.0	1.473	52.0 ✓	.396	14.0	.091	3.2	.099	3.5	12
13			.481	17.0	.878	31.0	1.303	46.0 ✓	.396	14.0	.116	4.1	.099	3.5	13
14			.425	15.0	.821	29.0	1.189	42.0 ✓	.396	14.0	.099	3.5	.091	3.2	14
15			.368	13.0	.765	27.0	1.189	42.0 ✓	.396	14.0	.099	3.5	.074	2.6	15
16			.312	11.0	.680	24.0	.963	34.0	.368	13.0	.082	2.9	.059	2.1	16
17			.266	9.4	.566	20.0	.821	29.0	.368	13.0	.091	3.2	.051	1.8	17
18			.252	8.9	.538	19.0	.850	30.0	.340	12.0	.082	2.9	.051	1.8	18
19			.252	8.9	.481	17.0	.850	30.0	.312	11.0	.074	2.6	.059	2.1	19
20			.252	8.9	.481	17.0	.878	31.0	.283	10.0	.059	2.1	.059	2.1	20
21			.238	8.4	.538	19.0	.963	34.0	.252	8.9	.065	2.3	.059	2.1	21
22			.215	7.6	.538	19.0	.906	32.0	.252	8.9	.164	5.8	.051	1.8	22
23			.238	8.4	.566	20.0	.906	32.0	.227	8.0	.116	4.1	.051	1.8	23
24			.252	8.9	.566	20.0	.850	30.0	.227	8.0	.091	3.2	.045	1.6	24
25			.396	14.0	.566	20.0	.708	25.0	.215	7.6	.082	2.9	.045	1.6	25
26			.510	18.0	.510	18.0	.651	23.0	.215	7.6	.082	2.9	.045	1.6	26
27			.538	19.0	.566	20.0	.623	22.0	.201	7.1	.082	2.9	.045	1.6	27
28			.453	16.0	.736	26.0	.651	23.0	.201	7.1	.065	2.3	.042	1.5	28
29			.396	14.0	1.189	42.0 ✓	.651	23.0	.176	6.2	.059	2.1	.042	1.5	29
30			.396	14.0	1.104	39.0 ✓	.651	23.0	.164	5.8	.074	2.6	.042	1.5	30
31					.963	34.0			.142	5.0	.091	3.2			31
MEAN			.380	13.4	.667	23.5	1.413	49.9	.356	12.6	.123	4.3	.085	3.0	MEAN
DAM³			984.		1785.		3660.		954.		329.		221.		DAM³
AF				797.		1447.		2968.		773.		267.		179.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 51
RADER CREEK ABOVE ALL DIVERSIONS

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1			.396*	14.0	.283	10.0	.510	18.0	.481	17.0	.116	4.1	.042	1.5	1
2			.340	12.0	.312	11.0	.538	19.0	.481	17.0	.116	4.1	.042	1.5	2
3			.312	11.0	.340	12.0	.595	21.0	.453	16.0	.116	4.1	.042	1.5	3
4			.283	10.0	.368	13.0	.708	25.0	.425	15.0	.116	4.1	.042	1.5	4
5			.249	8.8	.340	12.0	.736	26.0	.425	15.0	.116	4.1	.085	3.0	5
6			.249	8.8	.312	11.0	.708	25.0	.396	14.0	.116	4.1	.071	2.5	6
7			.244	8.6	.340	12.0	.736	26.0	.425	15.0	.102	3.6	.071	2.5	7
8			.227	8.0	.368	13.0	.821	29.0	.425	15.0	.102	3.6	.071	2.5	8
9			.249	8.8	.453	16.0	.878	31.0	.396	14.0	.102	3.6	.062	2.2	9
10			.283	10.0	.510	18.0	.765	27.0	.396	14.0	.102	3.6	.074	2.6	10
11			.340	12.0	.566	20.0	.736	26.0	.368	13.0	.102	3.6	.068	2.4	11
12			.340	12.0	.538	19.0	.736	26.0	.340	12.0	.102	3.6	.062	2.2	12
13			.312	11.0	.623	22.0	.680	24.0	.312	11.0	.102	3.6	.074	2.6	13
14			.312	11.0	.793	28.0	.651	23.0	.283	10.0	.085	3.0	.074	2.6	14
15			.283	10.0	.765	27.0	.623	22.0	.283	10.0	.085	3.0	.062	2.2	15
16			.283	10.0	.623	22.0	.595	21.0	.255	9.0	.085	3.0	.059	2.1	16
17			.269	9.5	.566	20.0	.566	20.0	.227	8.0	.085	3.0	.059	2.1	17
18			.249	8.8	.538	19.0	.595	21.0	.227	8.0	.071	2.5	.062	2.2	18
19			.249	8.8	.538	19.0	.566	20.0	.198	7.0	.071	2.5	.059	2.1	19
20			.249	8.8	.623	22.0	.595	21.0	.198	7.0	.071	2.5	.059	2.1	20
21			.244	8.6	.680	24.0	.623	22.0	.198	7.0	.071	2.5	.059	2.1	21
22			.227	8.0	.736	26.0	.651	23.0	.198	7.0	.085	3.0	.054	1.9	22
23			.232	8.2	.680	24.0	.680	24.0	.193	6.8	.071	2.5	.051	1.8	23
24			.232	8.2	.623	22.0	.595	21.0	.178	6.3	.071	2.5	.045	1.6	24
25			.249	8.8	.538	19.0	.538	19.0	.178	6.3	.057	2.0	.045	1.6	25
26			.266	9.4	.510	18.0	.510	18.0	.164	5.8	.057	2.0	.045	1.6	26
27			.266	9.4	.538	19.0	.481	17.0	.164	5.8	.057	2.0	.045	1.6	27
28			.266	9.4	.566	20.0	.510	18.0	.164	5.8	.057	2.0	.042	1.5	28
29			.258	9.1	.595	21.0	.481	17.0	.147	5.2	.057	2.0	.042	1.5	29
30			.258	9.1	.538	19.0	.481	17.0	.147	5.2	.057	2.0	.042	1.5	30
31					.510	18.0			.130	4.6	.057	2.0			31
MEAN			.274	9.7	.526	18.6	.630	22.2	.286	10.1	.086	3.0	.057	2.0	MEAN
DAM³			709.		1408.		1631.		765.		229.		148.		DAM³
AF				575.		1142.		1322.		620.		186.		120.	AF

* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 52
EAGLE CREEK AT EAGLEVILLE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.396*	14.0	.266	9.4	.651	23.0	.651	23.0	.232	8.2	.102	3.6	1
2			.340	12.0	.283	10.0	.651	23.0	.651	23.0	.221	7.8	.099	3.5	2
3			.312	11.0	.340	12.0	.708	25.0	.623	22.0	.212	7.5	.096	3.4	3
4			.283	10.0	.368	13.0	.765	27.0	.595	21.0	.210	7.4	.093	3.3	4
5			.249	8.8	.340	12.0	.850	30.0	.566	20.0	.210	7.4	.125	4.4	5
6			.249	8.8	.340	12.0	.906	32.0	.566	20.0	.201	7.1	.113	4.0	6
7			.241	8.5	.340	12.0	.963	34.0	.595	21.0	.193	6.8	.119	4.2	7
8			.224	7.9	.368	13.0	1.020	36.0	.623	22.0	.184	6.5	.113	4.0	8
9			.249	8.8	.453	16.0	1.020	36.0	.623	22.0	.184	6.5	.110	3.9	9
10			.283	10.0	.510	18.0	.906	32.0	.623	22.0	.178	6.3	.130	4.6	10
11			.340	12.0	.566	20.0	.793	28.0	.623	22.0	.170	6.0	.125	4.4	11
12			.340	12.0	.538	19.0	.765	27.0	.566	20.0	.173	6.1	.110	3.9	12
13			.312	11.0	.623	22.0	.765	27.0	.538	19.0	.181	6.4	.130	4.6	13
14			.312	11.0	.793	28.0	.765	27.0	.510	18.0	.167	5.9	.127	4.5	14
15			.283	10.0	.765	27.0	.708	25.0	.510	18.0	.159	5.6	.110	3.9	15
16			.283	10.0	.623	22.0	.680	24.0	.510	18.0	.153	5.4	.108	3.8	16
17			.266	9.4	.566	20.0	.651	23.0	.481	17.0	.142	5.0	.105	3.7	17
18			.249	8.8	.538	19.0	.680	24.0	.453	16.0	.136	4.8	.108	3.8	18
19			.249	8.8	.538	19.0	.651	23.0	.425	15.0	.127	4.5	.110	3.9	19
20			.249	8.8	.623	22.0	.680	24.0	.425	15.0	.125	4.4	.105	3.7	20
21			.241	8.5	.708	25.0	.680	24.0	.396	14.0	.122	4.3	.099	3.5	21
22			.224	7.9	.708	25.0	.680	24.0	.368	13.0	.142	5.0	.096	3.4	22
23			.232	8.2	.651	23.0	.708	25.0	.340	12.0	.125	4.4	.093	3.3	23
24			.232	8.2	.595	21.0	.680	24.0	.340	12.0	.116	4.1	.091	3.2	24
25			.249	8.8	.510	18.0	.651	23.0	.312	11.0	.116	4.1	.091	3.2	25
26			.266	9.4	.510	18.0	.623	22.0	.312	11.0	.113	4.0	.088	3.1	26
27			.266	9.4	.538	19.0	.623	22.0	.283	10.0	.110	3.9	.085	3.0	27
28			.266	9.4	.595	21.0	.623	22.0	.283	10.0	.105	3.7	.088	3.1	28
29			.258	9.1	.651	23.0	.623	22.0	.269	9.5	.102	3.6	.082	2.9	29
30			.258	9.1	.680	24.0	.623	22.0	.252	8.9	.110	3.9	.082	2.9	30
31					.651	23.0			.244	8.6	.110	3.9			31
MEAN			.273	9.7	.535	18.9	.736	26.0	.470	16.6	.156	5.5	.105	3.7	MEAN
DAM^3			708.		1431.		1907.		1257.		417.		271.		DAM^3
AF				574.		1160.		1546.		1019.		338.		219.	AF

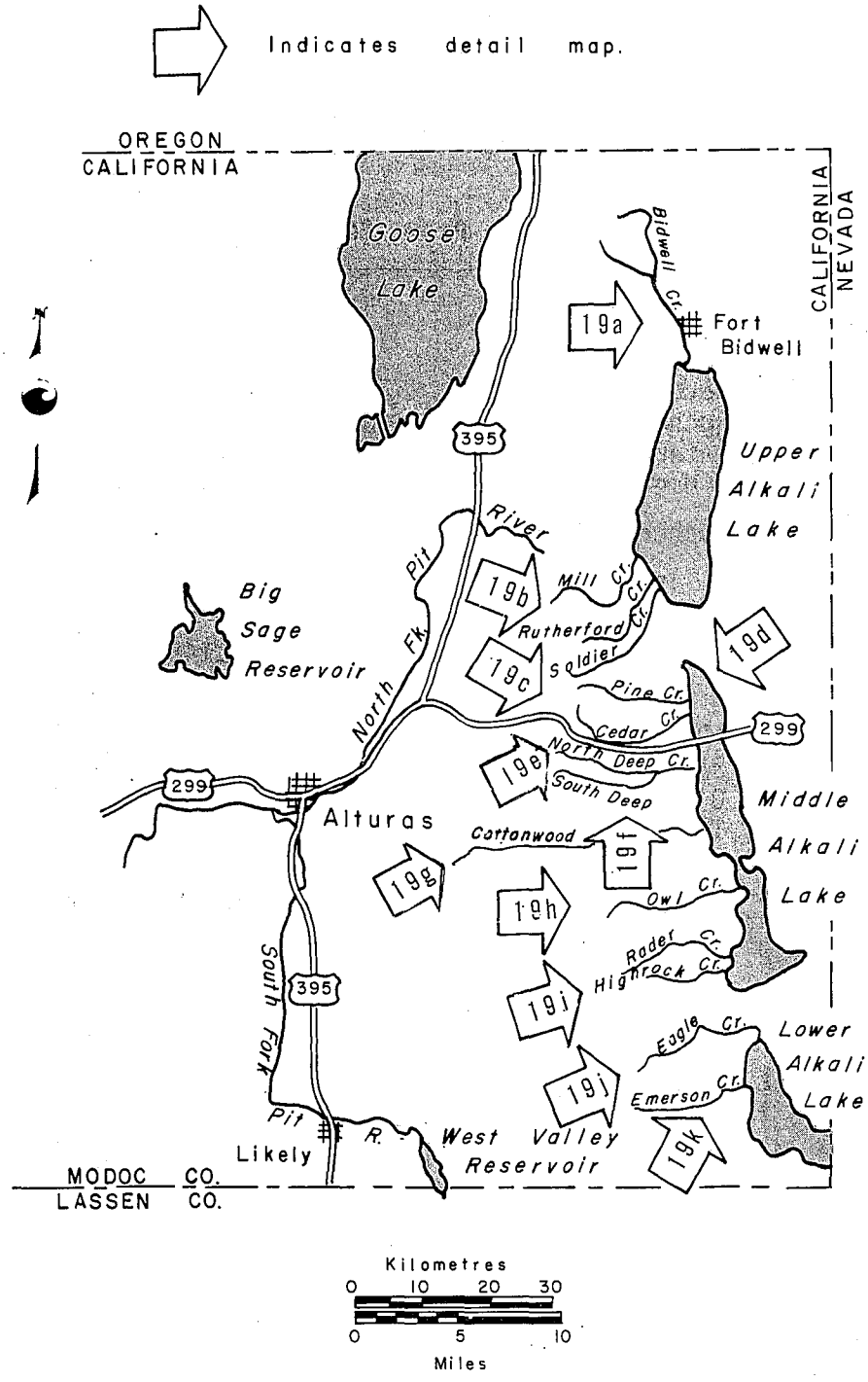
* Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 53
EMERSON CREEK NEAR EAGLEVILLE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	
1			.368*	13.0	.283	10.0	.481	17.0	.184	6.5	.074	2.6	.059	2.1	1
2			.340	12.0	.312	11.0	.453	16.0	.178	6.3	.071	2.5	.057	2.0	2
3			.312	11.0	.312	11.0	.453	16.0	.178	6.3	.071	2.5	.057	2.0	3
4			.312	11.0	.312	11.0	.481	17.0	.187	6.6	.071	2.5	.057	2.0	4
5			.283	10.0	.312	11.0	.538	19.0	.173	6.1	.074	2.6	.074	2.6	5
6			.283	10.0	.312	11.0	.566	20.0	.167	5.9	.074	2.6	.068	2.4	6
7			.263	9.3	.312	11.0	.595	21.0	.173	6.1	.071	2.5	.074	2.6	7
8			.246	8.7	.368	13.0	.595	21.0	.164	5.8	.068	2.4	.068	2.4	8
9			.258	9.1	.453	16.0	.595	21.0	.150	5.3	.071	2.5	.068	2.4	9
10			.283	10.0	.481	17.0	.595	21.0	.147	5.2	.068	2.4	.076	2.7	10
11			.312	11.0	.453	16.0	.510	18.0	.147	5.2	.068	2.4	.071	2.5	11
12			.312	11.0	.481	17.0	.453	16.0	.144	5.1	.068	2.4	.068	2.4	12
13			.312	11.0	.566	20.0	.425	15.0	.142	5.0	.074	2.6	.074	2.6	13
14			.312	11.0	.538	19.0	.396	14.0	.133	4.7	.071	2.5	.071	2.5	14
15			.312	11.0	.566	20.0	.368	13.0	.127	4.5	.068	2.4	.068	2.4	15
16			.283	10.0	.566	20.0	.368	13.0	.130	4.6	.071	2.5	.065	2.3	16
17			.275	9.7	.481	17.0	.340	12.0	.127	4.5	.071	2.5	.068	2.4	17
18			.272	9.6	.481	17.0	.312	11.0	.122	4.3	.071	2.5	.071	2.5	18
19			.272	9.6	.453	16.0	.312	11.0	.116	4.1	.068	2.4	.068	2.4	19
20			.272	9.6	.481	17.0	.283	10.0	.110	3.9	.062	2.2	.065	2.3	20
21			.255	9.0	.595	21.0	.283	10.0	.108	3.8	.062	2.2	.065	2.3	21
22			.238	8.4	.651	23.0	.266	9.4	.099	3.5	.074	2.6	.062	2.2	22
23			.235	8.3	.651	23.0	.252	8.9	.096	3.4	.068	2.4	.062	2.2	23
24			.246	8.7	.595	21.0	.241	8.5	.085	3.0	.065	2.3	.059	2.1	24
25			.283	10.0	.538	19.0	.232	8.2	.082	2.9	.065	2.3	.057	2.0	25
26			.283	10.0	.481	17.0	.232	8.2	.082	2.9	.065	2.3	.057	2.0	26
27			.269	9.5	.453	16.0	.232	8.2	.082	2.9	.062	2.2	.057	2.0	27
28			.260	9.9	.481	17.0	.229	8.1	.076	2.7	.062	2.2	.059	2.1	28
29			.283	10.0	.538	19.0	.215	7.6	.076	2.7	.059	2.1	.062	2.2	29
30			.283	10.0	.538	19.0	.195	6.9	.076	2.7	.065	2.3	.062	2.2	30
31					.510	18.0			.074	2.6	.062	2.2			31
MEAN			.285	10.0	.470	16.6	.383	13.5	.127	4.5	.068	2.4	.065	2.3	MEAN
DAM³			737.		1257.		993.		340.		182.		168.		DAM³
AF				597.		1019.		805.		276.		148.		136.	AF

* Beginning of Record

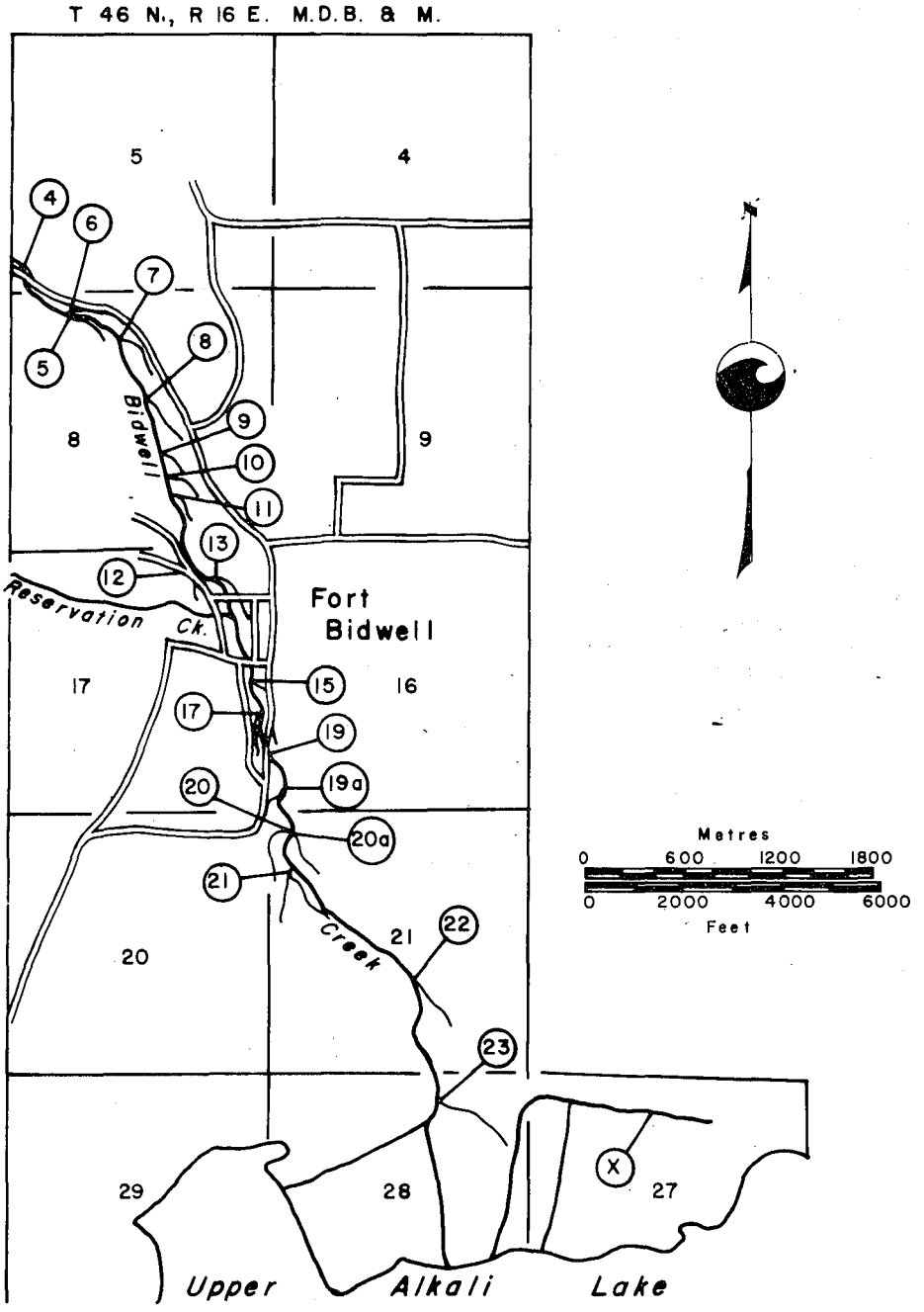


INDEX MAP
SURPRISE VALLEY WATERMASTER SERVICE AREA

Diversion Number	Name	March 15 to July 9		July 10 to Sept 30	
		m^3/s	Cfs	m^3/s	Cfs
4	Fort Bidwell Cattle Prod. Co.	0.133	4.71	0.133	4.71
5	G. Peterson	0.011	0.38	0.010	0.35
	C. Bucher	0.013	0.45	0.010	0.35
	J. Moore	0.002	0.07	0.002	0.07
6	J. Moore	0.005	0.18	0.005	0.18
7	G. Peterson	0.014	0.50	0.011	0.40 1/
8	Fort Bidwell Cattle Prod. Co.	0.205	7.25	0.205	7.25
	Town Users	0.002	0.05	0.002	0.05
9	J. McAuliffe	0.216	7.63	0.216	7.63
	Town Users	0.006	0.22	0.005	0.17
10	F. Carey	0.174	6.13	0.174	6.13 2/
	C. Bucher	0.020	0.70	0.020	0.70 2/
	P. Peterson	0.013	0.44	0.013	0.44
	Town Users	0.007	0.26	0.007	0.26
11	C. Bucher	0.011	0.38	1/	1/
12	U. S. Indian Service	0.013	0.46	0.006	0.20 3/
	Town Users	0.007	0.26	0.007	0.26
13	Fee Ranch Inc.	0.148	5.24	0.148	5.24
	Town Users	0.013	0.44	0.013	0.44
15	Fee Ranch Inc.	0.253	8.94	0.253	8.94 2/
	L. Sagehorn	0.140	4.94	0.140	4.94 2/
	J. O'Callaghan	0.082	2.88	0.082	2.88 2/
	G. Toney	0.012	0.42	0.012	0.42 2/
	Town Users	0.001	0.03	0.001	0.03
17	E. Kober	0.002	0.05	0.002	0.05
19	J. F. Cole	0.121	4.26	0.121	4.26
20	L. Sagehorn	0.031	1.10	0.031	1.10 2/
	F. Carey	0.027	0.95	0.027	0.95 2/
21	L. Sagehorn	0.039	1.39	0.039	1.39
	F. Carey	0.014	0.48	0.014	0.48
22	J. O'Callaghan	0.011	0.38	0.011	0.38
23	L. Sagehorn	0.051	1.79	0.051	1.79
XX	L. Sagehorn	4/	4/	4/	4/

1/ Two 36 hour periods of 0.057 m^3/s (2.00 cfs).
2/ Includes 0.003 m^3/s (0.10 cfs) stockwater right not to be diverted from creek.
3/ Reservation Creek - U. S. Indian Service entire flow.
4/ If flow is less than 0.108 m^3/s (3.82 cfs) deficiency is made up by additional diversions through (15) if Fee Ranch Inc. allotment is satisfied.

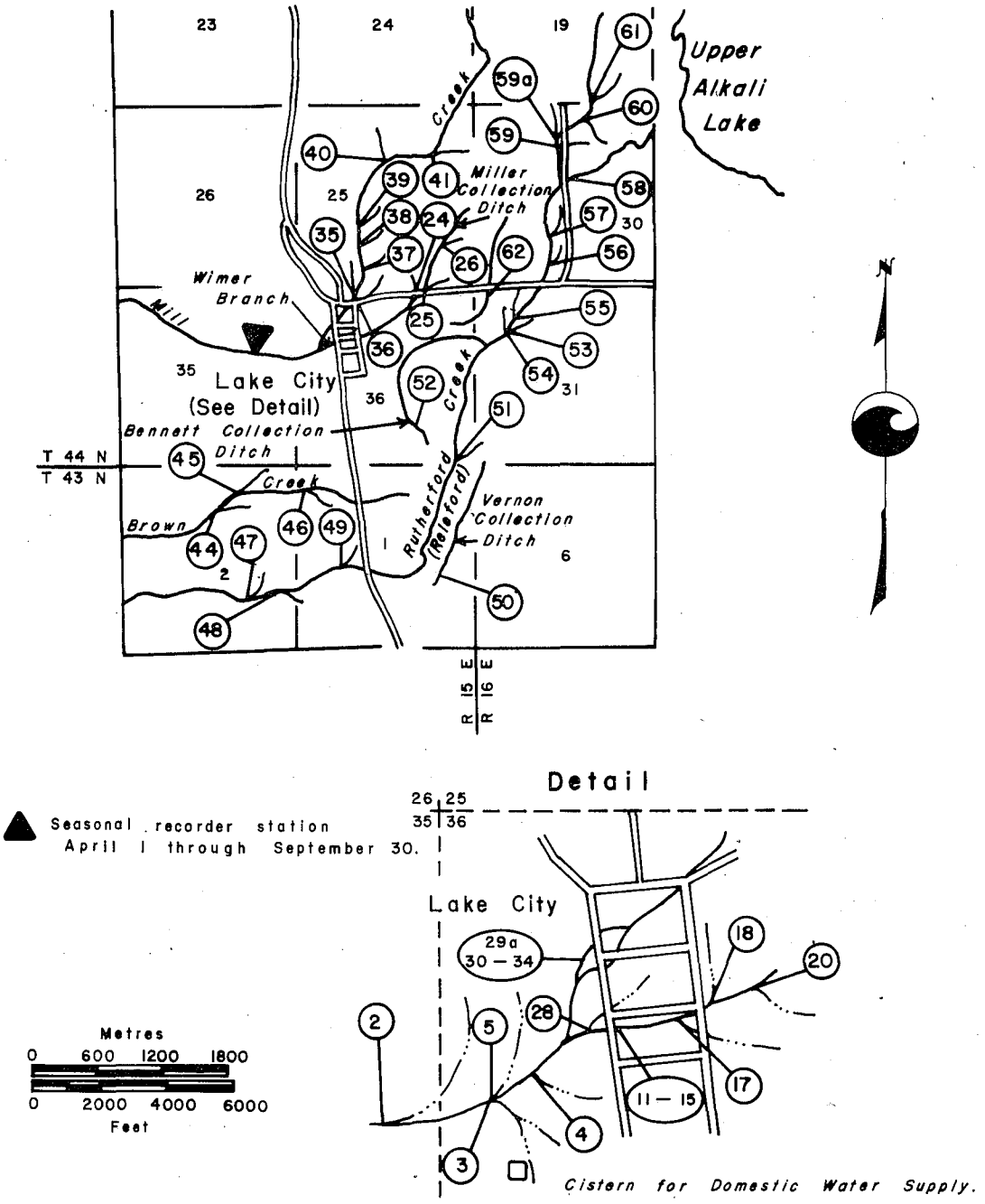
NOTE: Diversions 1, 2, 3 are not shown as they are not part of the watermaster service area.



DIVERSIONS FROM BIDWELL CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Diversion Number	Name	m^3/s	CFS
2	C. Dixon	0.011	0.38
	H. Smith	0.007	0.24
3	N. Bettendorff	0.039	1.38
	R. McDaniels	0.004	0.13
	Domestic Users	0.002	0.06
4	R. Dreyer	0.002	0.07
	J. Fogerty	0.007	0.25
	M. Larson	0.007	0.26
5	C. Dixon	0.005	0.18
11-13,15,28	Town Users	0.054	1.92
17	N. Bettendorff	0.057	2.01
18	Town Users	0.009	0.33
20	V. Wimer	0.052	1.85
24	T. Dunton	0.041	1.45
26	E. Darst	0.052	1.85
29A,30-34	Town Users	0.046	1.63
Channel	Cockrells Inc.	0.292	10.30
Channel	G. W. Warrens	0.052	1.85
44-46	W. Gorzell	0.023	0.80
47	M. Toney	0.0003	0.01
	W. Gorzell	0.016	0.575
	C. Gorzell	0.008	0.275
	N. Bettendorff	0.009	0.30
48	F. Hedgpeth	0.017	0.60
48-49	M. Toney	0.047	1.64
54	Cockrells Inc.	0.011	0.40
55-57	Cockrells Inc.	0.021	0.75[1/]
58	Cockrells Inc.	0.003	0.10[1/]
58-59	W. Odbert	0.026	0.90[1/]
59A	Cockrells Inc.	0.010	0.35[1/]
61	G. W. Warrens	0.018	0.65
62	S. Burger	0.047	1.65[2/]
[3/]	Cockrells Inc.	0.020	0.70

1/ Water derived from Hay Collecting Ditch to be deducted from decreed amount of direct diversion from Rutherford Creek.
2/ Not under Watermaster Report.
3/ Channel of Rutherford Creek.



DIVERSIONS FROM MILL CREEK, BROWN CREEK, AND RUTHERFORD (RELEFORD) CREEK SURPRISE VALLEY WATERMASTER SERVICE AREA

Diversion Number	Name	Decreed Right m^3/s	Decreed Right Cfs	Appropriative Right m^3/s	Appropriative Right Cfs
1	R. Pratt et al	0.136	4.80		
	O. Radenbaugh	0.105	3.70		
	G. Heard	0.041	1.45	0.025	0.87
1 &/or 2	C. Pratt	0.083	3.00	0.050	1.75
3	G. Carter	0.058	2.05		
	T. Lake	0.002	0.05		
4	J. Weber	0.122	4.30		
5	E. Eaton	0.062	2.20	0.035	1.25
9	C. Miura			0.014	0.50
11	C. Stopp	0.008	0.30		
15	A. White	0.202	7.14[1/]		
16	H. Harris	0.029	1.03		
	R. Keller	0.035	1.24		
17	A. White	0.021	0.73		
19	Cockrells Inc.	0.058	2.04[2/]		
26	Cockrells Inc.	0.064	2.25		

1/ Includes 0.080 m^3/s (2.81 cfs) allotted to Diversion No. 13 which now diverts at Diversion No. 15.

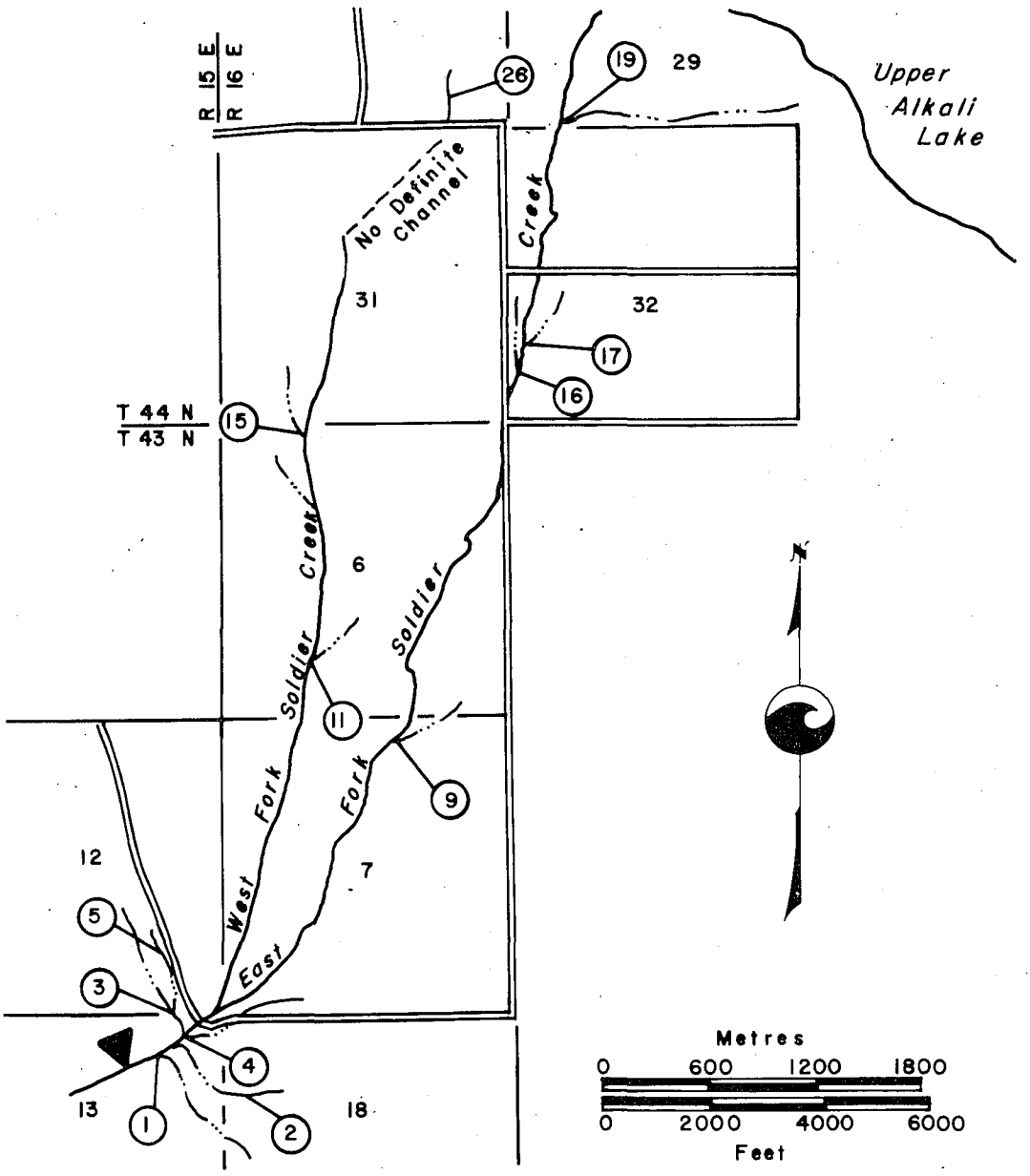
2/ Plus any surplus flow that can be beneficially put to use.

Diversions Number 1 through 5 are Upper Users.

Diversions Number 11 through 26 are Lower Users.

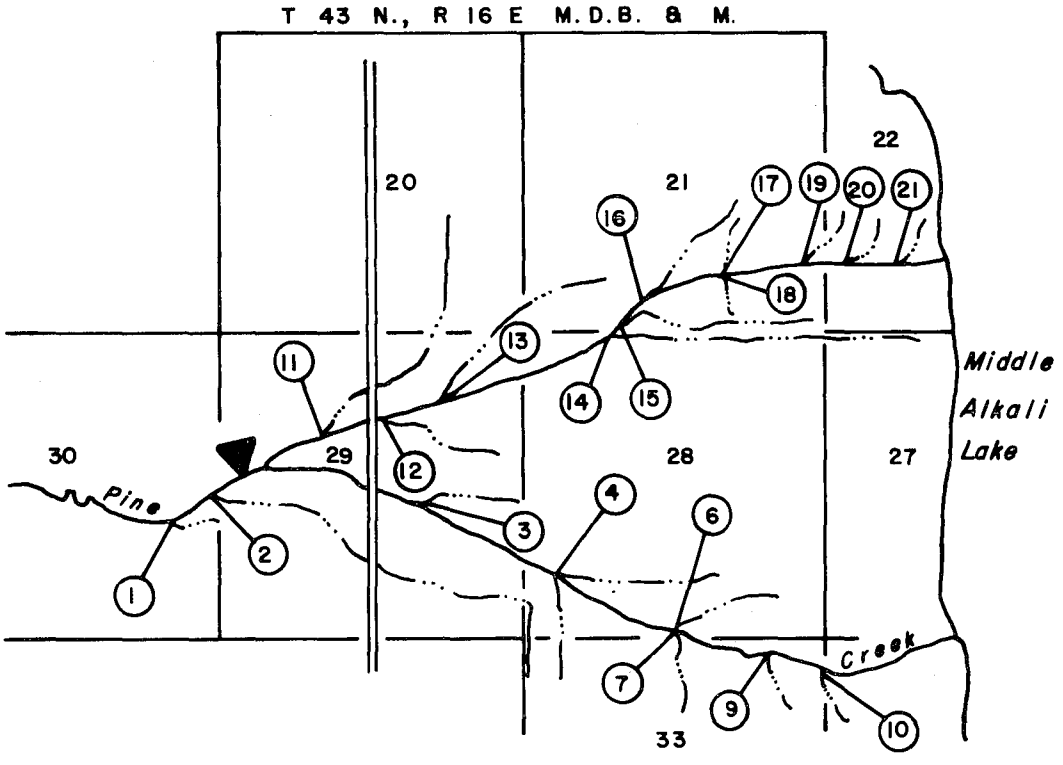
All decreed rights must be satisfied before the appropriative right may be exercised.

Figure 19c



▲ Watermaster installed recorder station

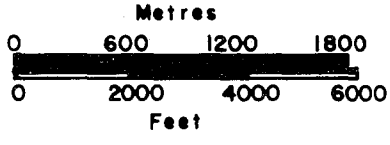
DIVERSIONS FROM SOLDIER CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA



Rotation Allotments	Name	hm^3	A/F
1, 11, 13-21	W. Baker	0.43	345.5
3, 14	C. Marx	0.07	60.0
3, 6-10	C. Hill	0.26	206.6
2, 4	R. Bordwell	0.10	78.4
12	C. Hill	0.00	2.5

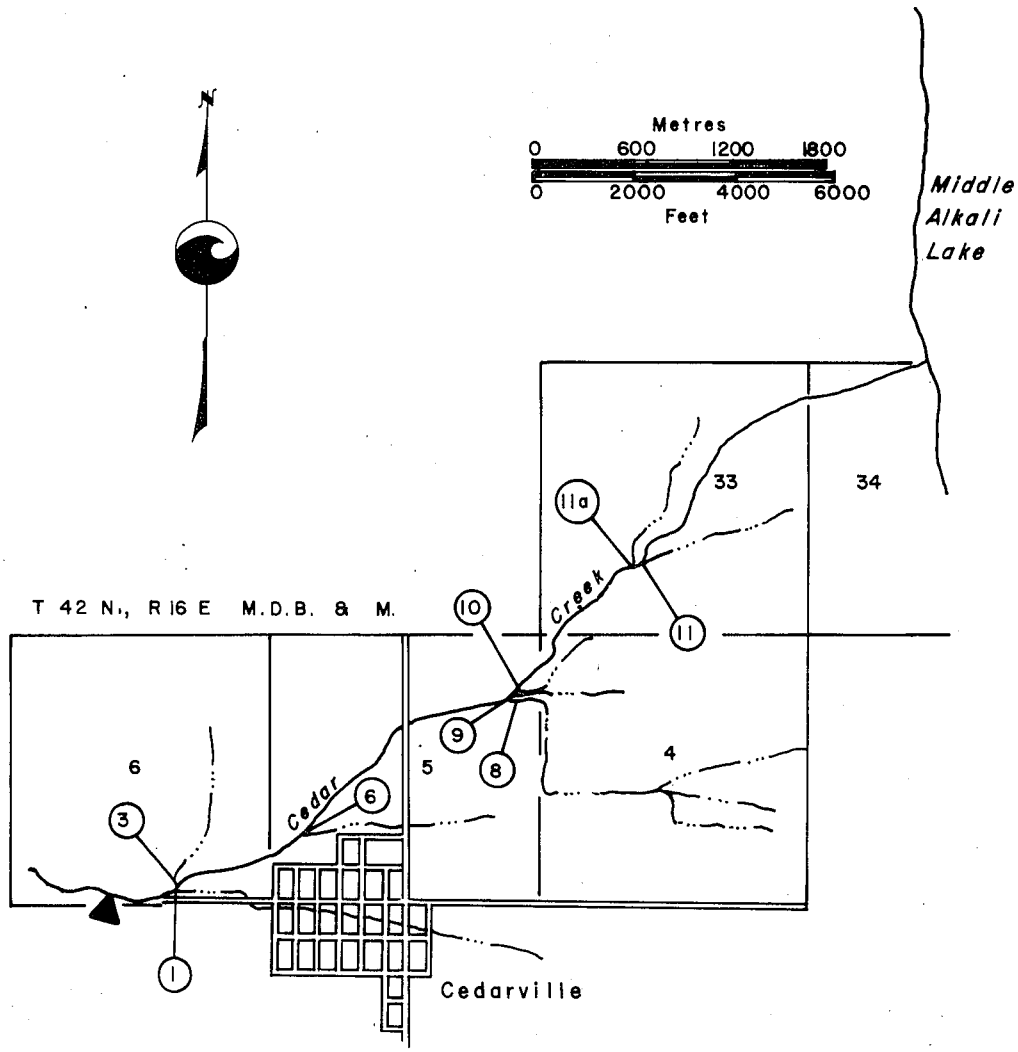
Total of first and second rotation is .74 hm^3 (603.0 A/F).

▲ Watermaster installed recorder station.



DIVERSIONS FROM PINE CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 19e



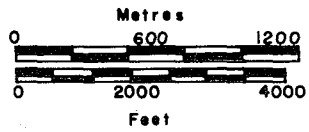
Diversion Number	Name	m^3/s	cfs
1	J. Weber	0.142	5.00
3	G. Clark	0.075	2.65
	Laxague Bros.	0.014	0.50
6	A. Wylie W. Warrens	0.168	5.95
8	B. Bunyard	0.065	2.30
	C. Kemble	0.040	1.40
	D. Ferguson	0.023	0.80

Diversion Number	Name	m^3/s	cfs
9	L. Sharrow	0.042	1.50
10	R. Seibal	0.074	2.60
11,11a	G. Ash	0.113	4.00
Channel	F. Areche	0.031	1.10
Channel	C. Hill	0.031	1.10

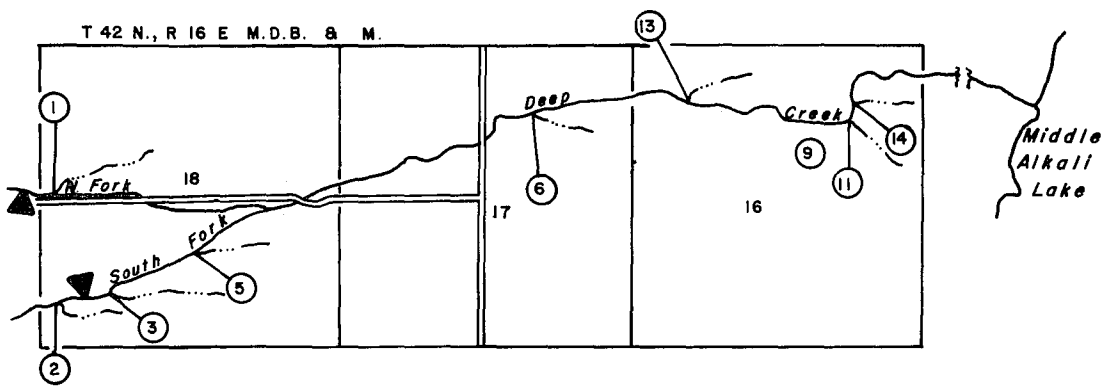
The total, 0.818 m^3/s (28.90 cfs), includes 0.142 m^3/s (5.00cfs) imported from Thoms Creek.

▲ Watermaster installed recorder station.

DIVERSIONS FROM CEDAR CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA



▲ Seasonal recorder (April 1 thru September 30).

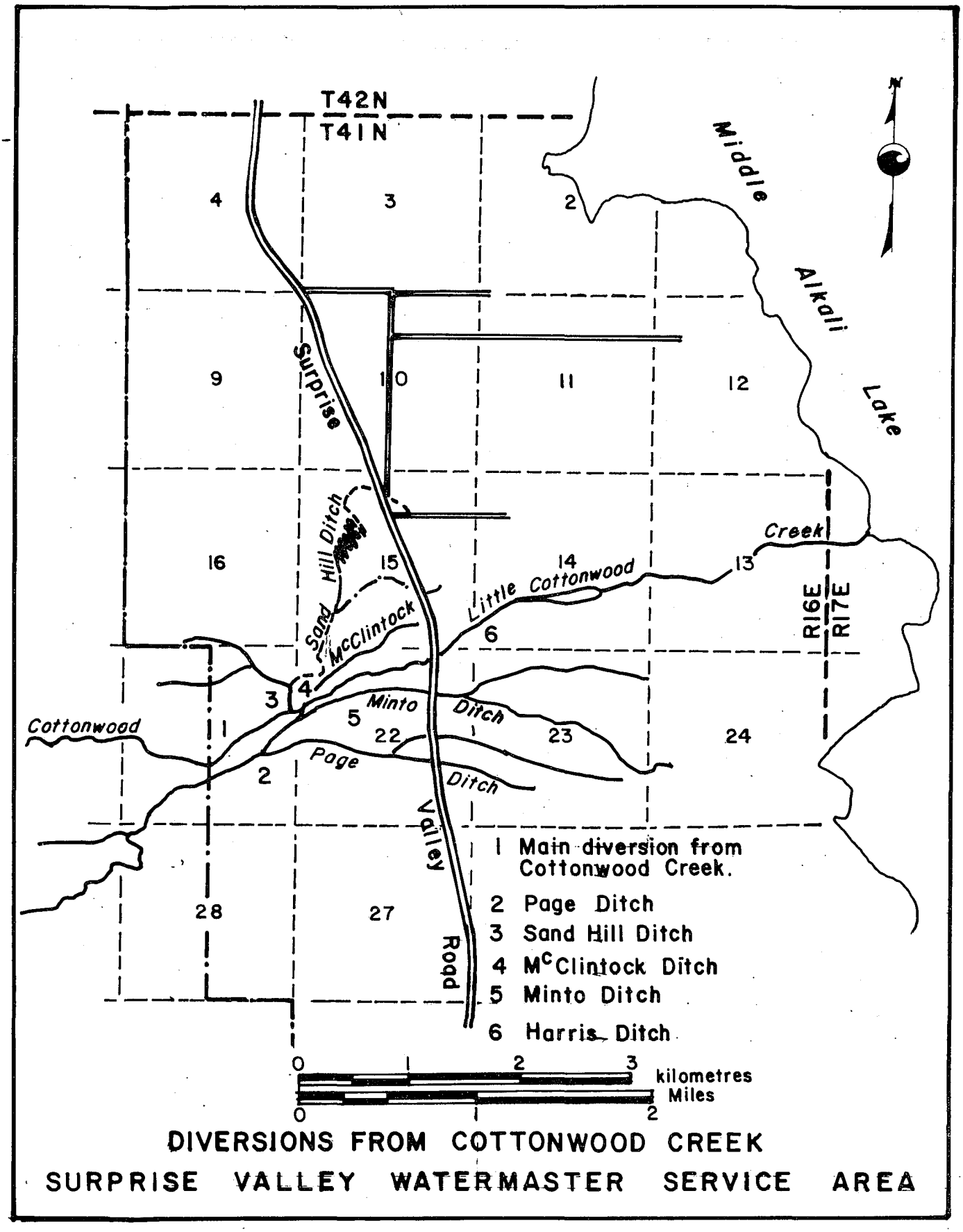


Diversion Number	Name	m³/s	cfs	Diversion Number	Name	m³/s	cfs
1	G. Hicks	0.003	0.10	5	M. Mauser	0.028	1.00
	B. Bush	0.004	0.16	6	D. Rosendahl	0.011	0.40
	W. Hussa	0.170	6.01	9	J. Weber	0.122	4.30
	D. Rosendahl	0.058	2.03		F. Queirolo	0.028	1.00
	M. Gooch	0.010	0.34	11*	J. Laxague	0.030	1.05
	F. Page	0.004	0.16	13	D. Rosendahl	0.023	0.80
2	J. Laxague	0.018	0.65	14	W. Hussa	0.078	2.75
3	D. Rosendahl	0.032	1.14		R. Bordwell	0.024	0.85
4	F. Queirolo	0.093	3.30				
	J. Weber	0.094	3.33				

* May also be used in diversion number 2.

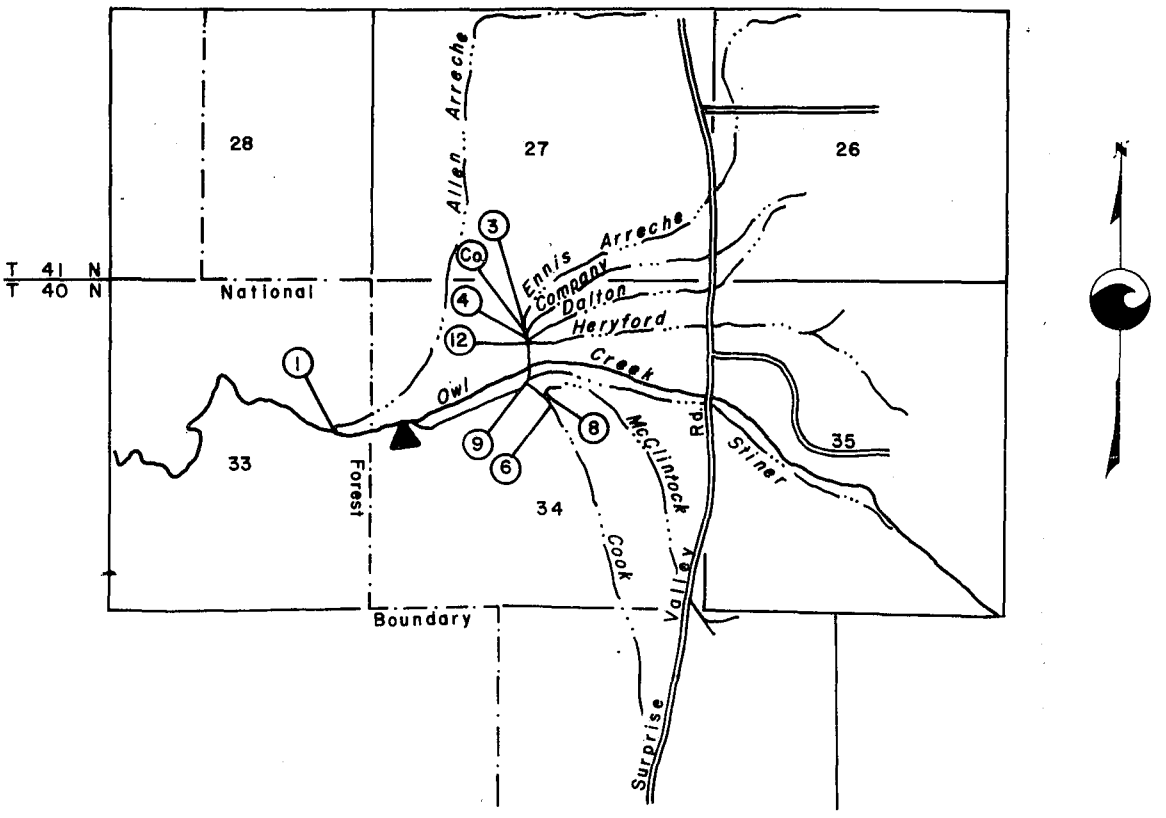
DIVERSIONS FROM DEEP CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 19g



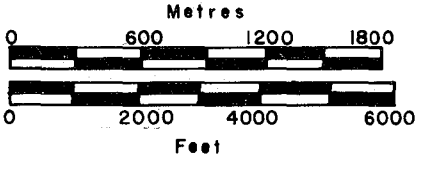
DIVERSIONS FROM COTTONWOOD CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 19h

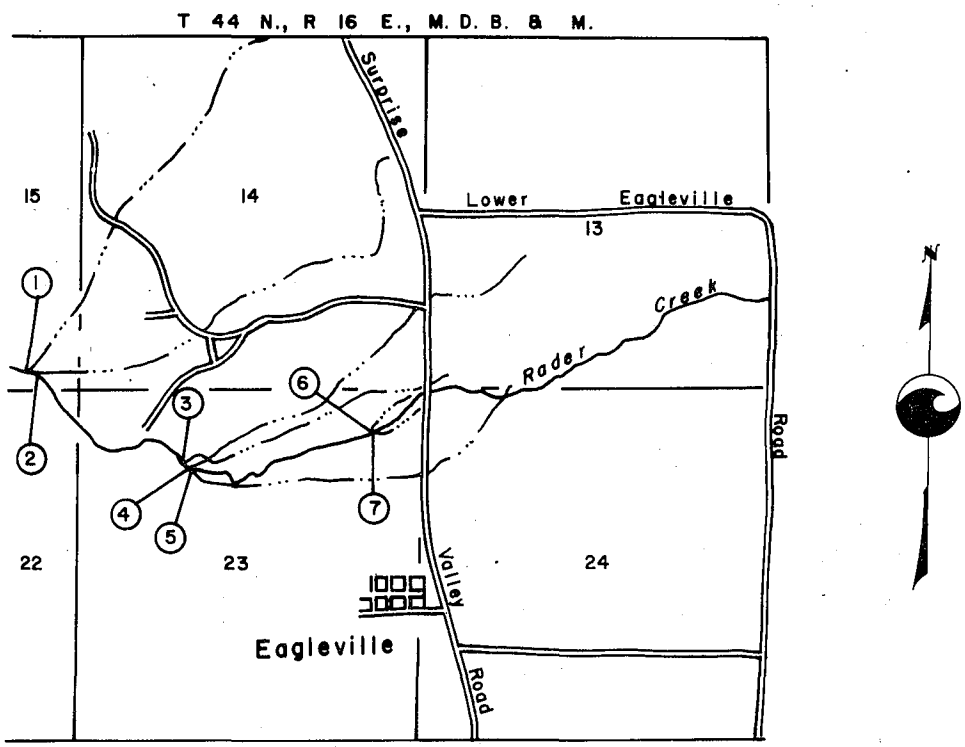


Diversion Number	Name	m³/s	cfs	Diverson Number	Name	m³/s	cfs
1	W. Cockrell	0.070	2.47	Co.	J. Bandy	0.051	1.81
	J. Stevenson	0.051	1.81		H. Stanley	0.028	0.99
3	E. Davis	0.033	1.16	6,8	Cockrell's Inc.	0.499	17.62
	J. Stevenson	0.064	2.25	9	E. Berryessa	0.105	3.71
4	J. Stevenson	0.089	3.14	12	E. Berryessa	0.155	5.48
Co.	S. Stevenson	0.036	1.26				

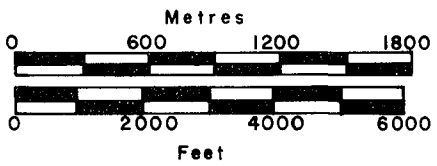
▲ Watermaster installed recorder station.



DIVERSIONS FROM OWL CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

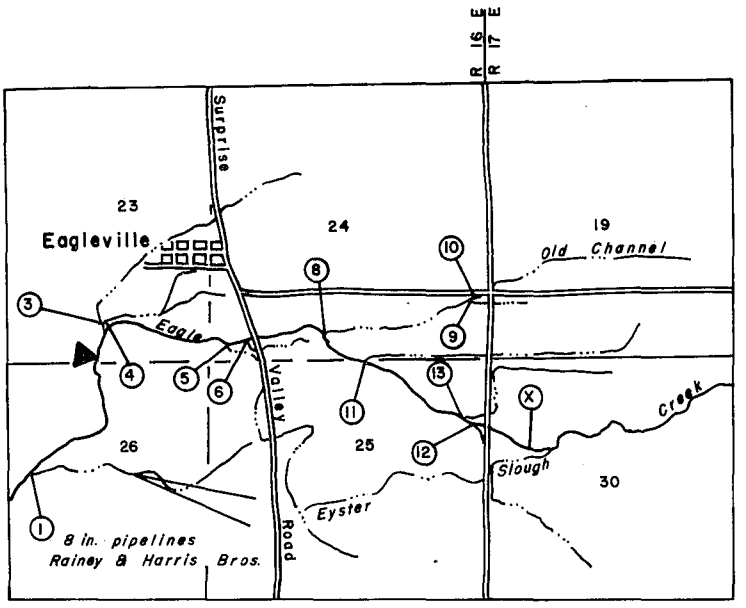


Diversion Number	Name	m^3/s	cfs
1	L. Cockrell	*	*
2	Lazy S. J. Ranch Inc.	0.099	3.50
3	K. Minto	0.068	2.39
4	White Pine Lumber Co.	0.255	9.00
5	White Pine Lumber Co.	0.066	2.35
6	C. Minnette	0.002	0.08
7	R. Reeves	0.002	0.08



* 1/7 of total flow from May 20, until water will not reach place of use.

DIVERSIONS FROM RADER CREEK SURPRISE VALLEY WATERMASTER SERVICE AREA



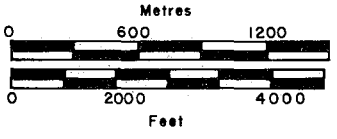
Diversion Number	Name	m^3/s	cfs
1	Harris Brothers	0.012	0.41
	R. Morgan	0.010	0.36
	C. Rainey	0.014	0.51
3	13 Town users	0.028	0.98
	White Pine Lumber Co.	0.142	5.00
4	15 Town users	0.038	1.36
	White Pine Lumber Co.	0.034	1.20
5	Harris Brothers	0.014	0.50
6, 8	White Pine Lumber Co.	0.075	2.65

Diversion Number	Name	m^3/s	cfs
9	Lazy S. J. Ranch Inc.	0.004	0.15
10	M. Stevenson	0.089	3.15 *
11	White Pine Lumber Co.	0.016	0.55
	Lazy S. J. Ranch Inc.	0.055	1.95
12	J. Grove	0.006	0.20
	M. Miura	0.020	0.70
13	J. Grove	0.006	0.20
X	Harris Brothers	0.190	6.70 * *

* Minus any water received from Prior collecting ditch.

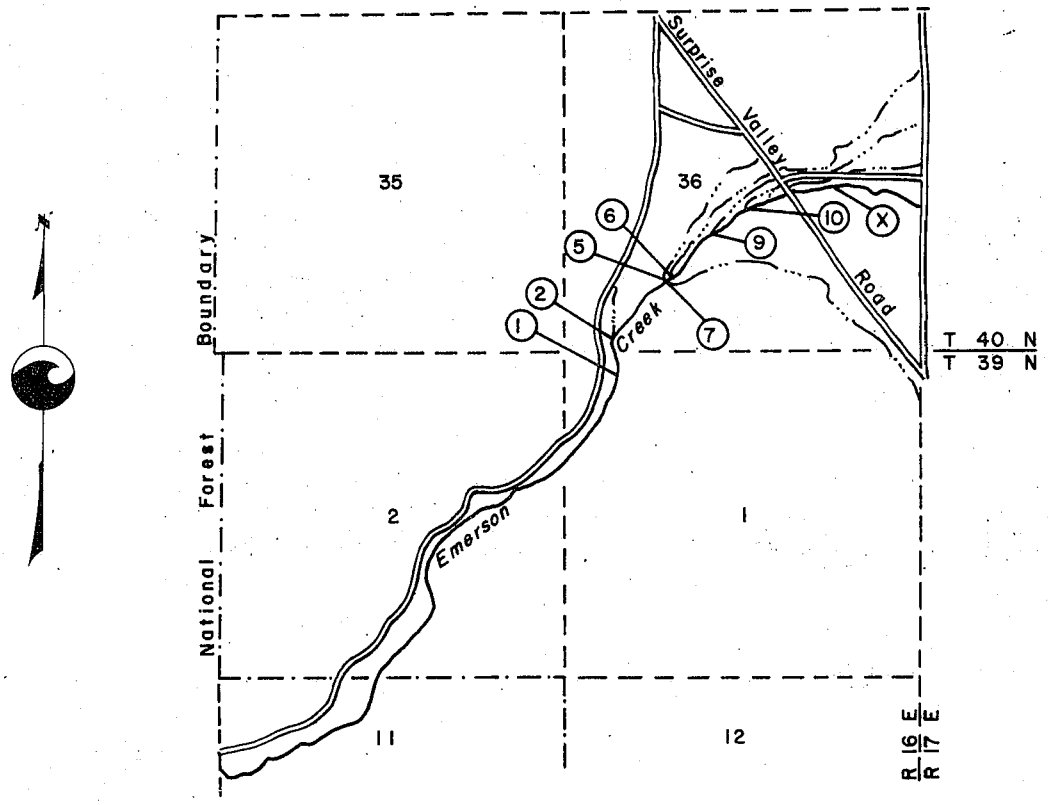
* * Any water over 0.198 m^3/s, (0.70 cfs) from Eyster Slough must be deducted from this.

▲ DWR permanate recorder station.

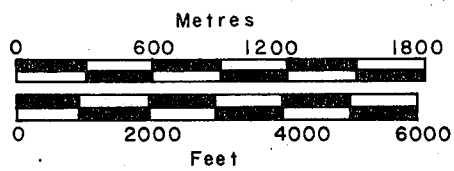


DIVERSIONS FROM EAGLE CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 19k



Diversion Number	Name	m³/s	cfs	Diversion Number	Name	m³/s	cfs
1	C. Raney	0.057	2.00	6	J. Miura	0.064	2.25
2	Harris Bros.	0.057	2.00	7	E. Berryessa	0.146	5.15
	D. Romagnoli	0.006	0.20	9	W. Warrens	0.045	1.60
5	J. Biconda	0.093	3.30	10	J. Espil	0.051	1.80
6	Lazy S. J. Ranch Incorporated	0.017	0.60	X	D. Grove	0.163	5.75



DIVERSIONS FROM EMERSON CREEK SURPRISE VALLEY WATERMASTER SERVICE AREA

SUSAN RIVER WATERMASTER SERVICE AREA

The Susan River service area is situated in southern Lassen County in the vicinity of Susanville. The primary area of water use is in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a distance of about 40 kilometres (25 miles). The valley floor is at an elevation of about 1 219 metres (4,000 feet). The source of supply is composed of three stream systems: the Susan River, Baxter Creek, and Parker Creek, with their respective tributaries.

The Susan River originates on the east slope of the Sierra Nevada immediately east of Lassen National Park at an elevation of about 2 408 m (7,900 feet). Its channel runs easterly from Silver Lake through McCoy Flat Reservoir, the town of Susanville, and then to Honey Lake.

The Susan River has four major tributaries: Piute Creek, entering from the north at Susanville; 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 2 316 m (7,600 feet). The watersheds of Piute and Willow Creeks are on the south slopes of Round Valley Mountain at lower elevations.

A short distance below its confluence with Willow Creek, the Susan River divides into three channels: 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 farther downstream.

The Baxter Creek stream system is in Honey Lake Valley on the east slope of the Sierra Nevada, about 16 kilometres (10 miles) southeast of Susanville. The principal creeks in the system are: Baxter Creek, which rises in the extreme western portion of the basin and flows in an easterly direction, and Elesian, 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 24 km (15 miles) southeast of Susanville. It rises on the east slope of Diamond Mountain and flows in an easterly direction for about 8 km (5 miles) into Honey Lake.

Maps of the Susan River service area, showing the stream systems, diversions, etc., are presented as Figures 20 through 20f, pages 173 through 182.

Basis of Service

The waters of Susan River and its tributaries are distributed in accordance with 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 in accordance with 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 Sloss and Bankhead Creeks and Schedule 4 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 in accordance with the water rights defined by a statutory adjudication as set forth in Decree No. 8175, Lassen County Superior 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

The water supply in the Susan River service area is obtained from two major sources; snowmelt runoff and springs. Snowpack on the Willow Creek Valley and Piute Creek watersheds, which embrace more than one-half of the Susan River stream system, melts early in the spring and is usually depleted by May 1. Irrigation requirements from this portion 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 commingled with the natural flow, usually during June and July. It is then rediverted into Lake Leavitt for further distribution by the irrigation company.

Records of daily mean discharge of the several stream gaging stations in the service area are presented in Tables 53 through 59, pages 168 through 171.

Method of Distribution

Irrigation in the Susan River service area is accomplished by placing dams in the main channels, thus raising the water level for subsequent diversion into canals and ditches. These diversion dams are relatively large on the Susan River Channel and generally much smaller on the various creeks. Wild flooding is the most common method of irrigation in practice. Portions of the irrigated lands have been leveled, permitting a more efficient use of water by using border checks and furrows. Subirrigation occurs in some areas incidental to surface irrigation, or as a result of seepage from ditches and creek channels.

The Lassen Irrigation Company is allowed to use its three reservoirs, McCoy Flat, Hog Flat and Lake Leavitt, to store water as follows: (a) between March 1 and July 1 when the flow in the river just above its confluence with Willow Creek is more than 0.67 m^3/s (20 cfs), and (b) at all other times when the flow at the same point is 0.14 m^3/s (5 cfs) in spite of the allotments outlined in Schedules 3, 6, and users of third priority class in Schedule 5 of the Susan River decree.

1978 Distribution

Watermaster service began in the Susan River service area on April 11 and continued until October 1, with Virgil Buechler, Water Resources Technician II, as watermaster.

The available water supply throughout the service area was slightly above normal, but far less than forecasted. However, McCoy Flat Reservoir and Lake Leavitt did spill. The hay crops, due to the precipitation and climate, provided record-breaking tonnage per acre for both irrigated, and nonirrigated land. Also, the outside range land was in good condition.

Parker Creek. First priority water rights were served through June and then rapidly diminished to a spring-fed trickle for the uppermost users by July 4.

Baxter Creek. Baxter Creek runoff was about normal, mainly because the decomposed granite of the Diamond Mountains adsorbed a large quantity of the runoff. The flows were sufficient to supply all priorities through June, but the flows decreased very rapidly. When the snowpack was gone, all flows, including the Long Ditch, were dry by July 7.

Lassen-Holtzclaw Creeks. The water supply was sufficient to meet both priorities until July. From July 1 through the remainder of the season, the Tangeman Ranch was entitled to all water available in the stream, which was less than their 0.1 m^3/s (4 cfs) first priority.

Hills Creek. The water supply in Hills Creek was sufficient to satisfy all allotments until July 12. Ellena and Warren set a rotation on their ditch. All storage allotments were filled and Emerson Lake started to release the first of August.

Gold Run Creek. The water supply in Gold Run Creek was sufficient to supply third priority water until July 7 and then the creek leveled off at .08 to 0.1 m^3/s (3 to 4 cfs) for the rest of the season.

Piute Creek. The water supply, which is spring fed, was sufficient to satisfy all allotments during the year, with some surplus into the Susan River.

Willow Creek. The flow in Willow Creek was sufficient to supply all allotments throughout the season. Although the surplus flows and the springs below Willow Creek Valley have decreased from last year, the springs are not showing the effects of the 1977 drought.

Susan River. There was a sufficient supply of water in the Susan River to fill all of the allotments of Schedule 6. The A & B Canal users received their Schedule 5 second priority for most of the season. The Susan River flows satisfied all schedules through June 15, with some water stored in Lake Leavitt.

Lassen Irrigation Company Reservoirs. McCoy Reservoir filled to capacity by June 15 and was empited into Lake Leavitt by August 20. Hog Flat only filled to 70 percent of capacity and was emptied into Lake Leavitt by July 7. Lake Leavitt reached capacity by May 1 and was emptied by September 15. Lassen Irrigation Company used every drop of water they had available. This is expected to happen annually, now that all of the land in the Standish area has been developed.

Lower Susan River. Schedule 3 averaged 0.5 m^3/s (27 cfs) the entire season, which satisfied all of the first and second priorities. Most of this water was supplied by excess flows in Willow Creek.

SUSAN RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 54
SUSAN RIVER AT SUSANVILLE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m /s	cfs	m /s	cfs	m /s	cfs	m /s	cfs	m /s	cfs	m /s	cfs	m /s	cfs	
1	2.889	102.0	10.535	372.0	5.041	178.0	4.220	149.0	2.634	93.0	3.002	106.0	.108	3.8	1
2	4.050	143.0	7.930	280.0	4.956	175.0	4.276	151.0	2.492	88.0	2.917	103.0	.105	3.7	2
3	4.503	159.0	6.429	227.0	5.041	178.0	4.220	149.0	2.379	84.0	2.889	102.0	.102	3.6	3
4	7.023	248.0	5.692	201.0	4.843	171.0	3.993	141.0	3.682	130.0	2.832	100.0	.102	3.6	4
5	12.546	443.0	4.899	173.0	4.390	155.0	3.370	119.0	4.078	144.0	2.775	98.0	.173	6.1	5
6	9.940	351.0	4.729	167.0	3.993	141.0	3.342	118.0	4.021	142.0	2.747	97.0	.269	9.5	6
7	7.788	275.0	4.220	149.0	3.880	137.0	3.285	116.0	4.050	143.0	2.690	95.0	.181	6.4	7
8	7.476	264.0	3.852	136.0	3.993	141.0	2.747	97.0	3.823	135.0	2.662	94.0	.161	5.7	8
9	7.250	256.0	3.795	134.0	4.305	152.0	2.577	91.0	3.682	130.0	2.662	94.0	.156	5.5	9
10	6.315	223.0	4.163	147.0	4.531	160.0	2.464	87.0	3.540	125.0	2.605	92.0	.215	7.6	10
11	5.919	209.0	4.843	171.0	4.673	165.0	2.322	82.0	3.455	122.0	2.549	90.0	.190	6.7	11
12	5.013	177.0	5.126	181.0	4.899	173.0	2.124	75.0	3.370	119.0	2.492	88.0	.178	6.3	12
13	4.475	158.0	5.098	180.0	5.268	186.0	1.869	66.0	3.342	118.0	2.464	87.0	.184	6.5	13
14	4.106	145.0	5.069	179.0	5.409	191.0	1.699	60.0	2.294	81.0	2.379	84.0	.170	6.0	14
15	3.908	138.0	4.729	167.0	5.636	199.0	1.444	51.0	.623	22.0	2.266	80.0	.161	5.7	15
16	3.965	140.0	4.418	156.0	5.466	193.0	1.444	51.0	.396	14.0	2.209	78.0	.139	4.9	16
17	4.361	154.0	3.852	136.0	5.352	189.0	1.274	45.0	.340	12.0	2.096	74.0	.110	3.9	17
18	4.786	169.0	3.597	127.0	5.239	185.0	2.520	89.0	1.189	42.0	1.982	70.0	.170	6.0	18
19	5.494	194.0	3.682	130.0	5.183	183.0	2.945	104.0	3.313	117.0	1.869	66.0	.178	6.3	19
20	6.344	224.0	4.390	155.0	5.324	188.0	2.804	99.0	3.370	119.0	1.643	58.0	.201	7.1	20
21	7.675	271.0	3.767	133.0	5.437	192.0	2.634	93.0	3.342	118.0	.821	29.0	.173	6.1	21
22	9.176	324.0	3.512	124.0	5.494	194.0	2.549	90.0	3.313	117.0	.396	14.0	.187	6.6	22
23	10.139	358.0	3.285	116.0	5.806	205.0	2.436	86.0	3.257	115.0	.263	9.3	.142	5.0	23
24	8.977	317.0	3.398	120.0	5.466	193.0	2.266	80.0	3.200	113.0	.218	7.7	.139	4.9	24
25	7.646	270.0	4.050	143.0	5.296	187.0	2.804	99.0	3.172	112.0	.187	6.6	.147	5.2	25
26	7.448	263.0	4.248	150.0	4.814	170.0	3.398	120.0	3.172	112.0	.156	5.5	.144	5.1	26
27	7.590	268.0	4.248	150.0	4.560	161.0	3.342	118.0	3.115	110.0	.150	5.3	.119	4.2	27
28	7.845	277.0	4.446	157.0	4.503	159.0	3.313	117.0	3.059	108.0	.142	5.0	.130	4.6	28
29	7.986	282.0	4.333	153.0	4.503	159.0	3.087	109.0	2.974	105.0	.147	5.2	.125	4.4	29
30	8.553	302.0	5.381	190.0	4.418	156.0	2.804	99.0	2.945	104.0	.147	5.2	.147	5.2	30
31	9.657	341.0			4.276	151.0			2.889	102.0	.130	4.6			31
MEAN	6.801	240.2	4.724	166.8	4.903	173.1	2.786	98.4	2.920	103.1	1.693	59.8	.157	5.5	MEAN
DAM^3	18204.		12236.		13123.		7216.		7815.		4532.		406.		DAM^3
AF		14758.		9919.		10639.		5850.		6335.		3674.		329.	AF

SUSAN RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 55
GOLD RUN CREEK NEAR SUSANVILLE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DAY
	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	m^3/s	cfs	
1			.538	19.0	.566	20.0	.566	20.0	.170	6.0	.102	3.6	.085	3.0	1
2			.566	20.0	.623	22.0	.566	20.0	.164	5.8	.102	3.6	.085	3.0	2
3			.595	21.0	.623	22.0	.595	21.0	.164	5.8	.108	3.8	.085	3.0	3
4			.680	24.0	.623	22.0	.595	21.0	.159	5.6	.099	3.5	.085	3.0	4
5			.623	22.0	.566	20.0	.595	21.0	.127	4.5	.099	3.5	.108	3.8	5
6			.481	17.0	.538	19.0	.623	22.0	.142	5.0	.099	3.5	.108	3.8	6
7			.425	15.0	.566	20.0	.623	22.0	.164	5.8	.099	3.5	.108	3.8	7
8	.283*	10.0	.340	12.0	.623	22.0	.623	22.0	.142	5.0	.099	3.5	.108	3.8	8
9	.283	10.0	.312	11.0	.793	28.0	.623	22.0	.125	4.4	.099	3.5	.108	3.8	9
10	.249	8.8	.278	9.8	.821	29.0	.538	19.0	.113	4.0	.099	3.5	.108	3.8	10
11	.227	8.0	.266	9.4	.821	29.0	.453	16.0	.113	4.0	.099	3.5	.108	3.8	11
12	.224	7.9	.227	8.0	.821	29.0	.453	16.0	.113	4.0	.099	3.5	.102	3.6	12
13	.178	6.3	.227	8.0	.991	35.0	.425	15.0	.113	4.0	.099	3.5	.102	3.6	13
14	.161	5.7	.227	8.0	.991	35.0	.368	13.0	.113	4.0	.099	3.5	.102	3.6	14
15	.142	5.0	.283	10.0	.793	28.0	.340	12.0	.113	4.0	.099	3.5	.099	3.5	15
16	.130	4.6	.425	15.0	.623	22.0	.283	10.0	.113	4.0	.099	3.5	.099	3.5	16
17	.113	4.0	.425	15.0	.623	22.0	.278	9.8	.113	4.0	.099	3.5	.099	3.5	17
18	.113	4.0	.453	16.0	.623	22.0	.227	8.0	.113	4.0	.099	3.5	.102	3.6	18
19	.164	5.8	.278	9.8	.623	22.0	.227	8.0	.113	4.0	.099	3.5	.102	3.6	19
20	.224	7.9	.283	10.0	.623	22.0	.227	8.0	.113	4.0	.099	3.5	.102**	3.6	20
21	.283	10.0	.255	9.0	.793	28.0	.224	7.9	.113	4.0	.099	3.5			21
22	.312	11.0	.227	8.0	.736	26.0	.227	8.0	.110	3.9	.099	3.5			22
23	.368	13.0	.241	8.5	.623	22.0	.227	8.0	.108	3.8	.099	3.5			23
24	.538	19.0	.266	9.4	.510	18.0	.227	8.0	.108	3.8	.099	3.5			24
25	.510	18.0	.396	14.0	.453	16.0	.227	8.0	.108	3.8	.099	3.5			25
26	.538	19.0	.453	16.0	.425	15.0	.224	7.9	.108	3.8	.099	3.5			26
27	.396	14.0	.396	14.0	.453	16.0	.193	6.8	.108	3.8	.099	3.5			27
28	.396	14.0	.453	16.0	.595	21.0	.193	6.8	.108	3.8	.099	3.5			28
29	.396	14.0	.510	18.0	.623	22.0	.178	6.3	.105	3.7	.099	3.5			29
30	.425	15.0	.453	16.0	.595	21.0	.170	6.0	.102	3.6	.099	3.5			30
31	.453	16.0			.595	21.0			.102	3.6	.099	3.5			31
MEAN	.296	10.5	.386	13.6	.654	23.1	.377	13.3	.122	4.3	.100	3.5	.100	3.5	MEAN
DAM^3	614.		1000.		1751.		977.		326.		267.		173.		DAM^3
AF		498.		811.		1419.		792.		265.		216.		140.	AF

* Beginning of Record
** End of Record

SUSAN RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 56
SUSAN RIVER BELOW JOHNSTONVILLE BRIDGE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs
1					1.331	47.0	1.558	55.0	.708	25.0	.085	3.0	.057	2.0
2					1.218	43.0	1.529	54.0	.708	25.0	.085	3.0	.057	2.0
3					1.189	42.0	1.529	54.0	.736	26.0	.085	3.0	.057	2.0
4					1.020	36.0	1.558	55.0	.736	26.0	.085	3.0	.057	2.0
5					.991	35.0	1.388	49.0	.736	26.0	.085	3.0	.085	3.0
6					.906	32.0	1.359	48.0	.623	22.0	.085	3.0	.085	3.0
7					.850	30.0	1.274	45.0	.510	18.0	.057	2.0	.085	3.0
8					1.218	43.0	1.246	44.0	.396	14.0	.057	2.0	.085	3.0
9					1.161	41.0	1.274	45.0	.340	12.0	.057	2.0	.085	3.0
10					1.274	45.0	1.161	41.0	.283	10.0	.057	2.0	.085	3.0
11					1.331	47.0	1.161	41.0	.340	12.0	.057	2.0	.085**	3.0
12					1.473	52.0	1.218	43.0	.368	13.0	.057	2.0		
13					1.388	49.0	1.274	45.0	.340	12.0	.057	2.0		
14					1.501	53.0	1.331	47.0	.255	9.0	.057	2.0		
15					1.699	60.0	1.388	49.0	.170	6.0	.057	2.0		
16					1.473	52.0	1.416	50.0	.113	4.0	.057	2.0		
17					1.388	49.0	1.444	51.0	.028	1.0	.028	1.0		
18					1.303	46.0	1.501	53.0	.057	2.0	.028	1.0		
19					1.331	47.0	1.529	54.0	.113	4.0	.028	1.0		
20					1.331	47.0	1.133	40.0	.113	4.0	.028	1.0		
21					1.331	47.0	.906	32.0	.113	4.0	.028	1.0		
22					1.529	54.0	.906	32.0	.113	4.0	.028	1.0		
23					1.614	57.0	.821	29.0	.113	4.0	.028	1.0		
24			1.076*	38.0	1.473	52.0	.821	29.0	.113	4.0	.028	1.0		
25			.935	33.0	1.529	54.0	.793	28.0	.113	4.0	.057	2.0		
26			1.218	43.0	1.473	52.0	.510	18.0	.113	4.0	.057	2.0		
27			1.161	41.0	1.331	47.0	.623	22.0	.113	4.0	.057	2.0		
28			1.274	45.0	1.274	45.0	.651	23.0	.113	4.0	.057	2.0		
29			1.189	42.0	1.473	52.0	.680	24.0	.113	4.0	.057	2.0		
30			1.331	47.0	1.586	56.0	.708	25.0	.113	4.0	.057	2.0		
31					1.614	57.0			.113	4.0	.057	2.0		
MEAN			1.169	41.3	1.342	47.4	1.180	41.7	.288	10.2	.055	1.9	.075	2.6
DAM³			707.		3592.		3056.		770.		147.		71.	
AF				573.		2912.		2478.		624.		119.		57.

* Beginning of Record
** End of Record

SUSAN RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 57
WILLOW CREEK NEAR SUSANVILLE

DAY	MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs	m³/s	cfs
1	1.246	44.0	1.246	44.0	.708	25.0	.368	13.0	.340	12.0	.283	10.0	.312	11.0
2	1.586	56.0	1.218	43.0	.595	21.0	.368	13.0	.340	12.0	.283	10.0	.312	11.0
3	1.699	60.0	1.161	41.0	.538	19.0	.368	13.0	.340	12.0	.312	11.0	.312	11.0
4	4.163	147.0	1.104	39.0	.510	18.0	.368	13.0	.566	20.0	.312	11.0	.312	11.0
5	6.768	239.0	1.048	37.0	.510	18.0	.368	13.0	.481	17.0	.312	11.0	.312	11.0
6	5.579	197.0	1.048	37.0	.538	19.0	.368	13.0	.396	14.0	.312	11.0	.312	11.0
7	3.852	136.0	1.020	36.0	.538	19.0	.340	12.0	.396	14.0	.283	10.0	.312	11.0
8	3.030	107.0	.991	35.0	.510	18.0	.340	12.0	.368	13.0	.283	10.0	.312	11.0
9	2.719	96.0	.963	34.0	.481	17.0	.340	12.0	.368	13.0	.283	10.0	.312	11.0
10	2.351	83.0	.935	33.0	.453	16.0	.312	11.0	.340	12.0	.283	10.0	.312	11.0
11	2.067	73.0	.906	32.0	.453	16.0	.312	11.0	.340	12.0	.283	10.0	.312	11.0
12	1.812	64.0	.425	15.0	.425	15.0	.312	11.0	.340	12.0	.283	10.0	.312	11.0
13	1.614	57.0	.368	13.0	.425	15.0	.312	11.0	.340	12.0	.283	10.0	.312	11.0
14	1.501	53.0	.340	12.0	.396	14.0	.312	11.0	.340	12.0	.283	10.0	.312	11.0
15	1.388	49.0	.368	13.0	.396	14.0	.312	11.0	.340	12.0	.283	10.0	.368	13.0
16	1.331	47.0	.368	13.0	.396	14.0	.312	11.0	.340	12.0	.283	10.0	.425	15.0
17	1.303	46.0	.368	13.0	.396	14.0	.312	11.0	.340	12.0	.283	10.0	.425	15.0
18	1.274	45.0	.368	13.0	.368	13.0	.312	11.0	.340	12.0	.283	10.0	.453	16.0
19	1.246	44.0	.368	13.0	.368	13.0	.312	11.0	.340	12.0	.283	10.0	.538	19.0
20	1.218	43.0	.396	14.0	.368	13.0	.312	11.0	.340	12.0	.283	10.0	.538	19.0
21	1.218	43.0	.425	15.0	.340	12.0	.340	12.0	.340	12.0	.283	10.0	.566	20.0
22	1.444	51.0	.425	15.0	.340	12.0	.312	11.0	.340	12.0	.312	11.0	.566	20.0
23	1.388	49.0	.425	15.0	.340	12.0	.340	12.0	.312	11.0	.312	11.0	.538	19.0
24	1.359	48.0	.396	14.0	.340	12.0	.312	11.0	.312	11.0	.312	11.0	.538	19.0
25	1.303	46.0	.396	14.0	.368	13.0	.312	11.0	.312	11.0	.312	11.0	.538	19.0
26	1.246	44.0	.396	14.0	.368	13.0	.312	11.0	.312	11.0	.312	11.0	.538	19.0
27	1.189	42.0	.425	15.0	.368	13.0	.312	11.0	.312	11.0	.312	11.0	.510	18.0
28	1.189	42.0	.425	15.0	.368	13.0	.312	11.0	.312	11.0	.312	11.0	.425	15.0
29	1.161	41.0	.481	17.0	.368	13.0	.312	11.0	.312	11.0	.312	11.0	.396	14.0
30	1.161	41.0	.651	23.0	.368	13.0	.312	11.0	.312	11.0	.312	11.0	.396	14.0
31	1.189	42.0			.368	13.0			.283	10.0	.312	11.0		
MEAN	1.987	70.2	.649	22.9	.429	15.2	.328	11.6	.348	12.3	.296	10.5	.404	14.3
DAM³	5318.		1680.		1149.		848.		932.		792.		1047.	
AF		4312.		1362.		932.		688.		755.		642.		848.

SUSAN RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 58
OPERATION OF McCOY AND HOG FLAT RESERVOIRS

DAY	McCoy Flat Reservoir Inflow from Susan River: JUNE m³/s	JUNE cfs	JULY m³/s	JULY cfs	McCoy Flat Reservoir Releases to Susan River: APRIL m³/s	APRIL cfs	MAY m³/s	MAY cfs	JUNE m³/s	JUNE cfs	JULY m³/s	JULY cfs	AUGUST m³/s	AUGUST cfs	Hog Flat Reservoir Releases to Susan River: JUNE m³/s	JUNE cfs	JULY m³/s	JULY cfs	DAY
1	1.416[1]	50	.028	1.0			.057	2.0	1.982	70	1.557	55	2.917	103			.765	27	1
2	1.331	47	.028	1.0			.057	2.0	1.982	70	1.557	55	2.888	102			.651	23	2
3	1.274	45	.020[2]	0.7			.028	1.0	1.727	61	2.265	80	2.888	102			.510	18	3
4	1.274	45	.014[2]	0.5			.028	1.0	1.048	37	3.172	112	2.888	102			.425	15	4
5	1.359	48					.028	1.0	1.019	36	3.172	112	2.888	102			.368	13	5
6	1.359	48					.028	1.0	1.076	38	3.143	111	2.888	102			.283	10	6
7	1.359	48					.028	1.0	.623	22	3.115	110	2.832	100			.226[4]	8	7
8	1.303	46					.028	1.0	.566	20	3.115	110	2.775	98					8
9	1.218	43					.057	2.0	.595	21	3.115	110	2.690	95					9
10	1.133	40					.198	7.0	.595	21	3.087	109	2.633	93					10
11	1.076	38					.708	25	.510	18	3.087	109	2.577	91					11
12	1.019	36					.906	32	.283	10	3.058	108	2.520	89					12
13	.963	34					.963	34	.113	4.0	1.699	60	2.520	89					13
14	.906	32					.595	21	.057[3]	2.0	.283	10	2.435	86					14
15	.906	32					1.076	38	.057[3]	2.0	.255	9.0	2.407	85					15
16	.906	32					1.897	67	.057	2.0	.226	8.0	2.322	82					16
17	.878	31					1.982	70	.057	2.0	.283	10	2.209	78	2.067[3]	73			17
18	.821	29					2.010	71	.057	2.0	3.285	116	2.152	76	2.067	73			18
19	.708	25					2.124	75	.057	2.0	3.285	116	1.784	63	2.067	73			19
20	.566	20					2.152	76	.057	2.0	3.256	115	.878[4]	31	1.869	66			20
21	.481	17					2.209	78	.057	2.0	3.200	113	.028[4]	1.0	1.841	65			21
22	.311	11					2.265	80	.057	2.0	3.171	112			1.812	64			22
23	.226	8.0					2.435	86	.057	2.0	3.171	112			1.642	58			23
24	.142	5.0					2.407	85	.368	13	3.115	110			1.557	55			24
25	.085	3.0					2.322	82	1.642	58	3.058	108			1.501	53			25
26	.085	3.0			.057[1]	2.0	2.209	78	1.614	57	3.058	108			1.388	49			26
27	.057	2.0			.057	2.0	2.039	72	1.586	56	3.030	107			1.246	44			27
28	.057	2.0			.057	2.0	1.926	68	1.557	55	3.002	106			1.189	42			28
29	.057	2.0			.057	2.0	1.926	68	1.557	55	2.945	104			1.076	38			29
30	.028	1.0			.057	2.0	1.841	65	1.557	55	2.917	103			.934	33			30
31							1.982	70			2.917	103							31
MEAN	.779	27.5	.023	0.8	.057	2.0	1.243	43.9	.753	26.6	2.568	90.7	2.387	84.3	2.067	73	.765	27	MEAN
DAM³	2013.		7.		25.		3328.		1950.		6878.		4331.		1924.		279.		DAM³
AF		1632.		6.		20.		2698.		1581.		5576.		3511.		1560.		226.	AF

1/ Beginning of Record
2/ End of Flow
3/ Beginning of Releases
4/ End of Releases

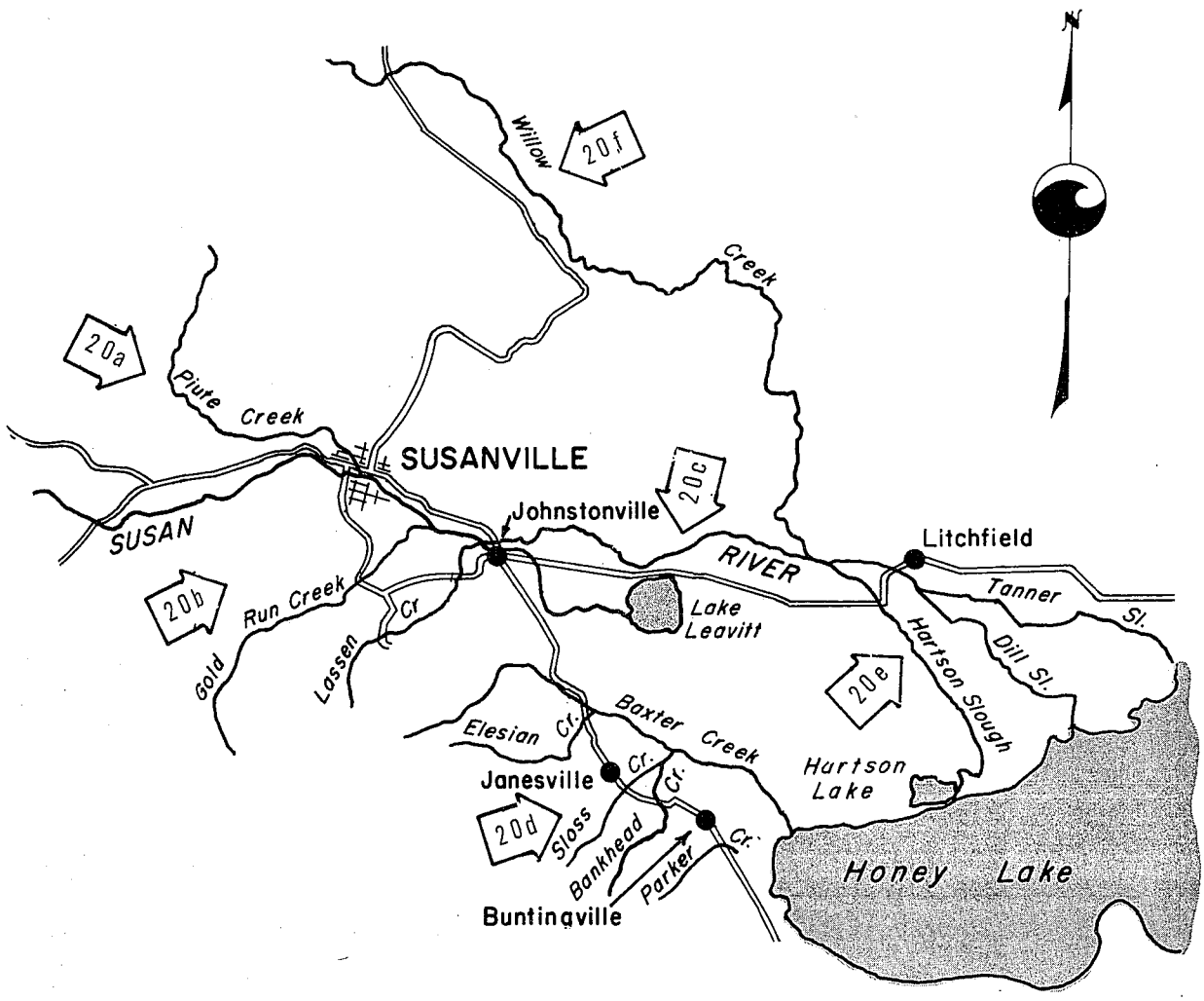
add Table 60

SUSAN RIVER WATERMASTER SERVICE AREA
1978 Daily Mean Discharge

TABLE 59
A AND B CANAL FLOW TO LAKE LEAVITT

DAY	MARCH m³/s	MARCH cfs	APRIL m³/s	APRIL cfs	MAY m³/s	MAY cfs	JUNE m³/s	JUNE cfs	JULY m³/s	JULY cfs	AUGUST m³/s	AUGUST cfs	SEPTEMBER m³/s	SEPTEMBER cfs	DAY
1	.215	7.6	1.218	43.0	1.841	65.0	.623	22.0	1.558	55.0	2.322	82.0	.000	.0	1
2	.283	10.0	1.048	37.0	1.218	43.0	.708	25.0	1.558	55.0	2.351	83.0	.000	.0	2
3	.130	4.6	.935	33.0	1.728	61.0	.680	24.0	1.699	60.0	2.294	81.0	.000	.0	3
4	.283	10.0	.906	32.0	2.379	84.0	1.020	36.0	1.926	68.0	2.237	79.0	.000	.0	4
5	1.388	49.0	.566	20.0	2.436	86.0	1.048	37.0	2.832	100.0	2.237	79.0	.000	.0	5
6	.510	18.0	.510	18.0	1.926	68.0	.821	29.0	2.747	97.0	2.209	78.0	.000	.0	6
7	.258	9.1	.340	12.0	1.926	68.0	.850	30.0	3.115	110.0	2.181	77.0	.000	.0	7
8	.207	7.3	.207	7.3	1.926	68.0	.793	28.0	2.974	105.0	2.464	87.0	.000	.0	8
9	.130	4.6	.167	5.9	1.812	64.0	.651	23.0	2.860	101.0	2.520	89.0	.000	.0	9
10	.130	4.6	.595	21.0	1.728	61.0	.595	21.0	2.747	97.0	2.492	88.0	.000	.0	10
11	.130	4.6	1.728	61.0	1.699	60.0	.538	19.0	2.747	97.0	2.407	85.0	.000	.0	11
12	.130	4.6	2.124	75.0	1.643	58.0	.538	19.0	2.549	90.0	2.322	82.0	.000	.0	12
13	.130	4.6	2.322	82.0	2.039	72.0	.340	12.0	2.577	91.0	2.322	82.0	.000	.0	13
14	.130	4.6	.595	21.0	2.039	72.0	.261	9.2	2.492	88.0	2.294	81.0	.000	.0	14
15	.130	4.6	.708	25.0	2.124	75.0	.207	7.3	1.388	49.0	2.237	79.0	.000	.0	15
16	.139	4.9	.736	26.0	2.322	82.0	.252	8.9	.623	22.0	2.209	78.0	.000	.0	16
17	.368	13.0	.680	24.0	2.379	84.0	.130	4.6	.252	8.9	2.124	75.0	.000	.0	17
18	.368	13.0	.623	22.0	2.322	82.0	.396	14.0	.312	11.0	1.926	68.0	.000	.0	18
19	.481	17.0	.651	23.0	2.039	72.0	.651	23.0	2.039	72.0	1.812	64.0	.000	.0	19
20	.566	20.0	.793	28.0	1.954	69.0	.708	25.0	2.860	101.0	1.699	60.0	.000	.0	20
21	.793	28.0	.765	27.0	1.982	70.0	.765	27.0	2.662	94.0	1.359	48.0	.000	.0	21
22	.708	25.0	.765	27.0	2.011	71.0	.793	28.0	2.719	96.0	.538	19.0	.000	.0	22
23	.396	14.0	.453	16.0	1.954	69.0	.708	25.0	2.719	96.0	.312	11.0	.000	.0	23
24	.368	13.0	.283	10.0	1.869	66.0	.906	32.0	2.719	96.0	.006	.2	.000	.0	24
25	.481	17.0	.510	18.0	1.841	65.0	1.388	49.0	2.719	96.0	.000	.0	.000	.0	25
26	.425	15.0	1.218	43.0	1.869	66.0	2.039	72.0	2.690	95.0	.000	.0	.000	.0	26
27	.481	17.0	1.671	59.0	1.558	55.0	2.322	82.0	2.747	97.0	.000	.0	.000	.0	27
28	.510	18.0	1.643	58.0	1.444	51.0	2.294	81.0	2.549	90.0	.000	.0	.000	.0	28
29	.680	24.0	1.558	55.0	1.076	38.0	1.926	68.0	2.322	82.0	.000	.0	.000	.0	29
30	.793	28.0	1.784	63.0	.623	22.0	1.728	61.0	2.209	78.0	.000	.0	.000	.0	30
31	1.133	40.0			.821	29.0			2.322	82.0	.000	.0			31
MEAN	.415	14.7	.937	33.1	1.823	64.4	.889	31.4	2.266	80.0	1.512	53.4	.000	.0	MEAN
DAM³	1112.		2426.		4881.		2303.		6064.		4047.		0.		DAM³
AF		901.		1967.		3957.		1867.		4916.		3281.		0.	AF

Figure 20



Indicates Detail Maps.

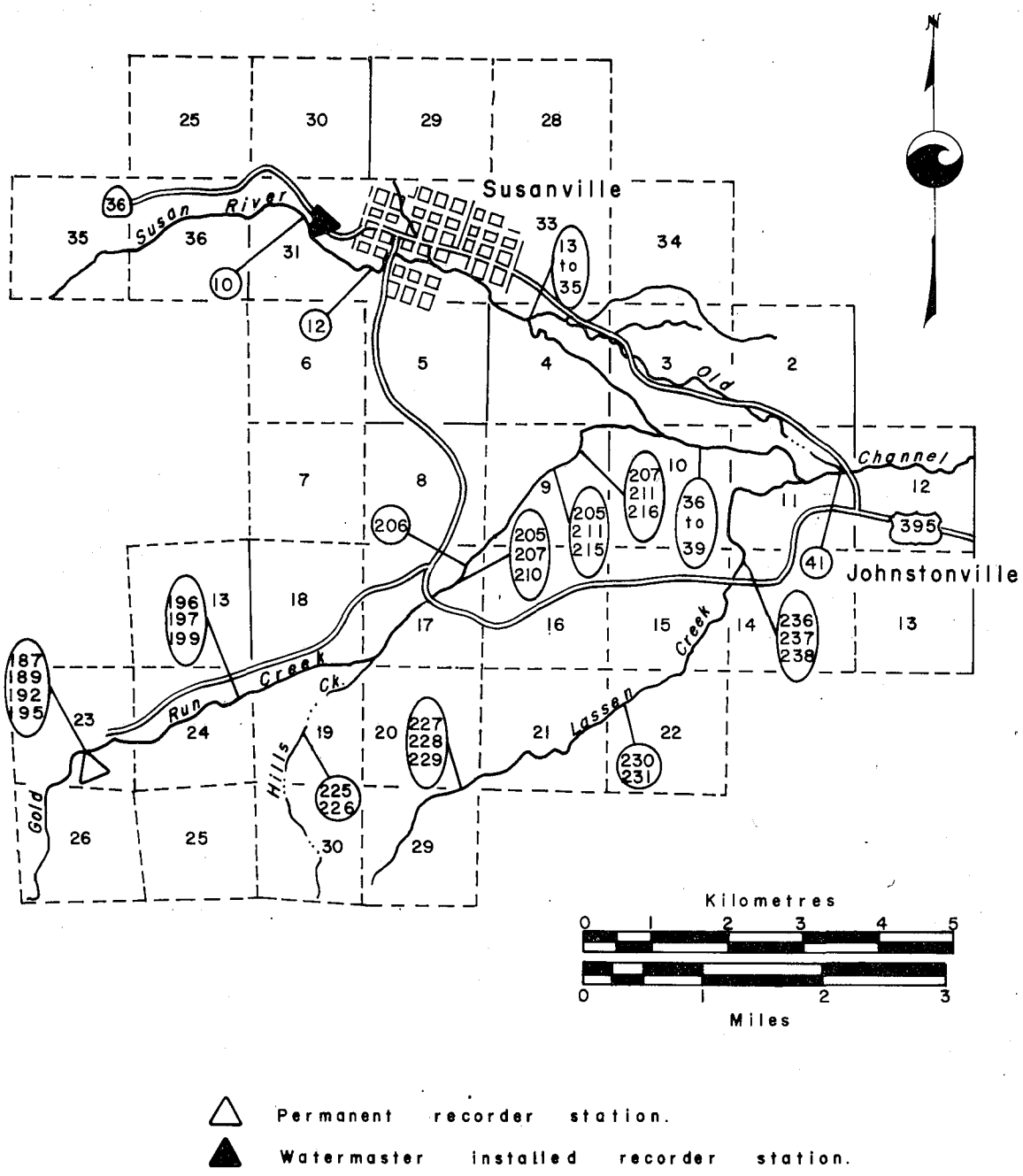
INDEX MAP
SUSAN RIVER WATERMASTER SERVICE AREA

Diversion Number	Name	m^3/s	Cfs
10	Ramsey Ditch	0.181	6.40
12	Federal Government Sv. Ditch	0.092	3.26
13-35	Old Channel	0.484	17.10
36-39	Lassen 7-D Ranch Inc.	0.137	4.85
41	Occidental et al	0.453	16.00*
187,189 192,195	Satica Ditch	0.109	3.85
196,197 199	Sella Ditch	0.074	2.62
205,207 210	Satica	0.102	3.60
205,211 215	Pyle	0.139	4.90
206	Mallery, M.		**
207,211 216,219	Lassen 7-D Ranch Inc.	0.109	3.85
207,211 216,219	Mallery, R.	0.108	3.80
220	Emerson Hills Ditch	0.109	3.85
225-226	Nagle	0.069	2.45
227-229	Tangeman	0.130	4.60
230-231	Mallery	0.077	2.70
230,240	Lassen 7-D Ranch Inc.	0.077	2.70

* Does not include Lassen I.D. water rights to Lake Leavitt.

** 48% of Gold Run Creek at 206.

Figure 20a



DIVERSIONS FROM SUSAN RIVER
SUSAN RIVER WATERMASTER SERVICE AREA

ALLOCATIONS FROM BAXTER CREEK AND ELESIAN CREEK

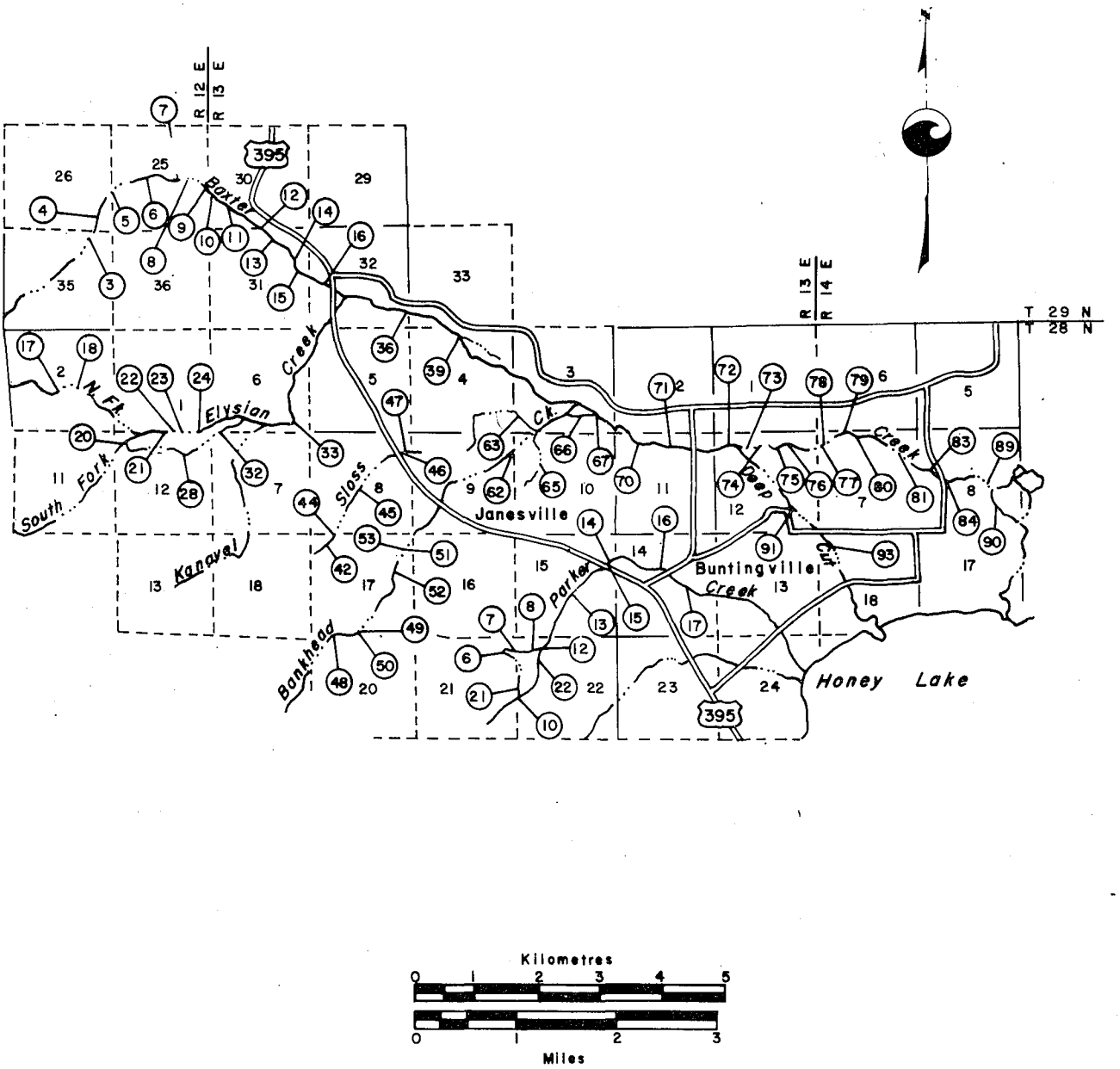
Diversion Number	Name	m^3/s	Cfs
3-5	Dickson	0.071	2.50
6-8,12	Gray Eagle Corp.	0.025	0.88
11	Burnett, Baker	0.006	0.20
8-10,12	Mallery	0.092	3.23
8,12-16	Mallery	0.099	3.49
16	Gray Eagle Corp.	0.015	0.52
17-18	Faith Ranch	0.005	0.16
20	Bailey	0.049	1.71
17,21,26-27	Bass	0.116	4.10
17,22-24,28,32-33	Smith	0.080	2.82
17,22-24,28,32-33	Kanaval	0.130	4.58
36,39	Peterson	0.040	1.42
70	Ahern	0.001	0.02
71-72	A & K Company	0.049	1.71
75,77,79-80	Blickenstaff	0.018	0.64
78	U.S. Hertz Inc.	0.030	1.05
81,83	Blickenstaff	0.082	2.88
73,75	Garza	0.033	1.17
74,76	Hemphill	0.056	1.96
75,77	Dieter	0.055	1.95
75,77,80	Dieter	0.009	0.30
77,79	Mulroney	0.051	1.80
78	Mulroney	0.019	0.67
78	Cummings	0.004	0.15
81,83	Blankenship	0.014	0.50
84,90	Dow	0.051	1.80
85,89	Marsters, McDonald	0.045	1.60

ALLOCATIONS FROM SLOSS AND BANKHEAD CREEKS

42	Mossman	0.001	0.02
44	Doyle	0.0001	0.002
45	Snipes	0.002	0.08
46	Grover	0.034	1.20
46-47	Peterson	0.039	1.20
48-50	Row	0.004	0.15
51	de Rocher	0.002	0.08
52-53,55	White	0.014	0.48
56,62	Ashmore	0.015	0.53
63,65	Dow	0.080	2.83
66-67	Myers	0.007	0.26
91,93	Bailey	0.086	3.02

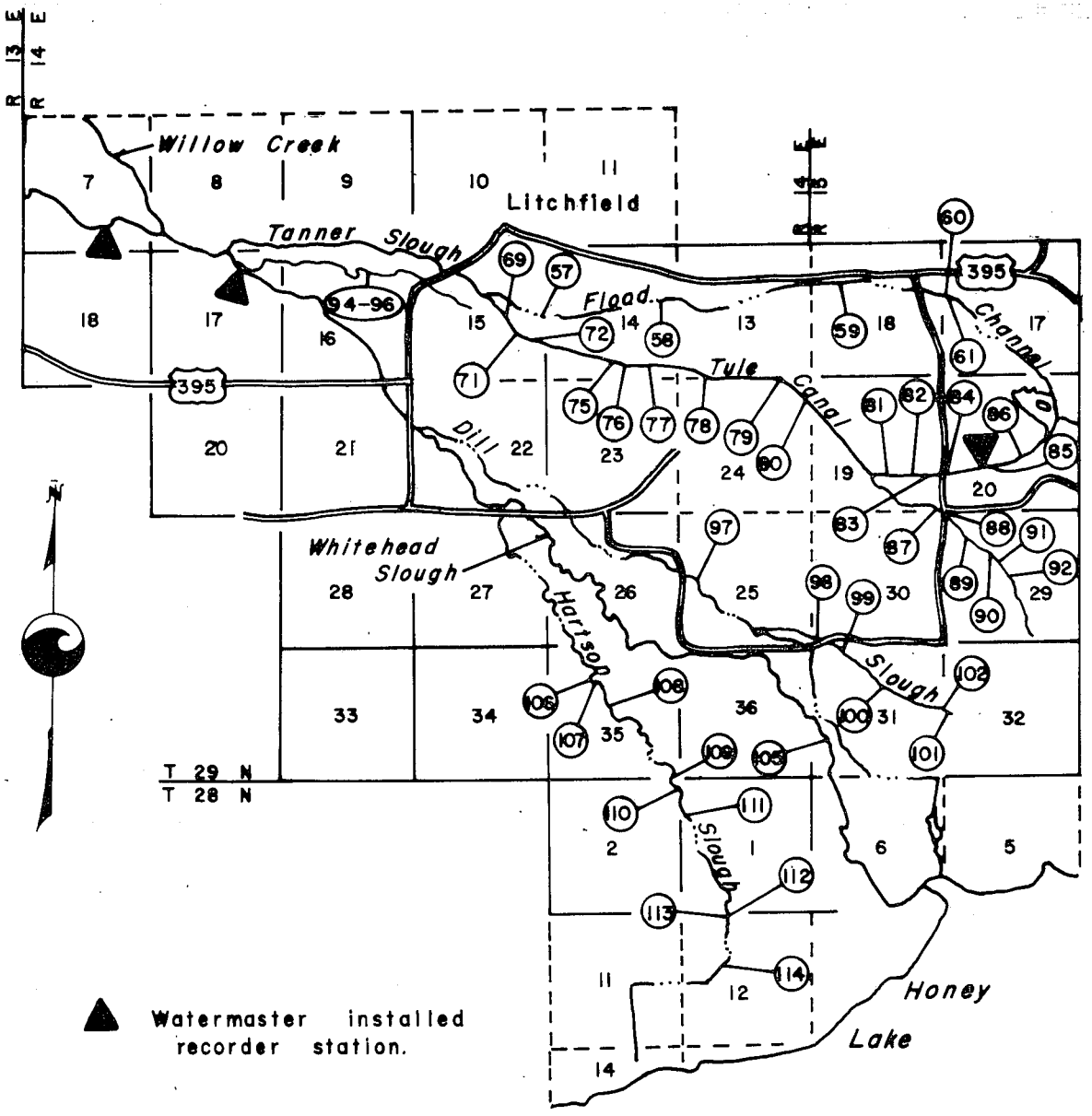
DIVERSIONS FROM PARKER CREEK

6-12	Butler	0.025	0.89
13-15	Hoffman	0.092	3.26
15	Flux	0.039	1.38
16-17	Bailey	0.058	2.06



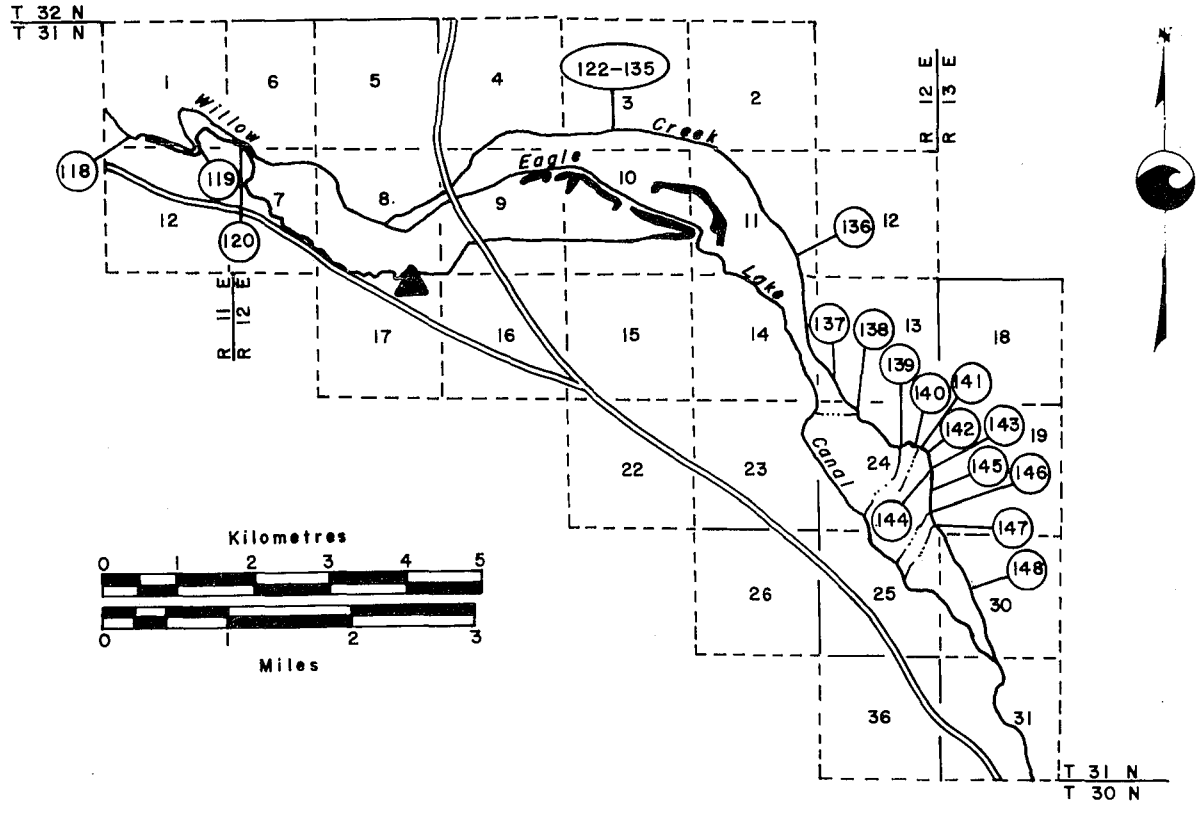
DIVERSIONS FROM BAXTER CREEK AND PARKER CREEK SUSAN RIVER WATERMASTER SERVICE AREA

Diversion Number	Name	m^3/s	Cfs
56,94,96	Smith et al	0.112	3.95
57-58,69 72	Smith	0.212	7.50
58-61, 79-81,84	Mapes	0.376	13.29
71,75-78	McClelland	0.304	10.75
81-83	DeWitt, W. Theodore, J.	0.050 0.053	1.75 1.88
82,87-89 91-92	Wells	0.106	3.75
82,87-89 91-92	DeWitt, F.	0.106	3.75
85-86	Calif. Dept. of Fish and Game	0.544	19.20
90-92	Calif. Dept. of Fish and Game	0.064	2.26
90-92	Brown et al	0.010	0.34
97	Tanner	0.142	5.00
98,100-101	Dow	0.142	5.00
99	Honey Lake Ranch	0.212	7.50
102	Honey Lake Ranch	0.154	5.45
106,109 111	Roberts	0.031	1.10
106,109 111	Tanner	0.072	2.55
107-108	Roberts	0.034	1.20
110-111	Wolf	0.044	1.55
110, 112-114	Calif. Dept. of Fish and Game	0.088	3.10



DIVERSIONS FROM SUSAN RIVER
SUSAN RIVER WATERMASTER SERVICE AREA

Figure 20d



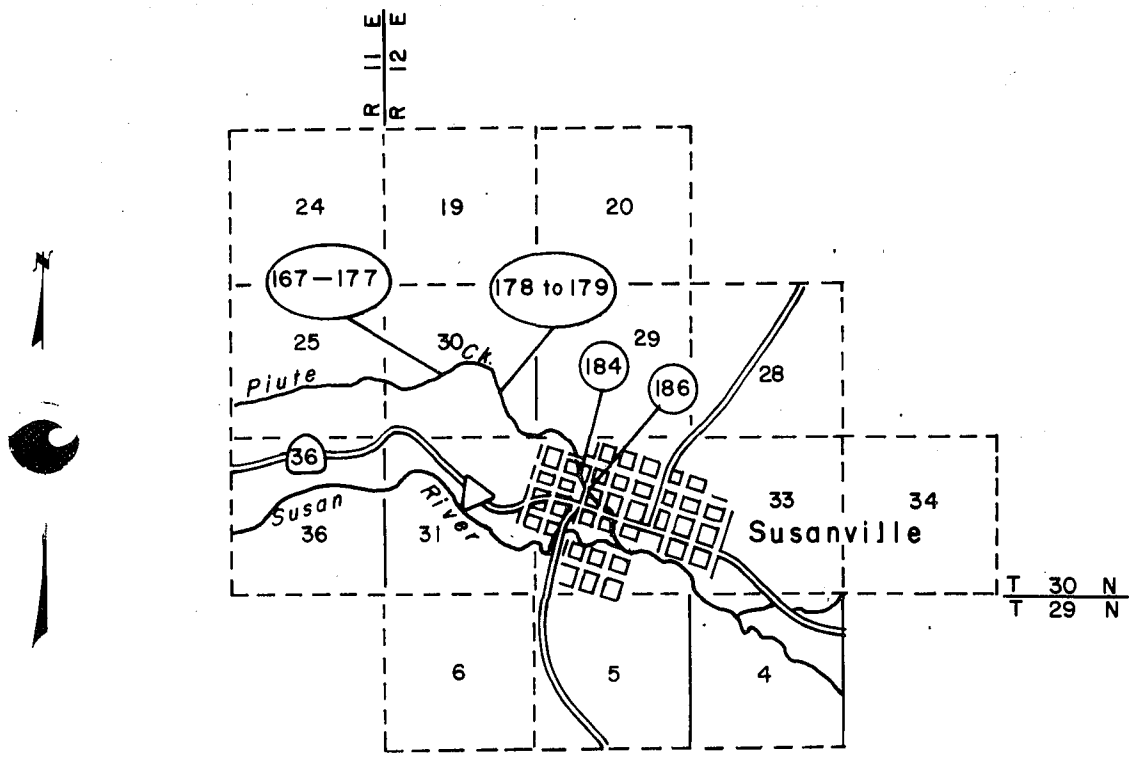
Diversion Number	Name	m^3/s	cfs
118,119	Murrer	0.060	2.10
	Barron	0.060	2.10
120	Murrer	0.028	1.00
122,135	Barron	0.422	14.90
136–143, 145	Hansan Ranch	0.139	4.90
144–147	Hagata	0.064	2.25
147,148	Hagata	0.055	1.95

* Allotments to be measured as the average difference during any seven-day period between the water available for use on the acreage to be supplied and the water passing off the acreage.

NOTE: The Barron Ranch also diverts from the Old Eagle Lake Canal. It must release to downstream users 38 percent of second priority water avaailable to it over any seven (7) day period. If deficiency exists the Watermaster obtains required flow by increasing Barron Reservoir releases accordingly.

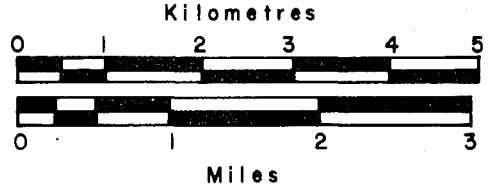
▲ Watermaster installed Recorder Station

DIVERSIONS FROM WILLOW CREEK SUSAN RIVER WATERMASTER SERVICE AREA

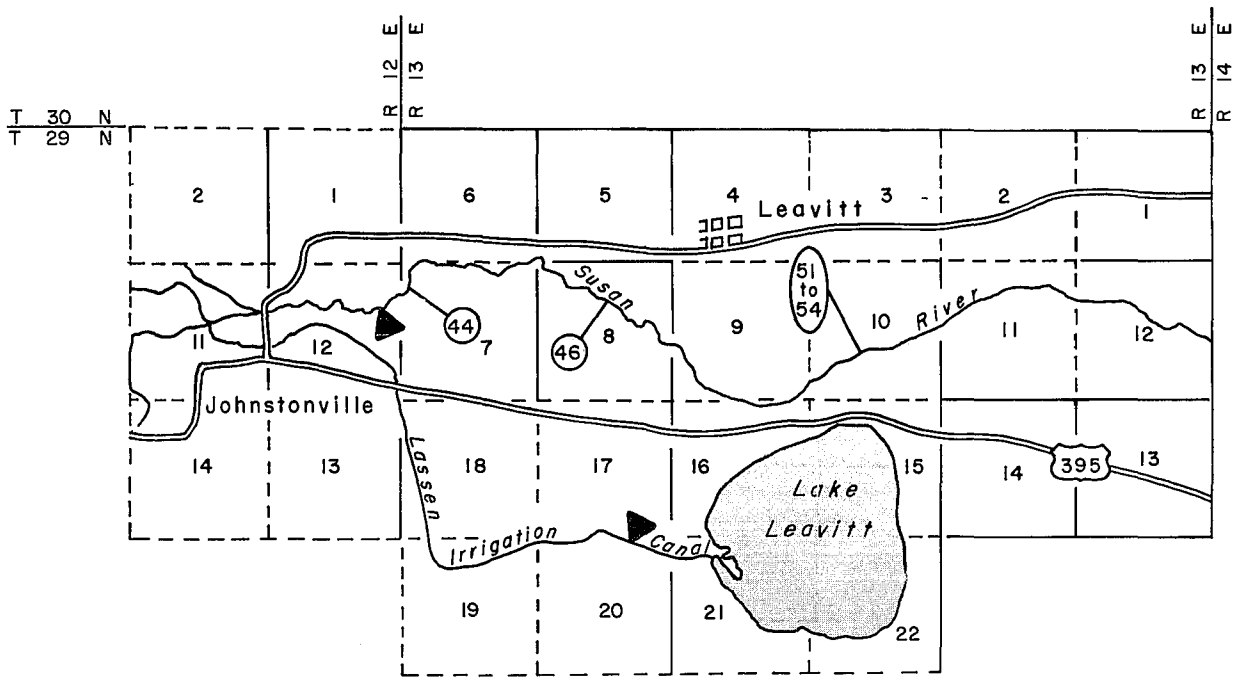


Diverson Number	Name	m^3/s	cfs
167—177	California Pacific Utility	0.071	2.50
178—179	Marmo Ditch	0.004	0.16
184	Susanville, City of	0.003	0.11
186	Susanville Elementary School	0.002	0.07

△ U.S.G.S. Permanent Recorder Station.

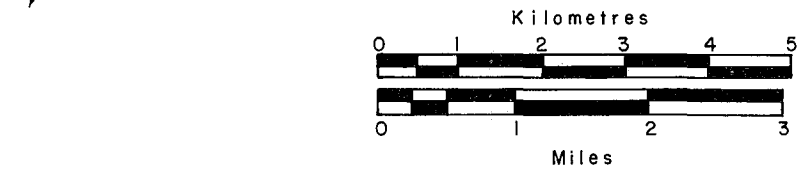


DIVERSIONS FROM PIUTE CREEK
SUSAN RIVER WATERMASTER SERVICE AREA



Diversion Number	Name	m^3/s	cfs
44	Farris-McAllister Dam	0.212	7.47
46	Roberts Dam	0.141	4.98
51-54	Roberts-Chappius Dam	0.340	12.00

▲ Watermaster installed recorder station.



DIVERSIONS FROM SUSAN RIVER
SUSAN RIVER WATERMASTER SERVICE AREA

WILLOW CREEK WATERMASTER SERVICE AREA

The Willow Creek service area is situated in Siskiyou County, about 10 miles northeast of Montague. A map showing the Willow Creek stream system, the diversions, and the principal roads in the area is presented in Figure 21 page 184. Willow Creek is the major source of water supply and rises on the west slope of the 2 377 m (7,800 ft.) Willow Creek Mountain east of the service area. It then flows in a northwesterly direction through about 18 km (11 miles) of rolling hills to its confluence with the Klamath River. The service area is about 13 km (8 miles) long by 1.6 km (1 mile) wide and varies in elevation between about 792 and 1 219 m (2,600 and 4,000 feet).

Basis of Service

Willow Creek has had a long history of litigation. However, the present basis of service might be said to have been initiated in 1949 when a civil suit was referred to the Department of Public Works, Division of Water Resources, to act as referee. The matter was never finalized by a decree. The issues involved were reopened in 1971, and by Decree No. 24482, dated April 28, 1972, the Siskiyou County Superior Court appointed the Department of Water Resources to supervise distribution of water in accordance with an earlier agreement between the users defining their respective rights. Accordingly, the Willow Creek watermaster service area was created on June 22, 1972, and service began on July 1, 1972.

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 supply of the Willow Creek stream system is from the melting of snow which accumulates at high elevations on the drainage area during the winter months. The spring flow from the melting snow begins late in March or early April and is almost entirely gone prior to June 1. Thereafter the flow decreases rapidly until about July 1. From that date up to the time fall rains begin, the flow remains at a more or less sustained low-flow stage sufficient for domestic and stock watering purposes on the two upper ranches only.

Method of Distribution

Both sprinkler and flood irrigation are used in the Willow Creek service area. 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. Diversion is accomplished by diverting water into the ditches by temporary rock or gravel dams. The lower user in the area utilizes 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.

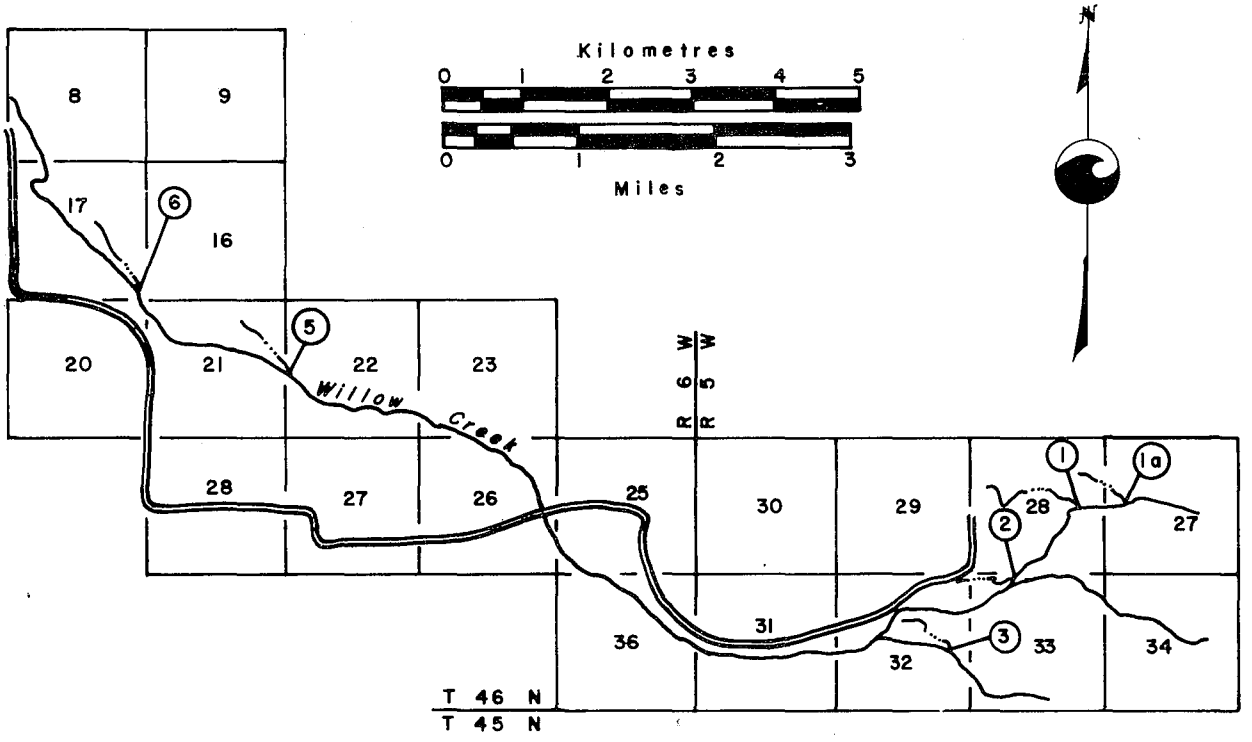
1978 Distribution

Watermaster service in the Willow Creek service area began on April 1 and continued until September 30. Lester L. Lighthall, Water Resources Technician II was watermaster during this period.

Since watermaster service began in 1972 on this creek, there are no records for a basis of comparison of this year's water supply with an average. However, the water users indicated that the supply was average.

There was sufficient water to distribute to all three users according to their fractional allotments until the middle of August when distribution was started on on a five-day rotation between the two upper users, since the lower user could no longer put his allotment to beneficial use. This rotation was continued for the rest of the season.

Figure 21



Diversion Number	
1	Underwood and Sylva
1a	Underwood and Pipeline
2,3	Sylva
5,6	Cook

Underwood, Sylva, and Cook may divert 1/6, 1/6, and 2/3 of the flow respectively, except when the flow below Sylva Ranch is less than ten (10) inches on the gage, between July 1 and October 15. During such times Underwood and Sylva each may divert the full flow for alternating five day periods.

Note: Other diversions exist outside the service area.

DIVERSIONS FROM WILLOW CREEK
WILLOW CREEK WATERMASTER SERVICE AREA