SUMMARY OF HYDROLOGIES AT THE 1990,1995,2000,2010,AND 2020 LEVELS OF DEVELOPMENT FOR USE IN DWRSIM PLANNING STUDIES

Series-C Hydrologies Based on Bulletin 160-93 Estimates

MEMORANDUM REPORT
JULY, 1994

Modeling Support Branch
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CONTENTS

	Page
INTRODUCTION	1
SUMMARY OF RESULTS	1
HYDROLOGY DEVELOPMENT	2
PREVIOUS HYDROLOGIES	4
LAND USE	5
FRSA DEMANDS AND DEFICIENCIES	5
CVP DEMANDS AND DEFICIENCIES	6
WATER SUPPLY TO THE DELTA	6
DIVERSIONS AND DEPLETIONS	7

LIST OF TABLES

Table		Page
1.	List of New Hydrologies Developed Using April 1994 Estimates for Bulletin 160-93	8
2.	List Of DWR Depletion Study Areas	9
3.	Summary Of All Hydrologies Developed For Use in Planning Studies	10
4.	Total Crop And Urban Acreages for the 1990, 1995, 2000, 2010, And 2020 Levels Of Development	12
5.	Crop And Urban Acreage By Depletion Area For The 1990 Level (C05a)	13
6.	Crop And Urban Acreage By Depletion Area For The 1995 Level (C06a)	13
7.	Crop And Urban Acreage By Depletion Area For The 2000 Level (C07a)	14
8.	Crop And Urban Acreage By Depletion Area For The 2010 Level (C08a)	14
9.	Crop And Urban Acreage By Depletion Area For The 2020 Level (C09a)	15
10.	Crop And Urban Acreage By Depletion Area For The 1995 Level (C01a And C01b)	15
11.	Change In Acreage for the 1990 Level (C05a) Compared to the 1995 Level (C01a/C01b)	16
12.	Change In Acreage for the 1995 Level (C06a) Compared to the 1995 Level (C01a/C01b)	16
13.	Change In Acreage for the 2000 Level (C07a) Compared to the 1995 Level (C01a/C01b)	17
14.	Change In Acreage for the 2010 Level (C08a) Compared to the 1995 Level (C01a/C01b)	17
15.	Change In Acreage for the 2020 Level (C09a) Compared to the 1995 Level (C01a/C01b)	18
16.	Change In Acreage for the 1995 Level (C06a) Compared to the 1990 Level (C05a)	18
17.	Change In Acreage for the 2000 Level (C07a) Compared to the 1990 Level (C05a)	19
18.	Change In Acreage for the 2010 Level (C08a) Compared to the 1990 Level (C05a)	19
19.	Change In Acreage for the 2020 Level (C09a) Compared to the 1990 Level (C05a)	20
20.	Feather River Service Area Normal Monthly Demands	20
21.	October Through January Totals for Releasing Duck Water In The FRSA	20
22.	Feather River Service Area Deficiencies By Water Agency	21
23.	CVP Demands By Depletion Area	22
24.	Average Inflow To The Delta For The Period 1922-92 By Component	28
25.	Average Inflow To the Delta For The Period 1928-34 By Component	29
26.	Average Annual Projected Diversion Requirement For The Period 1922-92	30
27.	Projected Irrigated And Urban Land Use For Bulletin 160-93	30
28.	Average Annual Projected Rate Of Diversion For The Period 1922-92	30
29.	Average Annual Projected Return Flow For The Period 1922-92	31
30.	Average Annual Projected Depletion For The Period 1922-92	31
31.	Average Annual Rate Of Depletion For The Period 1922-92	31

LIST OF FIGURES

Figure	Page
1. DWR Planning Simulation Model Drainage Areas	32
2. Consumptive Use And Depletion Analysis Flowchart	33
3. DWRSIM Hydrology Flows And Diversions	34

INTRODUCTION

In April of 1994 the Hydrology Development Unit finalized the development of five levels of hydrology for use in DWRSIM planning studies. The April 1994 hydrologies were developed using the latest land use estimates for Bulletin 160-93. The labels used to identify the April 1994 hydrologies are summarized in Table 1 (all Tables and Figures are located at the end of this report). The official hydrologies for use in DWRSIM studies will be: HYD-C05b, HYD-C06b, HYD-C07b, HYD-C08b, and HYD-C09b representing the 1990, 1995, 2000, 2010, and 2020 levels, respectively. Between June 1992 and April 1994 the hydrology used in DWRSIM studies has been HYD-C01a reperesenting a 1995 level, and was developed at the time using preliminary irrigated crop and urban acreage estimates for Bulletin 160-93.

The purpose of this report is to:

- o give a general description of hydrology development
- o summarize the previous hydrologies developed to date
- o summarize the agricultural and urban land use for the new hydrologies
- o summarize the water supply available to the Delta for the new hydrologies
- o summarize the diversion requirements and depletions for the new hydrologies

SUMMARY OF RESULTS

Total irrigated crop and urban acreage for the valley floor areas are: 4.375 million acres (3.804 agriculture and .571 urban), 4.446 million acres (3.785 ag and 0.661 ur), 4.508 million acres (3.758 ag and 0.750 ur), 4.658 million acres (3.753 ag and 0.905 ur), and 4.772 million acres (3.720 ag and 1.051 ur),for the 1990, 1995, 2000, 2010, and 2020 levels, respectively. The C06a 1995 level total acreage is 23,600 acres less (-60,700 ag and +37,100 ur) compared to the C01a 1995 level used in previous DWRSIM runs.

The 1922-92 average annual inflow to the Delta without system reservoir operations for the 1990, 1995, 2000, 2010, and 2020 levels are 20.528 million acre-feet, 20.533 MAF, 20.446 MAF, 20.479 MAF, 20.508 MAF, respectively. The 1995 level inflow is approximately 221,000 acre-feet/yr less than the 1995 level of C01a used in previous DWRSIM runs. The 1928-34 average annual inflow to the Delta without system reservoir operations for the 1990, 1995, 2000, 2010, and 2020 levels are 10.692 million acre-feet, 10.683 MAF, 10.598 MAF, 10.603 MAF, 10.622 MAF, respectively. The 1995

level inflow is approximately 179,000 acre-feet/yr less than the C01a 1995 level used in previous DWRSIM runs.

The 1922-92 average annual projected diversion requirement for 1990, 1995, 2000, 2010, and 2020 levels are 12.255 MAF, 12.300 MAF, 12.360 MAF, 12.403 MAF, and 12.448 MAF, respectively. The respective Delta diversion requirements are 1.703 MAF, 1.700 MAF, 1.707 MAF, 1.699 MAF, and 1.693 MAF. The 1995 C01a hydrology used in previous DWRSIM runs has a long term average annual diversion requirement of 12.078 MAF, and Delta diversion requirement of 1.684 MAF.

The 1922-92 average annual projected depletions above the Delta for the 1990, 1995, 2000, 2010, and 2020 levels are 8.780 MAF, 8.813 MAF, 8.850 MAF, 8.878 MAF, and 8.911 MAF, respectively. The average annual C01a 1995 level depletion used in previous DWRSIM runs is 8.646 MAF.

The Feather River Service Area normal annual demands are approximately 1 MAF with 97% for agriculture. Total CVP demands for the 1990, 2000, 2010, and 2020 levels are 7.783 MAF, 8.050 MAF, 8.159 MAF, and 8.205 MAF per year, respectively.

HYDROLOGY DEVELOPMENT

The development of a hydrology as described herein is to essentially adjust the historical sequence of monthly flows so as to reflect a revised sequence of flows for a specified level of estimated future water use (i.e, 1990, 1995, 2000, etc.). The main objective of developing a hydrology is to provide input to the Department's reservoir simulation model DWRSIM. The hydrology represents the water supply of the Central Valley (excluding Tulare Basin) available to the SWP and CVP systems at some specified level of development assuming that the historical measured precipitation would occur during the study period in the same pattern and quantity. The study period for the Department's latest hydrology is the period October 1921 through September 1992 (water years 1922 through 1992), in monthly time steps.

The Central Valley is divided into drainage and service areas from which water supplies and demands can be more easily evaluated. The individual areas are called depletion areas. The lowest elevation on the main river in the depletion area is called an "outflow point". The Central Valley has been divided into 37 depletion study areas as shown in Figure 1 (Depletion Area 55 shown represents the Delta Uplands and Delta Lowlands). Boundaries used to define each area are based on drainage area lines in the mountain areas, and a combination of drainage and water service area lines in the valley floor areas. Table 2 is a list of Depletion areas grouped by their geographical location in Central Valley, beginning with the northern-most area.

Development of a hydrology for use in the Department of Water Resources Operation Studies consists of carrying out three types of studies in sequence as shown in the schematic of Figure 2.

Consumptive Use Studies evaluate 71 years of historic and future water use by depletion study areas using:

- o historic agricultural and urban acreages (vary with time)
- o projected agricultural and urban acreages (constant with time)
- o monthly evapotranspiration rates
- o monthly precipitation rates
- o soil moistute storage criteria

Output from the CU studies becomes input to the depletion analysis studies described next.

Depletion Analysis Studies are used to determine the effect of future water demands and future storage and diversion regulation on the historical flows of the river systems tributary to the delta. Historic outflow for any depletion area usually begins with flow data that is measured at a gage located at the outflow point. The depletion analysis method computes the future outflow of a depletion area by adjusting the historic outflow for any changes in water use occuring upstream from the outflow point.

A depletion analysis for the most upstream area is computed first. The depletion program basically computes the projected outflow of the area by adjusting its historic outflow for any changes in depletion, local reservoir regulation, imports and exports that are expected to occur above the outflow point. Differences in projected and historic outflow for the area represent the total change made above the outflow point. These differences are called "upstream area modification". The upstream area modification table is input into the next downstream area and the projected outflow for the area is computed.

Reservoirs are separated into system and local reservoirs. System reservoirs are those reservoirs which are to be operated in the DWR simulation model DWRSIM. They include Claire Engle, Shasta, Whiskeytown, Oroville, Folsom and New Melones reservoirs. System diversions include Trinity River imports to J.F. Carr power plant and American River diversion by Folsom South Canal (some diversions like those for the Tehama-Colusa canal and for Glenn-Colusa Irrigation District are handled differently). In the Depletion Analysis the historic effects of system reservoirs and diversions are removed from the historic supply. Projected effects for system reservoirs are limited to "project water". "Project Water" is the water needed from the system reservoir storage to supply future diversion requirements in the area. For non-system reservoirs (local reservoirs), the historic effects are removed, and a projected operation built back into the analysis.

Consumptive use and depletion studies are performed on those depletion study areas which are considered to have a significant change between historic and future demands and storage regulation.

Preparing input to DWRSIM is the final step in the hydrology development. Consumptive use and depletion analysis data is converted to local inflows (IN's) and diversions (YD's) for the control points in the DWRSIM network. The INs and YDs developed for DWRSIM during the hydrology development are shown in Figure 3.

YD's include such items as:

- o projected exports
- o direct diversions
- o diversion to ground water storage (above historic values)
- o consumptive use (depletion)
- o projected imports

IN's are local accretions and represent runoff from local precipitation less unaccounted losses.

For a given operation study, DWRSIM incorporates the depletion study results (IN's and YD's) and regulates the water supply available to meet D-1485 (or any prespecified) standards, exports outside of the Delta service area, flood control, fish/wildlife requirements, and navigation criteria.

PREVIOUS HYDROLOGIES

Since the late 1970's three main hydrologies have been developed, each with variations, as shown in Table 3. They differ mainly in the land use projections used to develop the hydrology, and the length of the historic period included. A summary of the hydrologies developed is listed in Table 3. The nomenclature given to the various hydrologies was not established until May of 1992.

Hydrology series A is based on land use projections from Bulletin 160-74 for the 1980 and 2000 levels of development. The 1990 level is a hybrid of the 1980 and 2000 levels. Hydrology series B was based on land use projections from Bulletin 160-83. Hydrology series C is based on Bulletin 160-93 projections. Hydrologies HYD-C-01 and HYD-C-02 were developed using preliminary estimates for Bulletin 160-93 and some projections from Bulletin 160-83. Hydrologies HYD-C-05 through HYD-C-09 were developed using April 1994 estimates from Bulletin 160-93. There were also some updates to forcasted data and minor corrections to reported historical flow data that have been incorporated in the latest hydrologies.

LAND USE

The projected land use was provided by staff the Northern District, Central District, and San Joaquin District. The data was broken down into county/DAU (detailed analysis unit)sub-areas. Four levels of development (1990, 2000, 2010, and 2020) were included. The county/DAU's and crops were combined to obtain land use projections by the depletion areas. The 1995 level was interpolated between 1990 and 2000 levels.

Table 4 summarizes the total crop and the urban acreages for the different hydrology levels. Note that the 1995 level is interpolated between the 1990 and 2000 levels. Bulletin 160-93 did not make projections for the 1995 level. Listed also in Table 4 are the acreages for the 1995 level used to develop the C01a and C01b hydrologies. These were preliminary estimates for Bulletin 160-93 at the time the hydrologies were developed. The data in Table 4 show a continuous decline in the agricultural acreage and a continuous increase in the urban acreage between 1990 and 2020 levels. Total acreage at the 2020 level,however, is higher than the 1990 level. Table 4 also shows that the new 1995 level (C06a) has 61,000 acres of irrigated crops less than the 1995 C01a hydrology used in previous DWRSIM runs, and a corresponding increase of 39,000 acres urban for a net total decrease of 23,000 acres.

The impact on the water supply to the Delta depends not only on the acreage, but also on the type of crops. Table 5 through Table 9 list the crop and urban acreages used for the valley floor depletion areas (shown in Figure 1). Table 10 summarizes the acreages used to develop the C01a and C0ab hydrologies (DWRSIM used C01a hydrology in runs between June 1992 and April 1994). Tables 11 through 15 show the change (increase are positive numbers) of the acreages in hydrologies C05a through C09a compared to acreages at 1995 level used in C01a and C01b. Tables 16 through 19 show the change in acreages (increase are positive numbers) for the 1995 (C06a), 2000 (C07a), 2010 (C08a), and 2020 (C09a) compared to the 1990 level of C05a.

FRSA DEMANDS AND DEFICIENCIES

Previously, Feather River Service Area FRSA demands relied on a summary of normal and deficient demands prepared in 1983 by Jan Sweigart (Rogers) for Jerry Vayder. For the latest hydrologies all FRSA contracts were reviewed to determine the annual quantities that were subject to deficiencies and the quantities that were not.

The Feather River Service Area normal monthly demands used in developing the different hydrologies are summarized in Table 20. They average about 1 MAF annually.

A three stage schedule of releases for duck water to supplement Butte Creek was developed. The October through January totals (which are not subject to deficiencies) are summarized in Table 21. They range from 16 TAF to 40 TAF depending on flow in Butte Creek. It is also assumed that duck water does not return to the Feather River. To simulate this the duck water was added to YD42.

The FRSA deficiencies by water agency and the deficiency schedules are summarized in Table 22.

CVP DEMANDS AND DEFICIENCIES

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Central Valley Project CVP demands were developed by Bob Zettlemoyer of Statewide Planning Branch and DWR Districts Land and Water Use Analysts. The demands affect the hydrologies in the amounts of the deficiencies that are taken and in the imports into the depletion areas. The CVP demands including water for refuges are summarized in Table 23. The CVP demands are lower than what we have used in the past which were the entitlements. Total CVP demands range from 7.8 MAF to 8.2 MAF depending on the level of development. The deficiencies imposed on CVP demands are fixed at 25 percent per month for the following months (inclusive):

March 1924 through February 1925
March 1929 through February 1930
March 1931 through February 1932
March 1933 through February 1935
March 1976 through Febraury 1978
March 1991 through September 1992

WATER SUPPLY TO THE DELTA

Water supply represents the inflow to the Delta at projected levels of development without operations of system reservoirs. Figure 3 is a schematic of INs and YDs that are developed for DWRSIM. The INs and YDs by Depletion area making up the inflow to the Delta components are summarized in Table 24 for the period 1922-1992 and in Table 25 for the period 1928-34. Listed also are Delta inflows for hydrology C01a used in previous DWRSIM runs. The PQ's refer to the projected outflows from a depletion area.

Long term average annual inflow to the Delta without system reservoir operation is about 20.5 MAF for all levels of development. A wide variety of factors affect the inflow to the Delta including:

- o depletions due to land use
- o additional imports such as those from the Trinity system
- o additional water requirements for wildlife refuges

DIVERSIONS AND DEPLETIONS

The average annual projected diversion requirement by depletion area for the period 1922-92 is shown in Table 26 with an average of about 12.3 MAF. The diversion requirement is equal to the consumptive use of applied water CUAW plus non-recoveralbe losses (which is equal to 10% of CUAW) plus the return flow. The projected irrigated and urban land use by depletion area is summarized in Table 27. The average rate of diversion by depletion area is shown in Table 28 with an average of about 2.76 acre-feet per acre. The rate of diversion is equal to the projected diversion requirement divided by the projected land use. The 1922-92 average annual projected return flow is shown in Table 29. The return flow is calculated as:

$$\text{Return Flow} = (1-1.1e)(\text{Diversion Requirement})$$

where e is the basin efficiency for the depletion area.

The 1922-92 average annual projected depletion (equal to the diversion requirement minus return flow) is shown in Table 30 with a long term annual average of about 8.8 MAF. The average rate of depletion for the period 1922-92 (equal to the projected depletion divided by land use) is shown in Table 31 with an average of about 2.18 acre-feet per acre.

Table 1. List Of New Hydrologies Developed Using April 1994 Land Use Estimates for Bulletin 160-93

Level of Development	Title of Hydrology
1990	HYD-C05b
1995	HYD-C06b
2000	HYD-C07b
2010	HYD-C08b
2020	HYD-C09b

notes: (1) The 1995 level hydrology was developed by interpolating the land use data for 1990 and 2000 levels. Bulletin 160-93 did not project land use data for 1995.

(2) Other hydrologies not listed developed using preliminary land use estimates for Bulletin 160-93 include HYD-C01 series and HYD-C02 series (as shown in Table 3).

Table 2. List Of DWR Depletion Study Areas

AREAS	DESCRIPTION	UPSTREAM AREAS
UPPER SACRAMENTO RIVER BASIN		
61	Pit River above Fall River	none
62	Sacramento River at Shasta Res.	61
3	Paynes Creek Group (*)	none
58	Sacramento River at Red Bluff	62 and 3
5	Thomes and Elder Creeks	none
66	Northeast tributaries: Antelope, Mill, Deer and Big Chico Creek Groups	none
10	Sacramento River at Ord Ferry	58, 5, and 66
15	Sacramento River at Knights Landing	10
12	Sacramento Valley westside above Colusa Basin Drain	none
FEATHER RIVER		
17	Feather R. at Oroville	none
14	Butte and Big Chico Creeks	none
67	Upper Yuba River including Deer and Dry Cks	none
68	Bear River at Camp Far West Res.	none
69	Lower Feather to mouth	17, 14, 67,and 68
LOWER SACRAMENTO RIVER BASIN		
22	American River at Folsom Res.	none
70	Lower Sacramento River to the Delta	12, 15, 69, and 22
CACHE, PUTAH, AND YOLO BYPASS		
16	Cache Creek above Rumsey	none
24	Putah Creek near Winters	none
65	Yolo Bypass and westside miner streams inflow to the north Delta	16 and 24
DELTA EASTSIDE STREAMS		
25	Cosumnes above Michigan Bar	none
27	Dry Creek at Galt	none
29	Mokelumne above Camanche Res.	none
32	Calaveras above Jenny Lind	none
59	Eastside Streams to the Delta	25, 27, 29, and 32
DELTA WESTSIDE TRIBUTARIES		
51	Westside minor streams inflow to the south Delta	none
SAN JOAQUIN RIVER		
39	Stanislaus River at Melones Res.	none
40	Tuolumne River above La Grange Dam	none
41	Merced River at Exchequer	none
42	Bear Creek Group	none
43	Chowchilla River above Buchanan Damsite	none
44	Berenda Creek	none
45	Fresno River	none
46	San Joaquin at Friant	none
49	San Joaquin River at Vernalis	39 thru 46
DELTA		
54	Delta Lowlands	55
55	Delta Uplands	49, 51, 59, 65, 70

Consumptive Use and Depletion Studies were not made for the Tulare Basin, area 60.

(*) The term 'Group' indicates that in addition to the named creek some unmeasured local runoff has been added.

Table 3. Summary Of All Hydrologies Developed For Use In Planning Studies

	DWR Bulletin for Land Use Projections	Level	Simulation Period	Year Developed	Comments
HYD-A-01	160-74 Ag 160-74 Ur	1980	1922-1978	1979	
HYD-A-02	160-74 Ag 160-74 Ur	2000	1922-1978	1979	
HYD-A-01a	160-74 Ag	1980	1922-1978 160-74 Ur	1981	HYD-A-01 with new estimates for Delta water requirements by George Sato (Central District) and Gordon Lyford (USBR)
HYD-A-02a	160-74 Ag 160-74 Ur	2000	1922-1978	1981	HYD-A-02 with new estimates for Delta water requirements by George Sato (Central District) and Gordon Lyford (USBR)
HYD-A-03	160-74 Ag 160-74 Ur	1990	1922-1978	1983	Use HYD-A-01a plus two thirds difference between HYD-A-01a and HYD-A-02a
HYD-A-03a	160-74 Ag 160-74 Ur	1990	1922-1978	1985	Use HYD-A-03 to include HEC models for Yuba and Bear rivers
HYD-B-01	160-83 Ag 160-74 Ur	1995	1922-1991	1991(Mar)	Extend historic period through Feb91 & forecast through Sep91. Introduce HEC-3 on American River. Use modified HEC-3 on Yuba River. New reservoir operations on Cache, Putah, Mokelumne, and New Melones. New definitions for Delta IN and YD. Import in DA49. Millerton study 13B replaced by USBR 1984 study. DA12 imports limited. Project water definition changed. Black Butte re-operated. DA17 outflow modified. Some historic land use based on 1980 Bul 160-83. No 1981-91 county adjustments. No deficiencies taken (95de). o 95df (impose deficiencies) o 95dg (imposed Misc SJR and Eastside Streams Modifications) o 95dh
HYD-B-01a	160-83 Ag 160-83 Ur	1995	1922-1991	1991(Aug)	Finalize 160-83 estimates. Still forecasted data for Mar91-Sep91. (95di)
HYD-B-01b	160-83 Ag 160-83 Ur	1995	1922-1991	1991(Nov)	Finalize historic flows and precip. Reduce rice acreage. (95dm)
HYD-C-01a	160-93 Ag 160-83 Ur	1995	1922-1991	1992(June)	Updated historic land use using additional surveys and county adjustments. Four hydrologic corrections (Oroville, Whiskeytown, Folsom, Yolo Bypass). Constant ET's for Delta. The land use data from Bulletin 160-93 is preliminary. The urban data was modified for later surveys. DWRSIM 1992 was added. Ag land use at 1990 level. (95dn)
HYD-C-01b	160-93 Ag 160-93 Ur	1995	1922-1992	1992(Sep)	Updates C01a hydrology. Forecasted data for July through August 1992. Land use data from Bulletin 160-93 still preliminary. Corrections to Oroville inflow 12/83, 4/84, 6/88. Changed procedure for taking deficiencies in DA49 and DA59.

Table 3 (continued). Summary Of All Hydrologies Developed For Use In Planning Studies

HYD-C-02	160-93 Ag 160-93 Ur	2010	1922-1992	1992(Aug)	Using incremental changes to the 1995 level as provided by Statewide Planning Branch in meme of July 31, 1992. Bulletin 160-93 data still preliminary.
HYD-C-02a	160-93 Ag 160-93 Ur	2010	1922-1992	1992(Sep)	Updates HYD-C-02. provided by Statewide Planning Branch in meme of July 31, 1992. Bulletin 160-93 data still preliminary.
HYD-C-05a	160-93 Ag 160-93 Ur	1990	1922-1992	1993(Oct)	Reflects final land use projections used in Bulletin 160-93. Flows in Sacramento River Basin were updated through 1992 using USGS reports. Telnet used to update San Joaquin River Basin data. CVP demands developed by Statewide Planning Branch.
HYD-C-05b	160-93 Ag	1990	1922-1992	1994(Apr)	Same as C05a except Oakdale and SSJID handled differently (no project water). Will affect IN82.
HYD-C-06a	160-93 Ag 160-93 Ur	1995	1922-1992	1993(Oct)	Reflects final land use projections used in Bulletin 160-93. Flows in Sacramento River Basin were updated through 1992 using USGS reports. Telnet used to update San Joaquin River Basin data. CVP demands developed by Statewide Planning Branch. Land use interpolated between 1990 level and 2000 level.
HYD-C-06b	160-93 Ag	1995	1922-1992	1994(Apr)	Same as C06a except Oakdale and SSJID handled differently (no built in project water in DA49). Will affect IN82.
HYD-C-07a	160-93 Ag 160-93 Ur	2000	1922-1992	1993(Oct)	Reflects final land use projections used in Bulletin 160-93. Flows in Sacramento River Basin were updated through 1992 using USGS reports. Telnet used to update San Joaquin River Basin data. CVP demands developed by Statewide Planning Branch. Increase in depletion due to wildlife refuges. Build in 155TAF for SEWD & CSJWCD.
HYD-C-07b	160-93 Ag	2000	1922-1992	1994(Apr)	Same as C07a except no project water built in DA49. No SEWD diversion. CSJWCD diversion limited to the firm of 49TAF. Will affect IN82 and IN98.
HYD-C-07c	160-93 Ag	2000	1922-1992	1994(Apr)	Same as C07b except SEWD and CSJWCD at 155TAF. Replaces C07a.
HYD-C-08a	160-93 Ag 160-93 Ur	2010	1922-1992	1993(Oct)	Reflects final land use projections used in Bulletin 160-93. Flows in Sacramento River Basin were updated through 1992 using USGS reports. Telnet used to update San Joaquin River Basin data. CVP demands developed by Statewide Planning Branch. Increase in depletion due to wildlife refuges.
HYD-C-08b	160-93 Ag	2010	1922-1992	1994(Apr)	Same as C08a except no project water built in DA49. No SEWD diversion. CSJWCD diversion limited to the firm of 49TAF. Will affect IN82 and IN98.
HYD-C-08c	160-93 Ag	2010	1922-1992	1994(Apr)	Same as C08b except SEWD and CSJWCD at 155TAF. Replaces C08a.

Table 3 (continued). Summary Of All Hydrologies Developed For Use In Planning Studies

HYD-C-09a	160-93 Ag 160-93 Ur	2020	1922-1992	1993(Oct)	Reflects final land use projections used in Bulletin 160-93. Flows in Sacramento River Basin were updated through 1992 using USGS reports. Telnet used to update San Joaquin River Basin data. CVP demands developed by Statewide Planning Branch. Increase in depletion due to wildlife refuges.
HYD-C-09b	160-93 Ag	2020	1922-1992	1994(Apr)	Same as C09a except no project water built in DA49. No SEWD diversion. CSJWCD diversion limited to the firm of 49TAF. Will affect IN82 and IN98.
HYD-C-09c	160-93 Ag	2020	1922-1992	1994(Apr)	Same as C09b except SEWD and CSJWCD at 155TAF. Replaces C09a.

Table 4. Total Crop And Urban Acreages For The 1990, 1995, 2000, 2010, And 2020 levels Of Development

All values in 1000 acres

					Increase Over the 1990 Level		
Level	Hydrology	Agricultural	Urban	Total	Agricultural	Urban	Total
1990	C05a	3804	571	4375	-----	-----	-----
1995	C06a	3785	661	4446	-19	90	71
2000	C07a	3758	750	4508	-46	179	133
2010	C08a	3753	905	4658	-51	334	283
2020	C09a	3720	1051	4772	-84	480	396
1995	C01a	3846	623	4469	42	52	94

Table 5. Crop And Urban Acreage By Depletion Area For The 1990 Level (C05a)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	45.4	16.7	2.1	168.8	0.5	26.6	27.8	52.9	13.7	28.9	31.5	414.9
2	ALFALFA	7.3	27.4	8.8	161.3	3.8	58.6	1.1	16.6	28.9	5.8	3.4	323.0
3	SUGAR BEETS	4.1	16.4	12.0	27.8	0.1	34.3	0.0	16.4	21.2	2.0	3.6	137.9
4	FIELD (1)	10.7	23.6	36.6	165.3	2.7	115.4	0.6	44.9	61.1	14.2	5.3	480.4
5	RICE	3.1	154.1	91.6	16.3	0.0	0.9	0.0	5.8	17.0	172.9	57.4	519.1
6	MISC TRUCK (2)	5.2	15.9	15.3	93.7	0.3	29.3	0.9	10.7	4.0	6.6	0.6	182.5
7	TOMATOES	0.0	22.9	31.3	48.8	0.2	41.9	0.0	12.9	45.8	1.4	1.4	206.6
8	ORCHARD (3)	71.0	32.3	24.3	328.1	3.9	20.9	3.6	44.3	25.4	122.1	10.7	686.6
9	GRAIN (4)	18.6	55.4	57.6	73.9	0.6	104.6	2.6	32.3	69.3	25.8	15.9	456.6
10	VINEYARD (5)	0.2	3.7	0.0	123.1	0.7	5.7	0.3	56.8	0.8	0.0	0.2	191.5
11	COTTON	0.0	0.0	0.0	178.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.2
12	CITRUS & OLIVES (6	10.1	1.4	0.0	8.9	0.0	0.0	0.9	0.0	0.0	5.2	0.0	26.5
	Ag Land	175.7	369.8	279.6	1394.2	12.8	438.2	37.8	293.6	287.2	384.9	130.0	3803.8
	Urban Land (7)	20.5	7.5	3.2	121.2	23.6	39.3	61.9	49.4	33.5	44.4	166.3	570.8
	Total Ag and Urban	196.2	377.3	282.8	1515.4	36.4	477.5	99.7	343.0	320.7	429.3	296.3	4374.6
	Safflower	1.5	4.5	20.8	0.2	0.0	32.9	0.0	0.7	13.7	3.8	2.2	80.3

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 6. Crop And Urban Acreage By Depletion Area For The 1995 Level (C06a)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	42.9	16.1	1.9	159.7	0.5	26.4	27.8	51.8	13.5	28.5	31.3	400.2
2	ALFALFA	7.9	27.8	8.4	152.3	3.6	56.3	1.2	15.9	28.9	5.6	3.4	311.1
3	SUGAR BEETS	4.3	16.4	11.8	26.2	0.1	33.4	0.0	16.4	21.2	2.0	3.5	135.1
4	FIELD (1)	12.6	24.9	37.1	166.8	2.7	115.5	0.6	43.8	60.8	14.6	5.1	484.4
5	RICE	3.4	154.0	91.3	15.4	0.0	0.9	0.0	5.6	13.0	171.8	56.6	511.7
6	MISC TRUCK (2)	7.2	17.6	15.7	101.5	0.4	32.2	1.1	11.8	3.9	6.7	0.6	198.5
7	TOMATOES	0.1	24.1	31.7	48.5	0.2	42.0	0.0	12.9	46.8	1.5	1.3	209.0
8	ORCHARD (3)	74.3	34.2	25.7	331.8	3.9	21.0	3.7	44.8	25.4	122.1	10.7	697.4
9	GRAIN (4)	17.9	52.1	53.6	71.8	0.6	102.5	2.6	31.2	68.0	24.7	15.4	440.2
10	VINEYARD (5)	0.3	4.3	0.0	123.3	0.7	5.7	0.4	57.2	0.8	0.0	0.2	192.7
11	COTTON	0.0	0.0	0.0	178.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.1
12	CITRUS & OLIVES (6	10.3	1.4	0.0	9.5	0.0	0.0	0.8	0.0	0.0	5.0	0.0	26.8
	Ag Land	181.0	372.6	277.1	1384.7	12.6	435.8	37.9	291.1	282.3	382.3	127.9	3785.1
	Urban Land (7)	22.9	8.5	3.7	138.8	30.5	46.3	72.5	56.8	39.8	49.3	191.6	660.5
	Total Ag and Urban	203.8	381.1	280.8	1523.5	43.1	482.1	110.4	347.9	322.1	431.6	319.4	4445.6
	Safflower	1.5	4.1	20.3	0.2	0	32.9	0	0.7	13.7	3.65	2.05	79.1

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 7. Crop And Urban Acreage By Depletion Area For The 2000 Level (C07a)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	40.4	15.5	1.7	150.6	0.4	26.2	27.7	50.6	13.3	28.0	31.1	385.5
2	ALFALFA	8.5	28.2	8.0	143.3	3.4	53.9	1.2	15.1	28.9	5.4	3.3	299.2
3	SUGAR BEETS	4.4	16.4	11.5	24.5	0.1	32.5	0.0	16.3	21.2	2.0	3.3	132.2
4	FIELD (1)	14.4	26.2	37.6	168.3	2.7	115.6	0.5	42.7	60.5	15.0	4.8	488.3
5	RICE	3.6	153.8	91.0	14.4	0.0	0.9	0.0	5.3	13.0	170.6	55.7	508.3
6	MISC TRUCK (2)	9.2	19.3	16.1	109.3	0.4	35.0	1.2	12.9	3.8	6.7	0.6	214.5
7	TOMATOES	0.2	25.2	32.1	48.2	0.2	42.1	0.0	12.9	45.8	1.6	1.1	209.4
8	ORCHARD (3)	77.5	36.1	27.1	335.4	3.9	21.1	3.7	45.3	15.3	122.1	10.7	698.2
9	GRAIN (4)	17.2	48.7	49.5	69.8	0.6	100.3	2.6	30.0	66.7	23.5	14.9	423.8
10	VINEYARD (5)	0.3	4.8	0.0	123.4	0.7	5.7	0.4	57.5	0.8	0.0	0.2	193.8
11	COTTON	0.0	0.0	0.0	178.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.0
12	CITRUS & OLIVES (6	10.4	1.3	0.0	10.0	0.0	0.0	0.7	0.0	0.0	4.7	0.0	27.1
	Ag Land	186.1	375.5	274.6	1375.2	12.4	433.3	38.0	288.6	269.3	379.6	125.7	3758.2
	Urban Land (7)	25.2	9.5	4.1	156.4	37.4	53.3	83.1	64.1	46.2	54.2	216.8	750.3
	Total Ag and Urban	211.3	385.0	278.7	1531.6	49.8	486.6	121.1	352.7	315.5	433.8	342.5	4508.5
	Safflower	1.5	3.7	19.8	0.2	0.0	32.9	0.0	0.7	13.7	3.5	1.9	77.9

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 8. Crop And Urban Acreage By Depletion Area For The 2010 Level (C08a)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	37.2	15.0	1.4	133.6	0.3	25.7	27.2	48.7	12.8	26.9	30.6	359.4
2	ALFALFA	9.2	28.8	7.2	126.3	3.0	49.0	1.2	13.5	28.9	5.0	3.2	275.3
3	SUGAR BEETS	4.2	16.3	11.0	21.5	0.1	30.5	0.0	14.2	21.2	2.0	2.8	123.8
4	FIELD (1)	16.9	28.2	38.9	164.9	2.7	115.5	0.4	42.6	60.0	15.2	4.3	489.6
5	RICE	4.0	153.8	89.7	12.4	0.0	0.9	0.0	4.9	13.0	168.3	52.3	499.3
6	MISC TRUCK (2)	12.3	22.8	16.6	125.3	0.4	40.4	1.5	15.2	3.5	6.7	0.6	245.3
7	TOMATOES	0.2	28.4	33.1	48.2	0.2	42.4	0.0	12.9	45.8	1.6	0.8	213.6
8	ORCHARD (3)	83.2	39.8	29.1	340.4	4.1	21.1	3.6	46.2	25.2	122.1	10.7	725.5
9	GRAIN (4)	16.0	44.6	48.5	73.8	0.6	98.3	2.6	29.3	69.7	22.9	13.9	420.2
10	VINEYARD (5)	0.3	6.0	0.0	123.4	0.7	5.8	0.4	58.3	0.8	0.1	0.2	196.0
11	COTTON	0.0	0.0	0.0	178.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.0
12	CITRUS & OLIVES (6	10.6	1.4	0.0	10.0	0.0	0.0	0.5	0.0	0.0	4.2	0.0	26.7
	Ag Land	194.1	385.1	275.5	1357.8	12.1	429.6	37.4	285.8	280.9	375.0	119.4	3752.7
	Urban Land (7)	29.6	11.1	4.6	195.8	48.1	62.0	98.5	76.5	59.5	62.7	257.0	905.4
	Total Ag and Urban	223.7	396.2	280.1	1553.6	60.2	491.6	135.9	362.3	340.4	437.7	376.4	4658.1
	Safflower	1.5	3.6	18.9	0.2	0.0	32.5	0.0	0.7	13.7	3.3	1.4	75.8

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 9. Crop And Urban Acreage By Depletion Area For The 2020 Level (C09a)

All values in 1000 acres

IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1 PASTURE	34.5	14.5	1.2	114.6	0.3	25.4	26.8	47.2	12.4	25.8	30.2	332.9
2 ALFALFA	9.5	29.1	6.9	110.3	2.6	44.2	1.1	12.2	28.9	4.7	3.1	252.6
3 SUGAR BEETS	4.0	15.6	10.3	19.5	0.1	28.7	0.0	12.8	21.2	2.0	2.5	116.7
4 FIELD (1)	18.1	29.7	40.4	162.9	2.7	115.8	0.4	42.6	59.8	15.4	3.8	491.6
5 RICE	4.5	153.8	88.8	11.4	0.0	0.9	0.0	4.5	13.0	165.9	48.6	491.4
6 MISC TRUCK (2)	13.9	26.0	17.1	140.3	0.5	46.0	1.6	17.1	3.4	6.7	0.5	273.1
7 TOMATOES	0.2	31.9	34.1	48.2	0.2	42.5	0.0	12.9	45.8	1.6	0.5	217.9
8 ORCHARD (3)	86.0	43.3	30.6	346.4	4.1	21.3	3.6	46.9	25.1	122.3	10.7	740.3
9 GRAIN (4)	14.0	39.5	47.7	72.8	0.6	97.3	2.6	29.0	64.5	22.3	9.6	399.9
10 VINEYARD (5)	0.4	6.7	0.0	124.4	0.7	5.8	0.4	58.9	0.8	0.1	0.2	198.4
11 COTTON	0.0	0.0	0.0	178.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.0
12 CITRUS & OLIVES (6	10.8	1.5	0.0	11.0	0.0	0.0	0.4	0.0	0.0	3.9	0.0	27.6
Ag Land	195.9	391.6	277.1	1339.8	11.8	427.9	36.9	284.1	274.9	370.7	109.7	3720.4
Urban Land (7)	34.1	13.2	5.1	235.2	58.6	67.3	114.4	97.1	61.4	67.9	297.1	1051.4
Total Ag and Urban	230.0	404.8	282.2	1575.0	70.4	495.2	151.3	381.2	336.3	438.6	406.8	4771.8
Safflower	1.5	3.5	18.1	0.2	0.0	32.1	0.0	0.7	13.7	3.1	1.0	73.9

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 10. Crop And Urban Acreage By Depletion Area For The 1995 Level (C01a and C01b)

All values in 1000 acres

IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1 PASTURE	42.4	15.3	2.0	160.8	0.2	29.2	32.3	46.2	15.0	25.9	31.7	401.0
2 ALFALFA	7.2	26.3	9.1	166.8	3.3	56.0	1.1	16.5	27.8	5.2	2.0	321.3
3 SUGAR BEETS	3.1	14.6	12.6	33.8	0.2	32.8	0.0	16.2	19.4	2.3	4.7	139.7
4 FIELD (1)	15.4	25.6	49.4	166.3	2.6	108.3	1.5	47.3	52.1	16.0	5.1	489.6
5 RICE	2.1	140.3	86.1	19.1	0.0	0.9	0.0	5.9	10.0	153.0	48.8	466.2
6 MISC TRUCK (2)	1.2	10.6	9.1	83.8	0.1	37.3	0.4	9.3	3.9	4.9	0.5	161.1
7 TOMATOES	0.0	35.2	31.4	42.4	0.1	41.8	0.0	13.9	41.5	1.1	1.4	208.8
8 ORCHARD (3)	70.3	32.2	24.0	332.2	5.6	22.0	3.8	42.7	23.5	121.7	10.9	688.9
9 GRAIN (4)	18.7	67.9	60.0	115.3	2.1	120.4	3.3	28.8	106.9	20.6	14.4	558.4
10 VINEYARD (5)	0.2	2.7	0.0	124.2	0.7	4.5	0.2	55.3	0.4	0.0	0.4	188.6
11 COTTON	0.0	0.0	0.0	197.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	197.4
12 CITRUS & OLIVES (6	10.3	0.0	0.0	8.5	0.0	0.0	0.9	0.0	0.0	5.1	0.0	24.8
Ag Land	170.9	370.7	283.7	1450.6	14.9	453.2	43.5	282.1	300.5	355.8	119.9	3845.8
Urban Land	24.3	9.3	3.6	119.8	21.4	62.3	63.4	50.0	38.2	50.5	180.9	623.4
Total Ag and Urban	195.2	380.0	287.3	1570.4	36.3	515.5	106.9	332.1	338.7	406.3	300.8	4469.2

Table 11. Change In Acreage For The 1990 Level (C05a) Compared To The 1995 Level (C01a/C01b)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	3.0	1.4	0.1	8.0	0.3	-2.6	-4.5	6.7	-1.3	3.0	-0.2	13.9
2	ALFALFA	0.1	1.1	-0.3	-5.5	0.5	2.6	0.0	0.1	1.1	0.6	1.4	1.7
3	SUGAR BEETS	1.0	1.8	-0.6	-6.0	-0.1	1.5	0.0	0.2	1.8	-0.3	-1.1	-1.8
4	FIELD (1)	-4.7	-2.0	-12.8	-1.0	0.1	7.1	-0.9	-2.4	9.0	-1.8	0.2	-9.2
5	RICE	1.0	13.8	5.5	-2.8	0.0	0.0	0.0	-0.1	7.0	19.9	8.6	52.9
6	MISC TRUCK (2)	4.0	5.3	6.2	9.9	0.2	-8.0	0.5	1.4	0.1	1.7	0.1	21.4
7	TOMATOES	0.0	-12.3	-0.1	6.4	0.1	0.1	0.0	-1.0	4.3	0.3	0.0	-2.2
8	ORCHARD (3)	0.7	0.1	0.3	-4.1	-1.7	-1.1	-0.2	1.6	1.9	0.4	-0.2	-2.3
9	GRAIN (4)	-0.1	-12.5	-2.4	-41.4	-1.5	-15.8	-0.7	3.5	-37.6	5.2	1.5	-101.8
10	VINEYARD (5)	0.0	1.0	0.0	-1.1	0.0	1.2	0.1	1.5	0.4	0.0	-0.2	2.9
11	COTTON	0.0	0.0	0.0	-19.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.2
12	CITRUS & OLIVES (6	-0.2	1.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.7
	Ag Land	4.8	-0.9	-4.1	-56.4	-2.1	-15.0	-5.7	11.5	-13.3	29.1	10.1	-42.0
	Urban Land (7)	-3.8	-1.8	-0.3	1.5	2.3	-23.0	-1.5	-0.6	-4.6	-6.1	-14.5	-52.6
	Total Ag and Urban	1.0	-2.7	-4.4	-54.9	0.2	-38.0	-7.2	10.9	-17.9	23.0	-4.4	-94.5

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 12. Change in Acreage For The 1995 Level (C06a) Compared To The 1995 Level (C01a/C01b)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	0.5	0.8	-0.1	-1.1	0.3	-2.8	-4.5	5.5	-1.5	2.6	-0.4	-0.8
2	ALFALFA	0.7	1.5	-0.7	-14.5	0.3	0.3	0.0	-0.6	1.1	0.4	1.3	-10.2
3	SUGAR BEETS	1.2	1.8	-0.8	-7.6	-0.1	0.6	0.0	0.2	1.8	-0.3	-1.3	-4.6
4	FIELD (1)	-2.9	-0.7	-12.3	0.5	0.1	7.2	-1.0	-3.5	8.7	-1.4	-0.0	-5.3
5	RICE	1.3	13.7	5.2	-3.8	0.0	0.0	0.0	-0.4	3.0	18.8	7.8	45.5
6	MISC TRUCK (2)	6.0	7.0	6.6	17.7	0.2	-5.1	0.7	2.5	0.0	1.8	0.1	37.4
7	TOMATOES	0.1	-11.2	0.3	6.1	0.1	0.2	0.0	-1.0	5.3	0.4	-0.1	0.2
8	ORCHARD (3)	4.0	2.0	1.7	-0.4	-1.7	-1.0	-0.1	2.1	1.9	0.4	-0.2	8.5
9	GRAIN (4)	-0.8	-15.9	-6.5	-43.5	-1.5	-18.0	-0.7	2.3	-38.9	4.0	1.0	-118.3
10	VINEYARD (5)	0.1	1.6	0.0	-1.0	0.0	1.2	0.2	1.9	0.4	0.0	-0.2	4.1
11	COTTON	0.0	0.0	0.0	-19.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.3
12	CITRUS & OLIVES (6	-0.1	1.4	0.0	0.9	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	2.0
	Ag Land	10.1	1.9	-6.6	-66.0	-2.3	-17.5	-5.6	9.0	-18.2	26.4	8.0	-60.7
	Urban Land (7)	-1.4	-0.8	0.1	19.1	9.2	-16.0	9.1	6.8	1.6	-1.2	10.7	37.2
	Total Ag and Urban	8.6	1.1	-6.5	-46.9	6.9	-33.4	3.5	15.7	-16.6	25.3	18.7	-23.6

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 13. Change In Acreage For The 2000 Level (C07a) Compared To The 1995 Level (C01a/C01b)

All values in 1000 acres

IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1 PASTURE	-2.0	0.2	-0.3	-10.2	0.2	-3.0	-4.6	4.4	-1.7	2.1	-0.6	-15.5
2 ALFALFA	1.3	1.9	-1.1	-23.5	0.1	-2.1	0.1	-1.4	1.1	0.2	1.3	-22.1
3 SUGAR BEETS	1.3	1.8	-1.1	-9.3	-0.1	-0.3	0.0	0.1	1.8	-0.3	-1.4	-7.5
4 FIELD (1)	-1.0	0.6	-11.8	2.0	0.1	7.3	-1.0	-4.6	8.4	-1.0	-0.3	-1.3
5 RICE	1.5	13.5	4.9	-4.7	0.0	0.0	0.0	-0.6	3.0	17.6	6.9	42.1
6 MISC TRUCK (2)	8.0	8.7	7.0	25.5	0.3	-2.3	0.8	3.6	-0.1	1.8	0.1	53.4
7 TOMATOES	0.2	-10.0	0.7	5.8	0.1	0.3	0.0	-1.0	4.3	0.5	-0.3	0.6
8 ORCHARD (3)	7.2	3.9	3.1	3.2	-1.7	-0.9	-0.1	2.6	-8.2	0.4	-0.2	9.3
9 GRAIN (4)	-1.5	-19.2	-10.5	-45.5	-1.5	-20.1	-0.7	1.2	-40.2	2.9	0.5	-134.6
10 VINEYARD (5)	0.1	2.1	0.0	-0.8	0.0	1.2	0.2	2.2	0.4	0.0	-0.2	5.2
11 COTTON	0.0	0.0	0.0	-19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.4
12 CITRUS & OLIVES (6	0.1	1.3	0.0	1.5	0.0	0.0	-0.2	0.0	0.0	-0.4	0.0	2.3
Ag Land	15.2	4.8	-9.1	-75.4	-2.5	-19.9	-5.5	6.5	-31.2	23.8	5.8	-87.6
Urban Land (7)	0.9	0.2	0.5	36.7	16.1	-9.0	19.7	14.1	8.1	3.8	36.0	126.9
Total Ag and Urban	16.1	5.0	-8.5	-38.7	13.5	-28.9	14.2	20.6	-23.1	27.5	41.8	39.4

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 14. Change In Acreage For The 2010 Level (C08a) Compared To The 1995 Level (C01a/C01b)

All values in 1000 acres

IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1 PASTURE	-5.2	-0.3	-0.6	-27.2	0.1	-3.5	-5.1	2.5	-2.2	1.0	-1.1	-41.6
2 ALFALFA	2.0	2.5	-1.9	-40.5	-0.3	-7.0	0.1	-3.0	1.1	-0.2	1.2	-46.0
3 SUGAR BEETS	1.1	1.7	-1.6	-12.3	-0.1	-2.3	0.0	-2.0	1.8	-0.3	-1.9	-15.9
4 FIELD (1)	1.5	2.6	-10.5	-1.4	0.1	7.2	-1.1	-4.7	7.9	-0.8	-0.8	0.0
5 RICE	1.9	13.5	3.6	-6.7	0.0	0.0	0.0	-1.0	3.0	15.3	3.5	33.1
6 MISC TRUCK (2)	11.1	12.2	7.5	41.5	0.3	3.1	1.1	5.9	-0.4	1.8	0.1	84.2
7 TOMATOES	0.2	-6.8	1.7	5.8	0.1	0.6	0.0	-1.0	4.3	0.5	-0.6	4.8
8 ORCHARD (3)	12.9	7.6	5.1	8.2	-1.5	-0.9	-0.2	3.5	1.7	0.4	-0.2	36.6
9 GRAIN (4)	-2.7	-23.3	-11.5	-41.5	-1.5	-22.1	-0.7	0.5	-37.2	2.3	-0.5	-138.2
10 VINEYARD (5)	0.1	3.3	0.0	-0.8	0.0	1.3	0.2	3.0	0.4	0.1	-0.2	7.4
11 COTTON	0.0	0.0	0.0	-19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.4
12 CITRUS & OLIVES (6	0.3	1.4	0.0	1.5	0.0	0.0	-0.4	0.0	0.0	-0.9	0.0	1.9
Ag Land	23.2	14.4	-8.2	-92.8	-2.8	-23.6	-6.1	3.7	-19.6	19.2	-0.5	-93.1
Urban Land (7)	5.3	1.8	1.1	76.1	26.8	-0.3	35.1	26.5	21.4	12.3	76.2	282.1
Total Ag and Urban	28.5	16.2	-7.1	-16.8	24.0	-23.9	29.0	30.2	1.8	31.4	75.6	189.0

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 15. Change In Acreage For The 2020 Level (C09a) Compared To The 1995 Level (C01a/C01b)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	-7.9	-0.8	-0.8	-46.2	0.1	-3.8	-5.5	1.0	-2.6	-0.1	-1.5	-68.1
2	ALFALFA	2.3	2.8	-2.2	-56.5	-0.7	-11.8	0.0	-4.3	1.1	-0.5	1.1	-68.7
3	SUGAR BEETS	0.9	1.0	-2.3	-14.3	-0.1	-4.1	0.0	-3.4	1.8	-0.3	-2.2	-23.0
4	FIELD (1)	2.7	4.1	-9.0	-3.4	0.1	7.5	-1.1	-4.7	7.7	-0.6	-1.3	2.0
5	RICE	2.4	13.5	2.7	-7.7	0.0	0.0	0.0	-1.4	3.0	12.9	-0.2	25.2
6	MISC TRUCK (2)	12.7	15.4	8.0	56.5	0.4	8.7	1.2	7.8	-0.5	1.8	0.0	112.0
7	TOMATOES	0.2	-3.3	2.7	5.8	0.1	0.7	0.0	-1.0	4.3	0.5	-0.9	9.1
8	ORCHARD (3)	15.7	11.1	6.6	14.2	-1.5	-0.7	-0.2	4.2	1.6	0.6	-0.2	51.4
9	GRAIN (4)	-4.7	-28.4	-12.3	-42.5	-1.5	-23.1	-0.7	0.2	-42.4	1.7	-4.8	-158.5
10	VINEYARD (5)	0.2	4.0	0.0	0.2	0.0	1.3	0.2	3.6	0.4	0.1	-0.2	9.8
11	COTTON	0.0	0.0	0.0	-19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.4
12	CITRUS & OLIVES (6	0.5	1.5	0.0	2.5	0.0	0.0	-0.5	0.0	0.0	-1.2	0.0	2.8
	Ag Land	25.0	20.9	-6.6	-110.8	-3.1	-25.3	-6.6	2.0	-25.6	14.9	-10.2	-125.4
	Urban Land (7)	9.8	3.9	1.6	115.5	37.3	5.0	51.0	47.1	23.3	17.5	116.3	428.1
	Total Ag and Urban	34.8	24.8	-5.0	4.7	34.2	-20.3	44.4	49.1	-2.4	32.4	106.1	302.7

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 16. Change In Acreage For The 1995 Level (C06a) Compared To The 1990 Level (C05a)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	-2.5	-0.6	-0.2	-9.1	-0.0	-0.2	-0.1	-1.1	-0.2	-0.4	-0.2	-14.7
2	ALFALFA	0.6	0.4	-0.4	-9.0	-0.2	-2.4	0.0	-0.8	0.0	-0.2	-0.1	-11.9
3	SUGAR BEETS	0.1	0.0	-0.3	-1.7	0.0	-0.9	0.0	-0.1	0.0	0.0	-0.1	-2.9
4	FIELD (1)	1.9	1.3	0.5	1.5	0.0	0.1	-0.0	-1.1	-0.3	0.4	-0.3	3.9
5	RICE	0.3	-0.2	-0.3	-0.9	0.0	0.0	0.0	-0.3	-4.0	-1.2	-0.9	-7.4
6	MISC TRUCK (2)	2.0	1.7	0.4	7.8	0.0	2.8	0.2	1.1	-0.1	0.1	0.0	16.0
7	TOMATOES	0.1	1.1	0.4	-0.3	0.0	0.1	0.0	0.0	1.0	0.1	-0.1	2.4
8	ORCHARD (3)	3.3	1.9	1.4	3.6	0.0	0.1	0.1	0.5	0.0	0.0	0.0	10.8
9	GRAIN (4)	-0.7	-3.4	-4.1	-2.1	0.0	-2.2	0.0	-1.1	-1.3	-1.2	-0.5	-16.5
10	VINEYARD (5)	0.1	0.5	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.0	0.0	1.2
11	COTTON	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
12	CITRUS & OLIVES (6	0.2	-0.0	0.0	0.5	0.0	0.0	-0.1	0.0	0.0	-0.3	0.0	0.3
	Ag Land	5.3	2.8	-2.5	-9.5	-0.2	-2.4	0.1	-2.5	-4.9	-2.6	-2.2	-18.7
	Urban Land (7)	2.4	1.0	0.4	17.6	6.9	7.0	10.6	7.4	6.3	4.9	25.3	89.7
	Total Ag and Urban	7.6	3.8	-2.1	8.0	6.7	4.6	10.7	4.9	1.4	2.3	23.1	71.0

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 17. Change In Acreage For The 2000 Level (C07a) Compared To The 1990 Level (C05a)

All values in 1000 acres

IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1 PASTURE	-5.0	-1.2	-0.4	-18.2	-0.1	-0.4	-0.1	-2.3	-0.4	-0.9	-0.4	-29.4
2 ALFALFA	1.2	0.8	-0.8	-18.0	-0.4	-4.7	0.1	-1.5	0.0	-0.4	-0.1	-23.8
3 SUGAR BEETS	0.3	0.0	-0.5	-3.3	0.0	-1.8	0.0	-0.1	0.0	0.0	-0.3	-5.7
4 FIELD (1)	3.7	2.6	1.0	3.0	0.0	0.2	-0.1	-2.2	-0.6	0.8	-0.5	7.9
5 RICE	0.5	-0.3	-0.6	-1.9	0.0	0.0	0.0	-0.5	-4.0	-2.3	-1.7	-10.8
6 MISC TRUCK (2)	4.0	3.4	0.8	15.6	0.1	5.7	0.3	2.2	-0.2	0.1	0.0	32.0
7 TOMATOES	0.2	2.3	0.8	-0.6	0.0	0.2	0.0	0.0	0.0	0.2	-0.3	2.8
8 ORCHARD (3)	6.5	3.8	2.8	7.3	0.0	0.2	0.1	1.0	-10.1	0.0	0.0	11.6
9 GRAIN (4)	-1.4	-6.7	-8.1	-4.1	0.0	-4.3	0.0	-2.3	-2.6	-2.3	-1.0	-32.8
10 VINEYARD (5)	0.1	1.1	0.0	0.3	0.0	0.0	0.1	0.7	0.0	0.0	0.0	2.3
11 COTTON	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
12 CITRUS & OLIVES (6	0.3	-0.1	0.0	1.1	0.0	0.0	-0.2	0.0	0.0	-0.5	0.0	0.6
Ag Land	10.4	5.7	-5.0	-19.0	-0.4	-4.9	0.2	-5.0	-17.9	-5.3	-4.3	-45.6
Urban Land (7)	4.7	2.0	0.9	35.2	13.8	14.0	21.2	14.7	12.7	9.8	50.5	179.5
Total Ag and Urban	15.1	7.7	-4.1	16.2	13.4	9.1	21.4	9.7	-5.2	4.5	46.2	133.9

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 18. Change In Acreage For The 2010 Level (C08a) Compared To The 1990 Level (C05a)

All values in 1000 acres

IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1 PASTURE	-8.2	-1.7	-0.7	-35.2	-0.2	-0.9	-0.6	-4.2	-0.9	-2.0	-0.9	-55.5
2 ALFALFA	1.9	1.4	-1.6	-35.0	-0.8	-9.6	0.1	-3.1	0.0	-0.8	-0.2	-47.7
3 SUGAR BEETS	0.1	-0.1	-1.0	-6.3	0.0	-3.8	0.0	-2.2	0.0	0.0	-0.8	-14.1
4 FIELD (1)	6.2	4.6	2.3	-0.4	0.0	0.1	-0.2	-2.3	-1.1	1.0	-1.0	9.2
5 RICE	0.9	-0.3	-1.9	-3.9	0.0	0.0	0.0	-0.9	-4.0	-4.6	-5.1	-19.8
6 MISC TRUCK (2)	7.1	6.9	1.3	31.6	0.1	11.1	0.6	4.5	-0.5	0.1	0.0	62.8
7 TOMATOES	0.2	5.5	1.8	-0.6	0.0	0.5	0.0	0.0	0.0	0.2	-0.6	7.0
8 ORCHARD (3)	12.2	7.5	4.8	12.3	0.2	0.2	0.0	1.9	-0.2	0.0	0.0	38.9
9 GRAIN (4)	-2.6	-10.8	-9.1	-0.1	0.0	-6.3	0.0	-3.0	0.4	-2.9	-2.0	-36.4
10 VINEYARD (5)	0.1	2.3	0.0	0.3	0.0	0.1	0.1	1.5	0.0	0.1	0.0	4.5
11 COTTON	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
12 CITRUS & OLIVES (6	0.5	0.0	0.0	1.1	0.0	0.0	-0.4	0.0	0.0	-1.0	0.0	0.2
Ag Land	18.4	15.3	-4.1	-36.4	-0.7	-8.6	-0.4	-7.8	-6.3	-9.9	-10.6	-51.1
Urban Land (7)	9.1	3.6	1.4	74.6	24.5	22.7	36.6	27.1	26.0	18.3	90.7	334.6
Total Ag and Urban	27.5	18.9	-2.7	38.2	23.8	14.1	36.2	19.3	19.7	8.4	80.1	283.5

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 19. Change In Acreage For The 2020 Level (C09a) Compared To The 1990 Level (C05a)

All values in 1000 acres

	IRRIGATED CROP	DA#10	DA#12	DA#15	DA#49	DA#51	DA#55	DA#58	DA#59	DA#65	DA#69	DA#70	TOTAL
1	PASTURE	-10.9	-2.2	-0.9	-54.2	-0.2	-1.2	-1.0	-5.7	-1.3	-3.1	-1.3	-82.0
2	ALFALFA	2.2	1.7	-1.9	-51.0	-1.2	-14.4	0.0	-4.4	0.0	-1.1	-0.3	-70.4
3	SUGAR BEETS	-0.1	-0.8	-1.7	-8.3	0.0	-5.6	0.0	-3.6	0.0	0.0	-1.1	-21.2
4	FIELD (1)	7.4	6.1	3.8	-2.4	0.0	0.4	-0.2	-2.3	-1.3	1.2	-1.5	11.2
5	RICE	1.4	-0.3	-2.8	-4.9	0.0	0.0	0.0	-1.3	-4.0	-7.0	-8.8	-27.7
6	MISC TRUCK (2)	8.7	10.1	1.8	46.6	0.2	16.7	0.7	6.4	-0.6	0.1	-0.1	90.6
7	TOMATOES	0.2	9.0	2.8	-0.6	0.0	0.6	0.0	0.0	0.0	0.2	-0.9	11.3
8	ORCHARD (3)	15.0	11.0	6.3	18.3	0.2	0.4	0.0	2.6	-0.3	0.2	0.0	53.7
9	GRAIN (4)	-4.6	-15.9	-9.9	-1.1	0.0	-7.3	0.0	-3.3	-4.8	-3.5	-6.3	-56.7
10	VINEYARD (5)	0.2	3.0	0.0	1.3	0.0	0.1	0.1	2.1	0.0	0.1	0.0	6.9
11	COTTON	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
12	CITRUS & OLIVES (6	0.7	0.1	0.0	2.1	0.0	0.0	-0.5	0.0	0.0	-1.3	0.0	1.1
	Ag Land	20.2	21.8	-2.5	-54.4	-1.0	-10.3	-0.9	-9.5	-12.3	-14.2	-20.3	-83.4
	Urban Land (7)	13.6	5.7	1.9	114.0	35.0	28.0	52.5	47.7	27.9	23.5	130.8	480.6
	Total Ag and Urban	33.8	27.5	-0.6	59.6	34.0	17.7	51.6	38.2	15.6	9.3	110.5	397.2

(1) corn + other field (Statewide Planning Branch), excludes safflower
(2) other truck (Statewide Planning Branch)
(3) almonds/pistachi + deciduos (Statewide Planning Branch)
(4) grain less double crop (Statewide Planning Branch), includes safflower
(5) grapes (Statewide Planning Branch)
(6) subtropical, includes kiwi & eucalyptus (Statewide Planning Branch)
(7) DAU 173 removed from DA#59 and added to DA#70 (Depletion Analysis)

Table 20. Feather River Service Area Normal Monthly Demands

All values in 1000 acre-feet

	Agriculture	M & I 1995 (a)	M & I 2000 (a)	M & I 2010 (a)	M & I 2020 (a)	Beneficial Use YD42	Additional Drought	Carriage Water	TOTAL FRSA YD67 (b) 1995	2000	2010	2020
Oct.	20	.2	.3	2.2	2.2	0	0	0	20.2	20.3	22.2	22.2
Nov.	0	.2	.3	2.2	2.2	17	0	0	17.2	17.3	19.2	19.2
Dec.	0	.2	.3	2.2	2.2	8	0	0	8.2	8.3	10.2	10.2
Jan.	0	.2	.3	2.2	2.2	2	0	0	2.2	2.3	4.2	4.2
Feb.	0	.2	.3	2.2	2.2	0	0	0	.2	.3	2.2	2.2
Mar.	4	.1	.2	1.1	1.1	0	0	0	4.1	4.2	5.1	5.1
Apr.	134	.2	.3	2.2	2.2	0	0	0	134.2	134.3	136.2	136.2
May	174	.3	.4	2.6	2.6	0	0	0	174.3	174.4	176.6	176.6
June	207	.6	.8	5.6	5.6	0	0	1	208.6	208.8	213.6	213.6
July	205	.7	.9	6.8	6.8	0	0	1	206.7	206.9	212.8	212.8
Aug.	159	6	.8	5.6	5.6	0	0	1	160.6	160.8	165.6	165.6
Sep.	63	.3	.3	2.2	2.2	0	0	1	64.3	64.3	66.2	66.2
Total	966	4.1	5.2	37.1	37.1	27	0	5	1000.8	1002.2	1034.1	1034.1

(a) M&I by Jan Rogers old urban Pattern.
(b) YD67 includes everything. For DA69 project water, exclude Beneficial Use.

Table 21. October Through January Totals for Releasing Duck Water In The FRSA

All values in 1000 acre-feet

Butte Creek Flows	Duck Water Releases
less than 30	40
30 to 130	26
greater than 130	16

Table 22. Feather River Service Area Deficiencies By Water Agency

AGENCY	NORMAL DIVERSION	ANNUAL DEFICIENCIES (IN TAF/YR) 25%	35%	40%	45%	50%
		Agricultural				
Joint Board (after 1980)*	550	138	193	220	248	275
(after 1980)	5	0	0	0	0	0
(Sutter)	50	13	18	20	23	25
* Includes Richvale, est as	90	22				45
Western Canal (Natural Rts)	150	38	53	60	68	75
(Stored Rts)	145	0	0	0	0	0
Garden (non-riparian)	13	3	5	5	6	7
(riparian)	5	0	0	0	0	0
Palermo Canal (riparian)	17.6	0	0	0	0	0
Plumas (non-riparian)	8	2	3	3	4	4
(riparian)	6	0	0	0	0	0
Thermalito ID (riparian)	8	0	0	0	0	0
Tudor (non-riparian)	5	1	2	2	2	3
Oswald (non-riparian)	3	1	1	1	1	2
AGRICULTURE TOTAL	966	196	275	311	352	391

			M&I Deficiency when Ag exceeds 100% in 7 years 30%	35%	40%	45%
Municipal & Industrial		(*)				
Butte County	1995 Level	1.2	.4	.4	.5	.5
	2000 Level	1.2	.4	.4	.5	.5
	2010 Level	27.5	8.3	9.6	11.0	12.4
	2020 Level	27.5	8.3	9.6	11.0	12.4
		(*)				
Yuba City	1995 Level	2.9	.9	1.0	1.2	1.3
	2000 Level	4.0	1.2	1.4	1.6	1.8
	2010 Level	9.6	2.9	3.4	3.8	4.3
	2020 Level	9.6	2.9	3.4	3.8	4.3
M & I TOTAL	1995 Level	4.1	1.3	1.4	1.7	1.8
	2000 Level	5.2	1.6	1.8	2.1	2.3
	2010 Level	37.1	11.2	13.0	14.8	16.7
	2020 Level	37.1	11.2	13.0	14.8	16.7

(*) From DWR Bul. 132-91, Table B-5B, 'Annual Quantities Delivered to each Contractor'.

Other Demand Deficiencies ('-' means increased over normal)

	Normal	25%	35%	40%	45%	50%
Beneficial Use and Duck Clubs	27	-10	-21	-32	-43	-53
Additional Drought Allowance	0	-35	-35	-35	-35	-35
Carriage Water	5	0	0	0	0	0
TOTAL FRSA	1011	.....				

DEFICIENCY SCHEDULE	1924	1929	1931	1933	1934	1939	1976	1977	1991	1992
Agricultural %	25	25	25	25	50	25	25	50	50	50
M & I %	0	0	0	0	0	0	0	0	0	0

Table 23. CVP Demands By Depletion Area

	SACRAMENTO RIVER DEMAND (IN TAF)	PROSIM 8/31/92	B160-93 1990	2000	2010	2020	
DA58	Project Clear Ck CSD	15.3	10	10	12	15	
(YD74)	Project Keswick CSD	0.5	0	1	1	1	
	Project Shasta Lake Area	1.0	1	1	1	1	
	Project Shasta PUD	2.8	3	3	3	3	
	Project Shasta Co	5.0	1	1	3	5	
	Project Mountain Gate.....	--	0	1	1	1	
.35							
	Project City of Redding (M&I)	3.2	0	0	0	0	
	Base City of Redding (M&I)	17.8	13	15	15	15	
	Project Redding/Buckeye	6.1	1	2	3	3	
	Base Bella Vista (Cow Creek).....	0.0	0	0	0	0	
	Project Bella Vista	24.0	20	20	20	20	
	Project Anderson Cottonwood	10.0	0	0	0	0	
	Base Anderson Cottowood	165.0	143	143	143	143	bz
	Base Sac. Water Users	1.1	1	1	1	1	
	Project Sac. Water Users	1.7	2	2	2	2	
	Subtotal ...	253.5	195	200	205	210	
		78 (less 175)					
DA10	Project Corning ..... Node 8	43.8	39	39	39	39	bz
	Corning losses.....	--	6	6	6	6	
(YD13)	Project Stony Creek	0.0	--	--	--	--	
	Base Stony Creek	0.0	--	--	--	--	
Kirkwood+Tehama —	Project Tehama-Colusa Canal Node 6	2.5	3	3	3	3	bz
	Base Sac Water Users ..Node 6....	6.1	6	6	6	6	bz
	Project Sac. Water Users .Node 6.	1.0	1	1	1	1	bz
	Subtotal ...	53.4	55	55	55	55	
	???						
DA15	Project Feather WD	20.0	17	17	17	17	use 20 bz
(YD32)	Base Sac. Water Users ...Node 7.	600.7	600	600	600	600	bz
	Project Sac. Water Users .Node 7	196.6	197	197	197	197	bz
	Subtotal ...	817.3	814	814	814	814	
DA12	DA10 GCID Base	720.0	720	720	720	720	bz
(YD79)	DA10 GCID Project	105.0	105	105	105	105	bz
	DA10 Tehama-Colusa Project	283.7	211	218	225	231	bz
	DA10 Tehama-Colusa Losses		10	10	10	10	bz
	DA15 Provident Base	49.7	40	40	40	40	bz
	DA15 Provident Project	5.0	0	0	0	0	bz
	DA15 Princ-C-G Base	52.8	53	53	53	53	bz
	DA15 Princ-C-G Project	15.0	3	3	3	3	bz
	DA15 Maxwell Base	12.0	12	12	12	12	bz
	DA15 Maxwell Project	6.0	6	6	6	6	bz
	Subtotal ...	1249.2	1160	1160	1160	1160	
DA70	Base Sac Water Users	130.0	130	130	130	130	bz
(YD44)	Project Sac. Water Users	28.6	29	29	29	29	bz
	City of Sac. from Sac. River	-	48	54	62	64	bz
	Subtotal ...	158.6	207	213	221	223	
DA65	Base City of West Sac.	13.9	5	5	5	5	bz
(YD44)	Project City of West Sac.	9.7	0	0	0	0	bz
	Base Sac. Water Users	62.9	63	63	63	63	bz
	Project Sac. Water Users	3.1	3	3	3	3	bz
	Subtotal ...	89.6	71	71	71	71	
	SUBTOTAL SACRAMENTO RIVER BASE + PROJECT	2621.6	2502	2513	2526	2533	

Sac Misc Natomas Pleasant Grove

Node 50

Table 23 (continued). CVP Demands By Depletion Area

Not Used in Depletion Analysis ? Refuges ?						
Sutter NWR, Node 7.....	23.5	9	23	23	23	
Gray Lodge WMA, Node 7.....	13.4	13	13	13	13	
Sutter Butte MWC, Node 7.....	18.5	18	18	18	18	
Butte Slough WD, Node 7.....	4.2	4	4	4	4	
Colusa Drain MWC, Node 9.....	57.5	58	58	58	58	
Sacramento NWR, Node 9.....	46.4	43	50	50	50	
Delevan NWR, Node 9.....	21.0	24	30	30	30	
Colusa NWR, Node 9.....	25.0	18	25	25	25	
Misc. Refuges ??.....	--	59	59	59	59	
SUBTOTAL SACRAMENTO RIVER REFUGES	209.5	246	280	280	280	
Fish Facilities (T-C ?).....	--	15	15	15	15	bz
TOTAL SACRAMENTO RIVER DEMANDS.....	2831.1	2666	2808	2821	2828	
AMERICAN RIVER DEMANDS (IN TAF)	PROSIM 8/31/92	<----------B160-93----------> 1990	2000	2010	2020	
Folsom Inflow						
El Dorado (SOFAR)	0.0	0	0	0	0	
Placer Co. Water Agency (Wt/Rts)..	10.0	11	12	12	15	bz
Placer Co. Water Agency (Project).	0.0	--	--	--	--	
SUBTOTAL FOLSOM INFLOW	10.0	11	12	12	15	
Folsom Lake						
El Dorado	7.6	2	3	4	5	
Roseville	25.0	15	16	16	17	bz
San Juan Suburban Project.....	11.2	18	19	19	21	bz
North Fork Ditch (San Juan).....	33.0	33	33	33	33	
City of Folsom W/R	22.0	8	8	9	10	bz
City of Folsom Project	--	0	0	0	0	
Folsom Prison.....	4.0	4	4	4	4	bz (included in
Northridge	--	10	10	10	10	city of
Additional North Area	--	0	10	70	90	Folsom)
SUBTOTAL FOLSOM LAKE	102.8	90	103	165	190	
Folsom South Canal						
Other DAU 180.....	--	14	14	14	14	DAU180
Southern CA Wtr Co.....	10.0	10	10	10	10	bz
SMUD (Water Rights)	15.0	15	15	15	15	DAU180 use 20 bz
SMUD Project	5.0	2	24	24	24	DAU180
EBMUD	0.0	0	0	0	0	bz
Losses	5.0	5	5	5	5	bz
SUBTOTAL FOLSOM SOUTH CANAL	35.0	46	68	68	68	
Lower American River						
City of Sacramento American River	85.0	48	54	62	64	bz
(*) City of Sacramento (Water Rts) ...	140.0					
City of Sacramento (Project)	90.0					
Total City of Sacramento.....	230.0					
(Combined demand on both American & Sacramento Rivers Assume 1/2 American R., 1/2 Sacramento R.						
Carmichael ID	15.0	15	15	15	15	bz
SUBTOTAL LOWER AMERICAN RIVER	100.0	63	69	77	79	
TOTAL AMERICAN RIVER DEMANDS	247.8	210	252	322	352	

Table 23 (continued). CVP Demands By Depletion Area

STANISLAUS RIVER DEMANDS (IN TAF)	PROSIM 8/31/92	<----------B160-93----------> 1990	2000	2010	2020	
Stanislaus River CVP Project Water						
Melones Direct Lake	6	6	6	6	6	
Stockton East.....	--	0	75	75	75	DAU182
Central San Joaquin WD.....	--	0	80	80	80	DAU182
SUBTOTAL.....	6	6	161	161	161	

DELTA EXPORTS (IN TAF)	PROSIM 8/31/92	<----------B160-93----------> 1990	2000	2010	2020	
DELTA MENDOTA CANAL						
Node 45 (DMC above O'neill)	272.9					
Node 47 (DMC below O'neill)	161.2					
Node 48 Patterson WD	6.0					
SUBTOTAL DMC PROJECT.....	440.1	492	492	492	492	
O'Neill Forebay.....	--	28	28	28	28	
less Refuges.....	--	-45	-45	-45	-45	
DMC PROJECT.....	--	475	475	475	475	
Node 48 Exchange Contractors	624.0					
Node 53 CCID Exchange	216.0					
SUBTOTAL DMC EXCHANGE.....	840.0	--	--	---	--	
SUBTOTAL SJR & MENDOTA POOL.....	---	804	804	804	804	
less refuges		-125	-125	-125	-125	
SJR & MENDOTA POOL.....	--	679	679	679	679	
SCHEDULE II.....	37.0	0	0	0	0	
CVP REFUGE WATER.....	161.1	170	170	170	170	
Node 54 Mendota Pool Users						
Westlands.....	50.0					
Fresno Slough.....	4.0					
James ID.....	35.3					
Traction Ranch (Casper).....	5.2					
Tranquility.....	13.8					
Dudley (4448A).....	--					
Misc.....	.3					
MENDOTA POOL AGR. + M&I.....	108.6	130	130	130	130	
Node 52 (Upper DMC Losses)	18.5					
Node 55 (Lower DMC Losses)	101.4					
SUBTOTAL DMC LOSSES.....	119.9	42	42	42	42	bz
TOTAL DELTA MENDOTA CANAL	1706.7	1496	1496	1496	1496	
SAN LUIS CANAL						
San Luis WD (AG) DA49	60.0					
Panoche (AG) DA49	67.0					
Pacheco (AG) DA49	10.8					
Grasslands DA49	3.5	--	--	--	--	
State Mendota MWR DA49	2.2	--	--	--	--	
SAN JOAQUIN BASIN SUBTOTAL.....	143.5	130	130	130	130	
Misc. DA60	0.3					
Tulare Basin (M&I) DA60	16.5					
Westlands WD DA60	1100.0					
Losses	59.0					
TULARE BASIN SUBTOTAL.....	1175.8	1317	1317	1317	1317	
TOTAL SAN LUIS CANAL	1319.3	1447	1447	1447	1447	

Table 23 (continued). CVP Demands By Depletion Area

Node 34	**SAN FELIPE UNIT**					
	San Benito Co. WD (M&I)	8.2				
	San Benito Co. WD (AG)	35.6				
	Santa Clara WD (M&I)	119.4	95	105	115	115	DAU 173
	Santa Clara WD (AG)	33.1	30	30	35	38	DAU 173
	Pajaro Valley (AG)	19.9				
	Losses					
	TOTAL SAN FELIPE	216.2	125	135	150	153	
Node 37	**CROSS VALLEY CANAL**					
	Cross Valley Canal (AG)	128.0				
	Refuges (AG)	11.2				
	TOTAL CROSS VALLEY CANAL	139.2	72	72	72	72	bz
	TOTAL TRACY PUMPING	3381.4	3069	3107	3122	3125	
Node 29	**CONTRA COSTA CANAL**					
	Contra Costa WD	140.0	130	145	156	162	DAU 173
	Contra Costa WD	--	4	4	4	4	DAU 185
	Contra Costa WD	--	17	17	17	17	DAU 192
	Losses		--	--	--	--	
	TOTAL CONTRA COSTA CANAL	140.0	151	166	177	183	
	TOTAL DELTA EXPORT with losses.....	3521.4	3220	3273	3299	3308	

Table 23 (continued). CVP Demands By Depletion Area

B160-93 REFUGE WATER:

	1990 Normalized	2000-2020
San Joaquin & Mendota Pool:		
Grasslands WD	40.6	Same for all levels
Other Grasslands F&G	27.9	
Mendota NWR	16.6	
San Luis NWR	20.9	
Kesterson NWR	6.6	
Los Banos NWR	7.1	
Mendota WMA	0	
Other	5.3	
Subtotal	125	
Delta-Mendota Canal		
Grasslands WD	14.4	
Kesterson NWR	6.8	
Volta WMR	12.4	
Other	11.0	
Subtotal	44.6	
Total Refuges	170	

DMC and Mendota Pool Refuges	1995 PROSIM	HISTORIC DELIVERIES TO REFUGES (USBR Rept of Oper) 1984	1985	1986	1987	1988	1989	1990 NORMALIZED
		(in TAF/yr)						
Grasslands	47.8	14.3	24.1	41.3	47.3	44.4	39.8	40
North Grasslands	8.5	--	--	15.5	6.2	9.0	8.8	9
State of Calif (Mendota WMR)	18.5	16.9	18.0	15.5	13.7	19.0	20.7	20
Volta	16.0	--	--	--	--	3.4	22.5	22
Los Banos	12.7	0	0	5.6	4.1	7.4	4.2	4
Kesterson NWR	10.0	0	1.6	4.6	4.4	3.8	4.7	5
Kesterson Mitigation	12.0							
San Luis NWR	19.0	0	0	11.1	13.0	15.1	16.9	16
San Luis Expansion	16.6							
Total DMC Refuges	161.1	31.2	43.7	93.6	88.7	87.0	117.6	116

US FISH & WILDLIFE (ed. 1986)
Dependable Water Supply Needs by Levels

Level 1 = Existing Firm Supply
Level 2 = Current average annual water deliveries
Level 3 = Full use of existing development
Level 4 _ Optimum management

LEVEL:	1	2	3	4
Grasslands RCD	50	125	180	180
Mendota WMA	18	18	24	30
Volta WMA	10	10	13	16
Los Banos WMA	6	17	22	25
Kesterson NWR	4	4	10	10
San Luis NWR	0	13	19	19
	88	187	268	280

PROSIM 8/31/92 DATA

Grasslands	47.8
North Grasslands	8.5
State of Calif (Mendota WMR)	18.5
Volta	16.0
Los Banos	12.7
Kesterson NWR	10.0
Kesterson Mitigation	12.0
San Luis NWR	19.0
San Luis Expansion	16.6
PROSIM TOTAL	161.1

Table 23 (continued). CVP Demands By Depletion Area

TOTAL CVP (IN TAF)	PROSIM 8/31/92	<----------B160-93----------> 1990	2000	2010	2020
CENTRAL VALLEY SUMMARY					
Sacramento River Irrigation Deliveries	2622	2486	2497	2510	2517
" " Losses.....	--	16	16	16	16
" " Refuges.....	210	246	280	280	280
SACRAMENTO RIVER TOTAL.....	2831	2748	2793	2806	2813
American River Demands	243	205	247	317	347
" " Losses.....	5	5	5	5	5
AMERICAN RIVER TOTAL.....	248	210	252	322	352
SAN JOAQUIN RIVER BASIN					
Delta Mendota Canal	440	475	475	475	475
DMC O'Neill Forebay	--	28	28	28	28
Wildlife Refuges	--	45	45	45	45
DMC Losses	120	42	42	42	42
Madera Canal	486	330	330	330	330
Madera Losses	--	1	1	1	1
San Luis Canal	144	130	130	130	130
SJR Exchange, Mendota Pool	840	679	679	679	679
Wildlife Refuges	--	125	125	125	125
SJR & Mendota Pool Losses	--	20	20	20	20
Stanislaus	6	6	161	161	161
SUBTOTAL	2218	1881	2036	2036	2036
DMC Schedule II	37	--	--	--	--
TULARE BASIN					
Cross Valley Canal	139	72	72	72	72
Friant-Kern	1694	1142	1142	1142	1142
Friant-Kern Losses	--	7	7	7	7
San Luis Canal	1176	1258	1258	1258	1258
San Luis Canal Losses	--	59	59	59	59
SJR Mendota Pool	109	130	130	130	130
SUBTOTAL	3118	2668	2668	2668	2668
Contra Costa Canal Demand	140	149	164	175	181
Contra Costa Losses	--	2	2	2	2
San Felipe Demand	216	125	135	150	153
TOTAL CVP DEMANDS	8787	7783	8050	8159	8205

Table 24. Average Inflow To The Delta For The Period 1922-92 By Component
All values in 1000 acre-feet

DA		1995 C01A	1990 C05B	1995 C06B	2000 C07B	2010 C08B	2020 C09B
62	IN3	261	261	261	261	261	261
	IN4	5507	5507	5507	5507	5507	5507
	PQ62	5768	5768	5768	5768	5768	5768
58	IN73	548	550	550	550	550	550
	IN74	1556	1551	1559	1568	1580	1592
	-YD74	-223	-203	-215	-228	-244	-260
	RF58	58	53	56	59	63	67
	NET CH.	1939	1951	1950	1949	1949	1949
	PQ 58	7707	7719	7718	7717	7717	7717
10	IN75	202	202	202	202	202	202
	IN76	372	372	372	372	372	372
	IN77	1444	1463	1462	1462	1465	1467
	-YD76	-12	-3	-3	-3	-3	-3
	-YD77	-1476	-1538	-1560	-1580	-1619	-1642
	RF10	125	128	131	135	141	143
	NET CH.	655	624	604	588	558	539
	PQ 10	8362	8343	8322	8305	8275	8256
15	IN30	576	556	557	558	558	559
	-YD30	-1043	-1058	-1060	-1063	-1065	-1070
	RF15	174	174	176	176	177	178
	-YD66	-98	-97	-96	-96	-96	-96
	NET CH	-391	-425	-423	-425	-426	-429
	PQ 15	7971	7918	7899	7880	7849	7827
69	IN06	3850	3845	3845	3845	3845	3845
	IN07	125	125	125	125	125	125
	IN37	2870	2863	2866	2841	2844	2846
	YD31	164	162	162	162	162	162
	-YD37	-1363	-1457	-1456	-1455	-1450	-1440
	-YD42	-43	-42	-42	-43	-42	-42
	RF69	330	348	348	349	349	348
	PQ 69	5933	5844	5848	5824	5833	5844
70	IN17	1380	1380	1380	1380	1380	1380
	IN08	1301	1301	1301	1301	1301	1301
	IN09	8	8	8	8	8	8
	IN43	1010	1018	1038	1015	1093	1083
	-YD43	-1697	-1689	-1688	-1642	-1684	-1639
	-YD44	-717	-755	-783	-812	-845	-876
	RF70	209	217	225	232	242	251
	NET CH	1494	1480	1481	1482	1495	1508
SAC R. INFLOW		15398	15242	15228	15186	15177	15179
YOLO INFLOW (IN55)		2088	2061	2060	2058	2058	2058
EASTSIDE STR (IN98)		828	821	823	866	870	873
	IN10	1048	1048	1048	1048	1048	1048
	IN51	35	35	35	35	35	35
	IN80	148	148	148	148	148	148
	-YD51	-576	-575	-575	-575	-575	-575
	RF51	69	69	69	69	69	69
	-YD85	0	0	0	-43	-43	-43
	-YD80	-50	-50	-50	-50	-50	-50
	RF80	8	8	8	8	8	8
	IN82	1644	1620	1638	1595	1632	1658
	IN89	112	98	98	98	98	98
SAN JOAQUIN		2440	2403	2421	2334	2371	2398
DELTA INFLOW		20754	20528	20533	20446	20479	20508

Table 25. Average Inflow To The Delta For the Period 1928-34 By Component
All values in 1000 acre-feet

DA		1995 C01A	1990 C05B	1995 C06B	2000 C07B	2010 C08B	2020 C09B
62	IN3	94	94	94	94	94	94
	IN4	3623	3623	3623	3623	3623	3623
	PQ62	3717	3717	3717	3717	3717	3717
58	IN73	221	221	221	221	221	221
	IN74	1032	1030	1036	1044	1054	1065
	-YD74	-222	-204	-216	-232	-249	-267
	RF58	63	58	58	64	68	73
	NET CH.	1094	1105	1099	1097	1094	1092
	PQ 58	4811	4822	4816	4814	4811	4809
10	IN75	110	110	110	110	110	110
	IN76	160	160	160	160	160	160
	IN77	756	769	758	757	760	761
	-YD76	0	0	0	0	0	0
	-YD77	-1417	-1484	-1484	-1517	-1548	-1566
	RF10	135	139	139	145	152	154
	NET CH.	-256	-306	-317	-345	-366	-381
	PQ 10	4555	4516	4499	4468	4445	4428
15	IN30	280	275	280	281	281	281
	-YD30	-935	-931	-932	-933	-933	-937
	RF15	184	184	184	184	184	184
	-YD66	-19	-24	-18	-18	-18	-18
	NET CH	-490	-496	-486	-486	-486	-490
	PQ 15	4065	4020	4013	3983	3959	3938
69	IN06	2427	2427	2427	2427	2427	2427
	IN07	103	103	103	103	103	103
	IN37	1572	1567	1570	1548	1545	1544
	YD31	117	117	117	117	117	117
	-YD37	-1389	-1473	-1473	-1472	-1467	-1458
	-YD42	-154	-152	-152	-155	-151	-150
	RF69	365	383	383	385	386	385
	PQ 69	3041	2972	2975	2953	2958	2968
70	IN17	888	888	888	888	888	888
	IN08	842	842	842	842	842	842
	IN09	3	3	3	3	3	3
	IN43	916	921	940	934	995	1001
	-YD43	-201	-188	-188	-160	-188	-160
	-YD44	-695	-775	-806	-837	-872	-905
	RF70	220	228	237	244	255	264
	NET CH	1973	1919	1916	1914	1923	1933
SAC R. INFLOW		9079	8911	8891	8850	8842	8839
YOLO INFLOW (IN55)		251	243	245	249	252	255
EASTSIDE STR (IN98)		355	361	365	373	379	389
	IN10	682	682	682	682	682	682
	IN51	13	13	13	13	13	13
	IN80	124	124	124	124	124	124
	-YD51	-563	-563	-563	-563	-563	-563
	RF51	66	66	66	66	66	66
	-YD85	0	0	0	-39	-39	-39
	-YD80	-48	-48	-48	-48	-48	-48
	RF80	8	8	8	8	8	8
	IN82	878	879	881	865	868	874
	IN89	19	19	19	19	19	19
SAN JOAQUIN		1179	1180	1182	1126	1130	1135
DELTA INFLOW		10862	10692	10683	10598	10603	10622

Table 26. Average Annual Projected Diversion Requirement For The Period 1922-92

All values in 1000 Acre-feet

	OLD 1995 C1	1990C5A	1995C6A	2000C7A	2010C8A	2020C9A
DA 58	215	208	220	234	249	265
DA 10	572	558	572	586	611	622
DA 15	788	815	816	818	820	824
NCP	1575	1581	1608	1638	1680	1711
DA 12	1271	1258	1275	1291	1328	1360
DA 69	1391	1493	1492	1491	1485	1476
DA 70	759	760	788	817	850	881
Sac. R.	4996	5092	5163	5237	5343	5428
DA 65	586	576	581	586	592	597
DA 59	735	756	758	760	761	775
DA 49	3999	4061	4024	3988	3914	3849
DA 51	78	67	74	82	94	106
above Delta	10394	10552	10600	10653	10704	10755
DELTA (1)	1684	1703	1700	1707	1699	1693
TOTAL	12078	12255	12300	12360	12403	12448

(1) Delta = Total Water Requirement, includes CU of precip.

Table 27. Projected Irrigated And Urban Land Use For Bulletin 160-93

All values in 1000 acres

	OLD 1995 C1	1990C5A	1995C6A	2000C7A	2010C8A	2020C9A
DA 58	107	100	110	121	136	151
DA 10	195	196	204	211	224	230
DA 15	287	283	281	279	280	282
NCP	589	579	595	611	640	663
DA 12	380	377	381	385	396	405
DA 69	406	429	432	434	438	438
DA 70	301	296	319	342	376	407
Sac. R.	1676	1681	1727	1772	1850	1913
DA 65	339	317	326	330	336	321
DA 59	332	343	348	353	362	381
DA 49	1570	1516	1524	1532	1554	1575
DA 51	36	36	43	50	60	70
above Delta	3953	3893	3968	4037	4162	4260
DELTA(1)	516	478	482	487	492	495
TOTAL	4469	4371	4450	4524	4654	4755

(1) Delta = Total Water Requirement - Precipitation

Table 28. Average Annual Projected Rate Of Diversion For The Period 1922-92

All values in feet

	OLD 1995 C1	1990C5A	1995C6A	2000C7A	2010C8A	2020C9A
DA 58	2.01	2.08	2.00	1.93	1.83	1.75
DA 10	2.93	2.85	2.80	2.78	2.73	2.70
DA 15	2.75	2.88	2.90	2.93	2.93	2.92
NCP	2.67	2.73	2.70	2.68	2.63	2.58
DA 12	3.34	3.34	3.35	3.35	3.35	3.36
DA 69	3.43	3.48	3.45	3.44	3.39	3.37
DA 70	2.52	2.57	2.47	2.39	2.26	2.16
Sac. R.	2.98	3.03	2.99	2.96	2.89	2.84
DA 65	1.73	1.82	1.78	1.78	1.76	1.86
DA 59	2.21	2.20	2.18	2.15	2.10	2.03
DA 49	2.55	2.68	2.64	2.60	2.52	2.44
DA 51	2.17	1.86	1.72	1.64	1.57	1.51
above Delta	2.63	2.71	2.67	2.64	2.57	2.52
DELTA	3.26	3.56	3.53	3.51	3.45	3.42
TOTAL	2.70	2.80	2.76	2.73	2.67	2.62

Table 29. Average Annual Projected Return Flow For The Period 1922-92

All values in 1000 acre-feet

	OLD 1995 C1	1990C5A	1995C6A	2000C7A	2010C8A	2020C9A
DA 58	54	53	56	59	63	67
DA 10	132	128	131	135	141	143
DA 15	170	174	176	176	177	178
NCP	356	355	363	370	381	388
DA 12	275	273	278	282	293	302
DA 69	330	348	348	349	349	348
DA 70	216	217	225	232	242	251
Sac. R.	1177	1193	1214	1233	1265	1289
DA 65	24	23	23	24	24	24
DA 59	87	90	90	90	90	92
DA 49	449	459	453	447	436	428
DA 51	9	7	8	9	10	11
above Delta	1746	1772	1788	1803	1825	1844
DELTA (1)	808	808	808	808	808	808
TOTAL	2554	2580	2596	2611	2633	2652

(1) Delta = Total Basin Precipitation

Table 30. Average Anuual Projected Depletion For The Period 1922-92

All values in1000 acre-feet

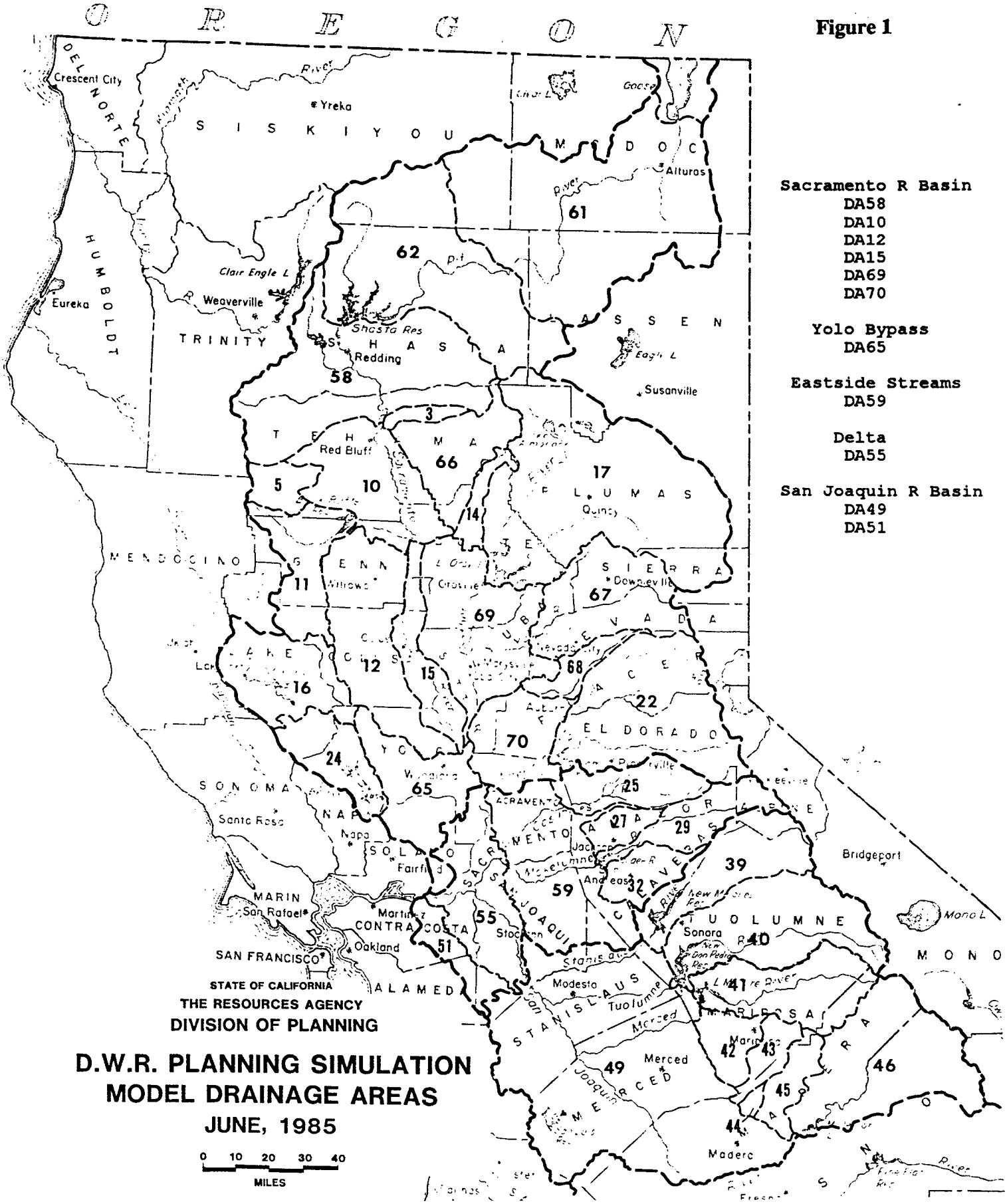
	OLD 1995 C1	1990C5A	1995C6A	2000C7A	2010C8A	2020C9A
DA 58	160	155	164	175	186	199
DA 10	441	430	441	451	470	479
DA 15	618	640	641	642	644	646
NCP	1219	1225	1246	1268	1300	1324
DA 12	996	985	997	1008	1035	1058
DA 69	1060	1145	1144	1142	1136	1127
DA 70	543	543	563	585	607	630
Sac. R.	3818	3898	3950	4003	4078	4139
DA 65	562	553	558	563	568	573
DA 59	647	667	668	670	671	682
DA 49	3550	3602	3571	3541	3477	3422
DA 51	69	60	66	73	84	95
above Delta	8646	8780	8813	8850	8878	8911
DELTA	876	895	892	899	891	885
TOTAL	9522	9675	9705	9749	9769	9796

Table 31. Average Annual Rate of Depletion For The Period 1922-92

All values in Feet

	OLD 1995 C1	1990C5A	1995C6A	2000C7A	2010C8A	2020C9A
DA 58	1.50	1.55	1.49	1.45	1.37	1.32
DA 10	2.26	2.19	2.16	2.14	1.10	2.08
DA 15	2.15	2.26	2.28	2.30	2.30	2.29
NCP	2.07	2.12	2.09	2.08	2.03	2.00
DA 12	2.62	2.61	2.62	2.62	2.61	2.61
DA 69	2.61	2.67	2.65	2.63	2.59	2.57
DA 70	1.80	1.83	1.76	1.71	1.61	1.55
Sac. R.	2.28	2.32	2.29	2.26	2.20	2.16
DA 65	1.66	1.74	1.71	1.71	1.69	1.79
DA 59	1.95	1.94	1.92	1.90	1.85	1.79
DA 49	2.26	2.38	2.34	2.31	2.24	2.17
DA 51	1.92	1.67	1.53	1.46	1.40	1.36
above Delta	2.19	2.26	2.22	2.19	2.13	2.09
DELTA	1.70	1.87	1.85	1.85	1.81	1.79
TOTAL	2.13	2.21	2.18	2.15	2.10	2.06

Figure 1



Sacramento R Basin
DA58
DA10
DA12
DA15
DA69
DA70

Yolo Bypass
DA65

Eastside Streams
DA59

Delta
DA55

San Joaquin R Basin
DA49
DA51

Consumptive Use & Depletion Analysis Flowchart

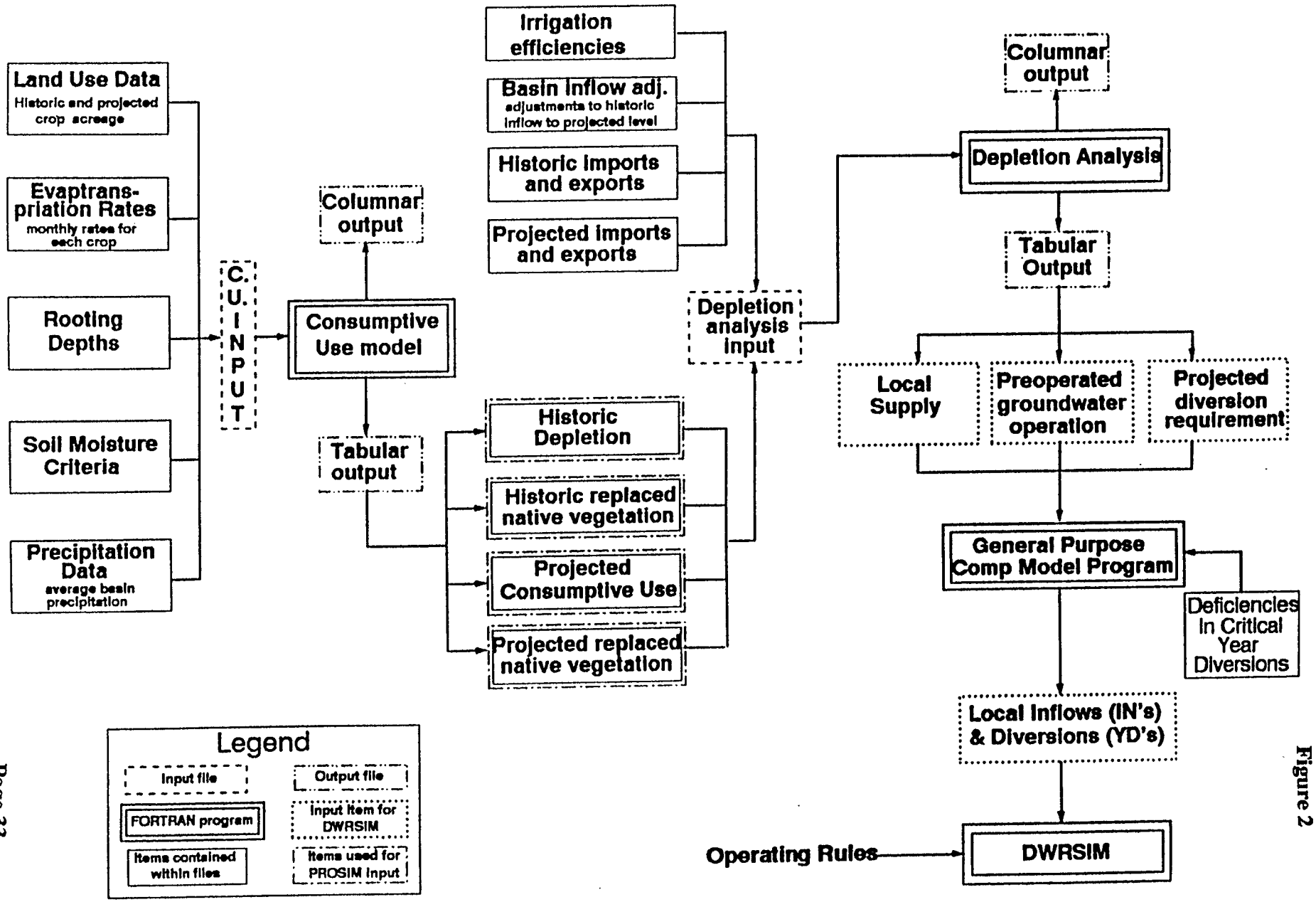
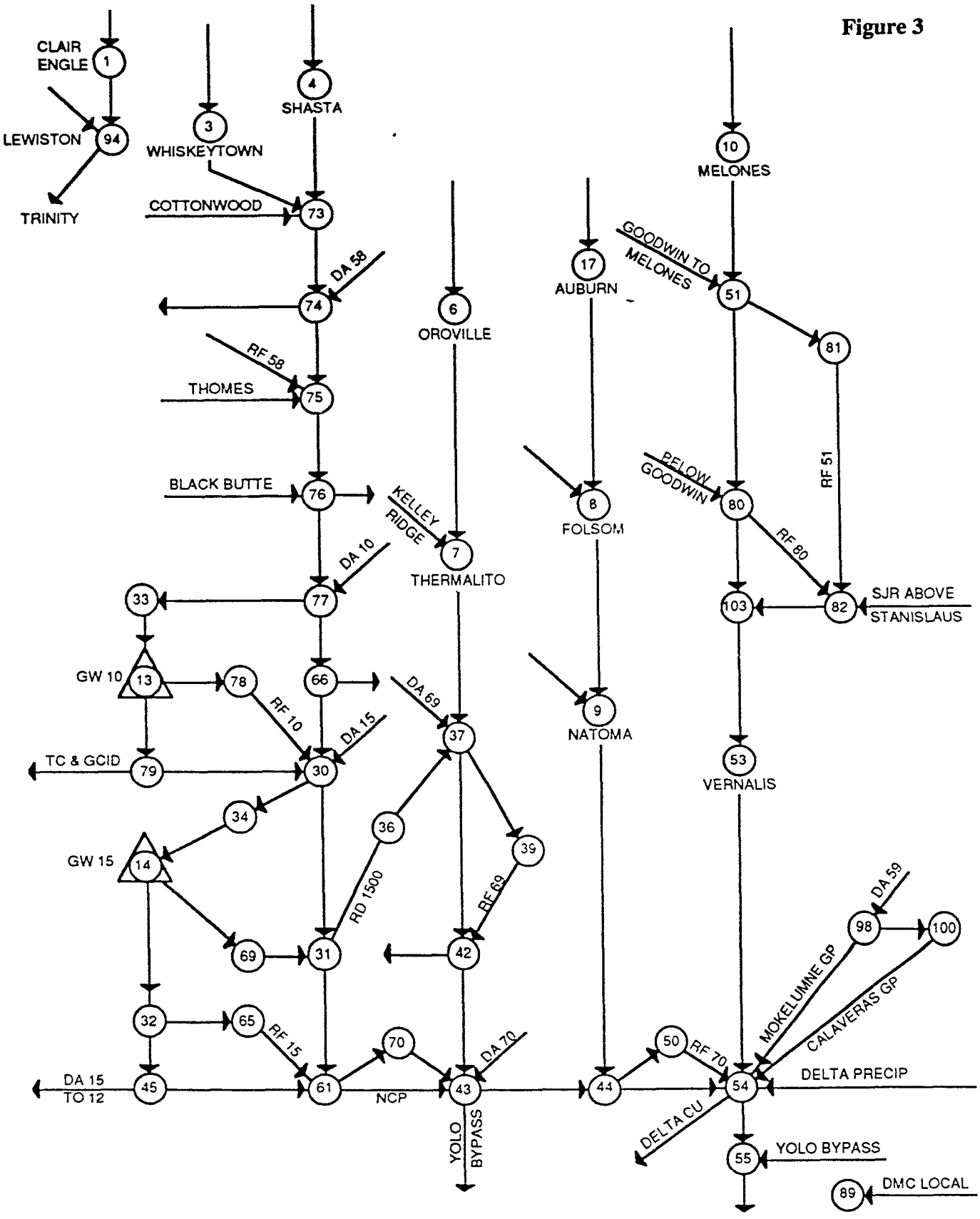


Figure 2

DWRSIM HYDROLOGY FLOWS AND DIVERSIONS

Figure 3



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