

## **6.7 Sutter County**

### **6.7.1 Introduction and Summary**

The following section summarizes the local setting, current and future land use, and water use conditions for Sutter County. A list of local water management issues and strategies for Sutter County is identified at the end of this section. Key and/or highest priority land- and water use related issues are as follows:

- Flood management along the Sacramento and Feather Rivers
- Groundwater management and protection
- Groundwater quality protection and enhancement

#### **6.7.1.1 Local Setting**

Sutter County is located in the southern Sacramento Valley less than 10 miles north of the City of Sacramento. Much of the county is located in the low-lying lands between the Sacramento River and the Feather River. The southeast portion of the county lies east of the Feather River and south of the Bear River. The Sutter Buttes are located in the northern part of the county, rising to an elevation of about 2,100 feet above msl. Except for Sutter Buttes, Sutter County is generally flat, with the valley floor elevations at less than 100 feet above msl. The valley floor is heavily cultivated and has excellent soils for agricultural use.

Sutter County is a rural county that includes two urban areas: Yuba City and Live Oak. Like other urban areas in the Sacramento Valley, these areas are facing considerable growth and present some of the major challenges to water resources management in the county.

Sacramento Area Council of Governments estimated the 2005 Sutter County population at about 87,000. Almost 53,000 people were in Yuba City, with 27,700 in the unincorporated areas of the county and about 6,600 in Live Oak. Sacramento Area Council of Governments estimates the population will grow to about 150,000 by 2030, with Yuba City growing to about 71,000, and the other unincorporated areas increasing to 67,700.

Surface water is supplied from the Sacramento, Feather, and Bear Rivers for agricultural production by the many purveyors in the county. The Sutter Bypass cuts through the county starting in the north near the western edge of Sutter Buttes and provides overflow for the Sacramento River in times of excess flow, and partly alleviates flooding in areas adjacent to the river. The Sutter Bypass also provides riparian vegetation, which supports extensive wetlands.

Groundwater is available in most of the county and is used to supply some agriculture and urban areas. Sutter County overlies portions of three subbasins within the larger Sacramento Valley Groundwater Basin, including the following:

- East Butte Subbasin (Department Subbasin number 5-21.59)
- Sutter Subbasin (Department Subbasin number 5-21.62)
- North American Subbasin (Department Subbasin number 5-21.64)

Although groundwater is plentiful, groundwater quality is a concern in the eastern/southeastern portion of the county for many parameters including arsenic, sulfides, manganese, iron, nitrates, and chlorides. These parameters are the main reason for reduced use of groundwater for urban use. Groundwater is recharged seepage from the rivers, deep percolation of irrigation water, and runoff from the Sutter Buttes.

For estimating water demands and available supplies, the Department has divided the state into DAUs. Sutter County includes portions of the following four DAUs, as shown on Figure 6.7-1.

- Meridian-Robbins Subarea (DAU 165)
- Durham-Sutter Subarea (DAU 166)
- Yuba City-Gridley Subarea (DAU 168)
- Placer Subarea (DAU 172)

Only the Meridian-Robbins Subarea is located entirely within the boundaries of Sutter County. All of the other DAUs extend beyond the boundaries of Sutter County.

### 6.7.1.2 Existing and Future Land Use Conditions

#### *Existing Land Use Conditions*

The existing land use conditions described in this section are based on the Department's 1998 land use survey of Sutter County (see Figure 6.7-1), which identifies 19 specific land uses and crop types. For purposes of this analysis, the specific developed land uses were summarized into the following general land use categories:

- **Agricultural Lands** – Includes citrus and subtropical, deciduous fruits and nuts, field crops, grain and hay crops, idle land, pasture, rice, truck, nursery and berry crops, and vineyards.
- **Urban Lands** – Includes urban, semi-agricultural, municipal, residential, industrial urban landscape, and commercial land uses.
- **Undeveloped Areas** – Includes riparian vegetation, native vegetation, barren and wasteland, and water.

The general land uses for the current conditions are provided by subarea in Table 6.7-1.

**TABLE 6.7-1**  
Existing Sutter County General Land Use (acres)

Area	Agriculture	Urban	Undeveloped	Total Subarea Acreage
Meridian-Robbins Subarea (DAU 165)	95,000	1,000	6,000	<b>102,000</b>
Durham-Sutter Subarea (DAU 166)	26,700	1,400	39,500	<b>67,600</b>
Yuba City-Gridley Subarea (DAU 168)	96,500	12,700	25,500	<b>134,700</b>
Placer Subarea (DAU 172)	72,600	2,600	8,500	83,700
<b>Plan Area Total</b>	<b>290,800</b>	<b>17,700</b>	<b>79,500</b>	<b>388,000</b>

Source: Department, 1998 land use survey data

The county area totals approximately 388,000 acres of agriculture, urban, and undeveloped land uses. The agricultural acreage totals about 75 percent of the county (about 290,800 acres). The existing crop mix is dominated by rice and orchards, which total about 36 and 24 percent of the total irrigated crops, respectively.

The urban area in the county totals about 17,700 acres. The largest urban area within the county is Yuba City, which is located within the Yuba City-Gridley Subarea.

The undeveloped areas, including native vegetation (including the Sutter Buttes), riparian vegetation, and water surfaces, total about 79,500 acres. The Sutter Buttes account for most of the undeveloped lands in the Durham-Sutter Subarea and the Yuba City-Gridley Subarea.

### ***Future Land Use Conditions***

The future land use conditions reflect the general changes in land use such as increased urbanization based on known and accepted urban developments within the plan area. The Yuba City General Plan (2004a), Urban Water Management Plan (2005), and the Yuba City Master Water Plan Update (2004b) document the general trends of urbanization in the county in the Yuba City area. The largest planned development of agricultural land is expected to take place in the Yuba City area.

#### **6.7.1.3 Water Use and Water Supply Conditions**

The water needs of the agricultural and urban lands are met with surface water and groundwater supplies. Generally, there is adequate water for irrigation from the sources available – Sacramento, Feather, and Bear Rivers, and the aquifer beneath most of the county.

## *Existing Water Use Conditions*

### *Agricultural Water Uses.*

Sutter County agricultural water needs are met through a combination of surface water and groundwater supplies. The current agricultural water demand for normal years presented in Table 6.7-2 by subarea was calculated using Department crop water use rates for the individual crop categories. The existing agricultural water demand totals about 1,182,000 af/yr. The agricultural water demands are the greatest in the Placer and Yuba City-Gridley Subareas, representing about two-thirds of the total agricultural water use in the county.

**TABLE 6.7-2**  
Existing Sutter County Water Demand (ac-ft)

Area	Agriculture	Urban	Total Subarea Acreage
Meridian-Robbins Sub-Area (DAU 165)	288,000	1,000	<b>289,000</b>
Durham-Sutter Subarea (DAU 166)	102,000	1,000	<b>103,000</b>
Yuba City-Gridley Subarea (DAU 168)	447,000	22,000	<b>469,000</b>
Placer Subarea (DAU 172)	345,000	1,000	<b>346,000</b>
<b>Plan Area Total</b>	<b>1,182,000</b>	<b>25,000</b>	<b>1,207,000</b>

Source: Department, 1998 land use survey data and Department, 2001 Water Duty

### *Urban Water Uses*

Yuba City, and the surrounding unincorporated area, is the largest user of urban water in Sutter County. As shown in Table 6.7-2, the existing Sutter County urban water demand totals about 25,000 af/yr. Yuba City and the surrounding areas in DAU 168 have a total urban water demand of about 22,000 af/yr. Prior to 1969, all urban demands were met with groundwater. In 1969, a new surface water treatment plant began to deliver treated surface water from the Feather River to the city. The switch to surface water was needed because of the water quality problems associated with the use of groundwater, including manganese, arsenic, sulfides, nitrates, and iron. In 2001, Yuba City purchased Hillcrest Water District, which was located just and southwest of the city, continued to use the district's three wells to meet the water needs of their customers. By 2004, approximately 1,400 of those connections were converted over to surface water. Currently, about 20 percent of the city's water needs are met with the groundwater from the three purchased wells.

## *Future Water Use Conditions*

Future water use data for normal hydrologic conditions for year 2020 (Table 6.7-3) were developed using information used to develop the California Water Plan Update – Bulletin 160-93.

**Agricultural Water Uses.**

The agricultural demand for water is projected to increase in Sutter County by about 8 percent by 2020 to about 1.3 million ac-ft, as presented in Table 6.7-3.

**TABLE 6.7-3**  
Future Sutter County Water Demand (ac-ft)

Area	Agriculture	Urban	Total Subarea Acreage
Meridian-Robbins Sub-Area (DAU 165)	383,000	1,000	<b>384,000</b>
Durham-Sutter Subarea (DAU 166)	87,000	1,700	<b>88,700</b>
Yuba City-Gridley Subarea (DAU 168)	434,000	45,000	<b>479,000</b>
Placer Subarea (DAU 172)	376,000	1,600	<b>377,600</b>
<b>Plan Area Total</b>	<b>1,280,000</b>	<b>49,300</b>	<b>1,329,300</b>

**Urban Water Uses**

For this analysis it is assumed that the urban water use for the Yuba City Subarea-Gridley Subarea includes estimates from the Yuba City Water Master Plan Update (HDR, 2004). As shown in Table 6.7-3, urban water demand is expected to double by year 2020 for normal hydrologic conditions to about 49,300 af/yr. Most of the urban growth is expected in the Yuba City-Gridley Subarea.

#### **6.7.1.4 Existing and Ongoing Planning**

Sutter County is involved in several water resources management activities including the preparation of a countywide groundwater management plan. In addition, Sutter County is working with the U.S. Army Corps of Engineers to improve flood protection for the county. Some of the recent relevant Sutter County water-related planning documents are given in Table 6.7-4.

#### **6.7.1.5 Plan Subareas**

The plan area for Sutter County in the Sacramento Valley IRWMP consists of the entire county as well as the entire boundary of the Natomas Mutual Water Company. This section summarizes the land and water conditions and details the water management issues important to the county and individual subareas as they have been previously identified.

**Methodology**

Existing land use and water use data was mapped for the Sacramento Valley IRWMP using Department GIS land use mapping data for Sutter County for 1998. Future water use data for

year 2020 (Table 6.7-3) were developed using information for developing the California Water Plan Update.

**TABLE 6.7-4**  
Existing and Relevant Sutter County Water Resource Planning Documents

<b>Planning Document</b>	<b>Description</b>	<b>Date Published</b>
County of Sutter General Plan 2015 Housing Element	Contains population growth and housing projections.	2004
General Plan Amendment Application – Parts I & II	South Sutter Industrial and Residential Development.	2006
Yuba City General Plan	Provides specific information about development in Yuba City.	2004
Yuba City Urban Water Management Plan	Plan to develop facilities for Yuba City and the surrounding urban growth boundaries.	2005
Yuba City Water System Master Plan Update	Contains plan to develop water strategy for Yuba City.	2004

### ***Meridian-Robbins Subarea (DAU 165)***

This subarea lies east of the Sacramento River and west of the Sutter Bypass (Figure 6.7-1). The subarea land use is 99 percent agricultural cropland with a mix of rice (25 percent of total subarea); field crops (30 percent); and truck, nursery, and berry crops (28 percent – including processing tomatoes). These three cropping types total about 84 percent of the overall subarea land use. Agencies with water management responsibilities in this subarea include the following:

- Swinford Tract Irrigation Company
- Meridian Farms Water Company
- Newhall Land and Farming Company
- Pelger Mutual Water Company
- Sutter Mutual Water Company
- Reclamation District 823
- Reclamation District 1660
- Reclamation District 777
- Reclamation District 783
- Reclamation District 1500
- Reclamation District 730
- Reclamation District 787

***Durham-Sutter Subarea (DAU 166)***

The Durham-Sutter Subarea is the smallest subarea in Sutter County, and includes approximately 60 percent of Sutter Buttes, and riparian areas along their northwestern edge. The amount of agricultural land area in the subarea is 26,700 acres and consists of fruits and nuts, grain and hay crops, and rice. This subarea also includes the Sutter Bypass, which extends from the Sutter Buttes south to Freemont Weir, as shown on Figure 6.7-1.

The Colusa Irrigation Company is the agency with water management responsibilities in this subarea.

***Yuba City-Gridley Subarea***

The Yuba City-Gridley Subarea is the largest subarea and has the highest water demand in the county. A band of deciduous fruit and nut crops are along and adjacent to the Feather River, consisting of approximately 50,000 acres. West of this area in the low-lying areas of the Sutter Basin, rice is the dominant crop with approximately 30,000 acres.

The Yuba City incorporated area was 5,875 acres in 2002. The Yuba City sphere of influence makes up over 65 percent of the total population in Sutter County and has an existing population of around 67,000 people in the metropolitan area.

The urban growth boundary consists of an additional 7,200 acres outside of the current city limit that is planned to be urbanized by 2030. Urban water demands are expected to reach 30,000 af/yr by 2030, for the incorporated area of Yuba City. This would require another large expansion/construction project for the wastewater treatment plant by the year 2012-2013.

Yuba City's existing surface water sources include two appropriative water rights and two surface water supply contracts described as follows:

- SWRCB Permit 14045 – (6,500 af/yr from the Feather River)
- SWRCB Permit 18558 – (9,000 af/yr from the Feather River)
- Contract – Yuba County Water District – Feather River for 4,500 af/yr until 2010
- Contract – Department, SWP – Feather River for 9,600 af/yr

Agencies with water management responsibilities include the following:

- Butte Water District
- Biggs-West Gridley Water District
- Sutter Extension Water District
- Linda County Water District
- Feather Water District
- Tudor Mutual Water Company

- Garden Highway Mutual Water Company
- Sutter-Butte Mutual Water Company
- Live Oak Water District
- Levee District 1
- Levee District 9
- Reclamation District 784 (small portions along Feather River)
- Reclamation District 777
- Reclamation District 2056
- Reclamation District 2054
- Yuba City
- Reclamation District 10 (small portions along Feather River)

### *Placer Subarea*

The Placer Subarea is located at the southern end of Sutter County east of the Feather River and south of the Bear River. Other than a few very small communities, the subarea is highly agricultural, with the dominant crop being rice (58 percent of the agricultural acreage).

Agencies with water management responsibilities include the following:

- Pleasant Grove-Verona Mutual Water Company
- South Sutter Water District
- Reclamation District 1001
- Reclamation District 1000

#### 6.7.1.6 Local Water Management Issues and Strategies

### *Meridian-Robbins Water Management Issues*

The local water management issues for the Meridian-Robbins Subarea follow:

- **Flood Management along the Sacramento and Feather Rivers and along the Sutter Bypass** – The Sutter County side of the Sacramento River at River Mile 123.5 has been targeted as a critical erosion site and is scheduled for repair by November 1, 2006 (Department, 2006).
- **Groundwater Management and Protection** – Groundwater levels remain relatively constant, but hydrographs indicate shallow depth to water, often within 10 feet of the ground surface. Groundwater management is needed to manage groundwater levels and provide for the protection of wellheads and other excavations to decrease the transmission of contaminants from upper regions of the groundwater to lower regions that provide well water.

- **Groundwater Quality Protection and Enhancement** – Specific water quality parameters of concern in this area include arsenic and manganese. Although these parameters do not impact the use of this water for agricultural purposes, they can be problematic for domestic purposes.
- **Ecosystem Restoration** – The Sutter Bypass provides an opportunity to identify and implement ecosystem restoration and environmental enhancement projects to improve wetlands and habitat areas.

### *Durham-Sutter Water Management Issues*

The local water management issues for the Durham-Sutter Subarea follow:

- **Flood Management** – This subarea has flood protection concerns along the Sacramento River, and along the Sutter Bypass and runoff from Sutter Buttes.
- **Ecosystem Restoration** – Specific ecosystem restoration projects and environmental enhancement projects along the Sutter Bypass, and north and west of Sutter Buttes along Butte Creek. Over 67 percent of the riparian vegetative lands in the county are in this subarea and provide an opportunity for protection and/or enhancement projects.

### *Yuba City-Gridley Water Management Issues*

The local water management issues for the Yuba City-Gridley Subarea follow:

- **Flood Management** – This subarea has flood protection concerns along the Sacramento and Feather Rivers, and along the Sutter Bypass.
- **Water Supply Reliability** – Water supply reliability issues include overall groundwater management and protection, with focus on the need to improve groundwater quality. The specific water quality parameters of concern are arsenic and manganese in the southern area and nitrates, arsenic, sulfides, iron, and manganese in the Yuba City area.
- **Water Recycling** – Yuba City is pursuing a regional wastewater treatment plant that may provide recycled water to agricultural users in Sutter County and urban water users in Yuba City and City of Marysville, Linda County Water District, and Olivehurst Public Utility District.

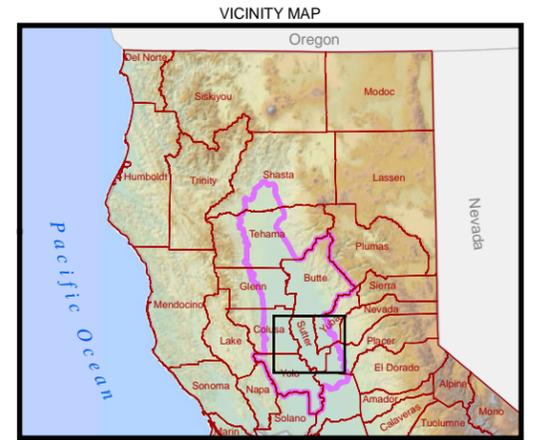
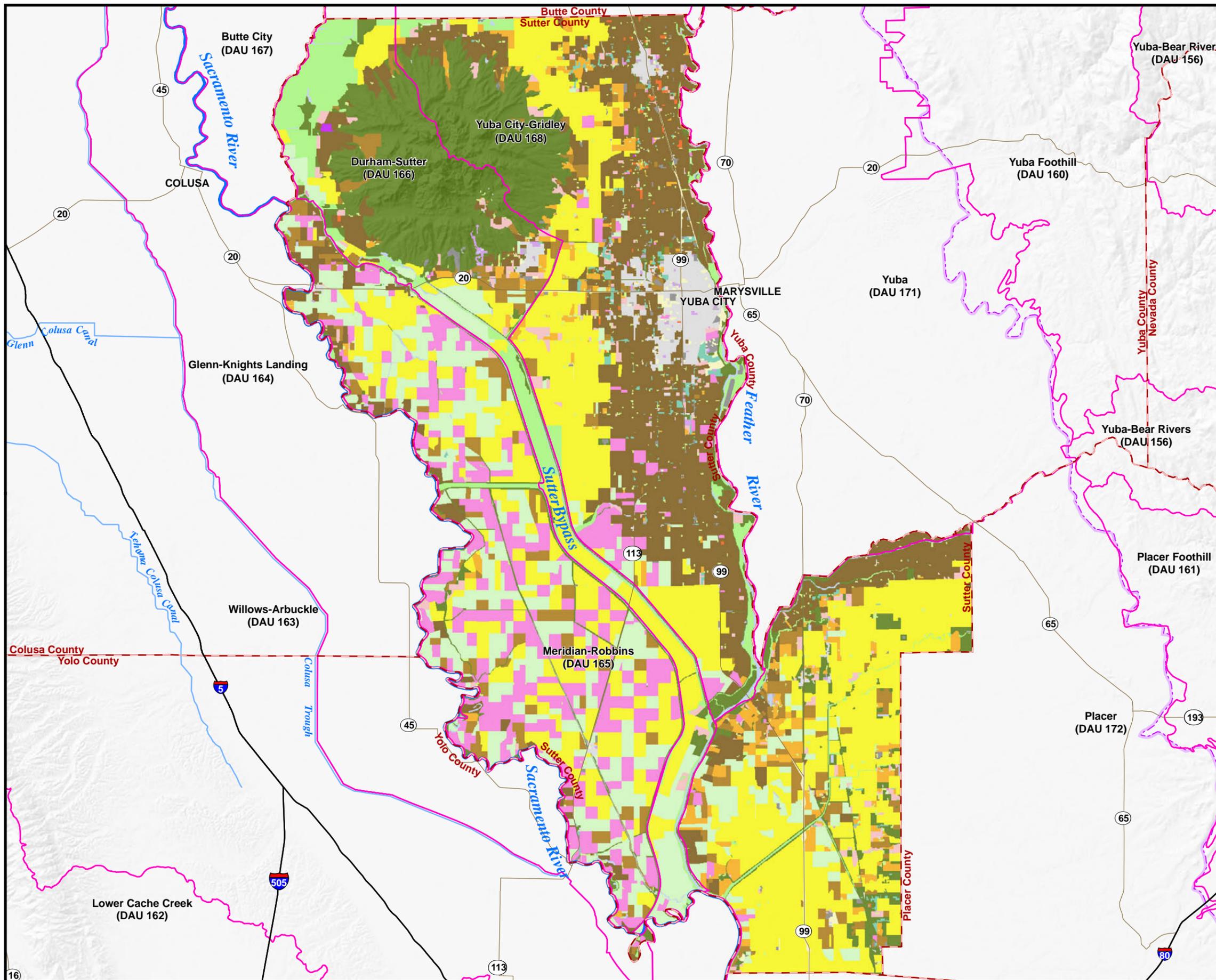
### *Placer Water Management Issues*

The local water management issues for the Placer Subarea follow:

- **Flood Management along the Sacramento, Feather, and Bear Rivers and Levee Rehabilitation** – Sutter County levees on River Miles 2.4 and 10.1 of the Bear River

have been targeted as critical erosion sites and are scheduled for repair by November 1, 2006 (Department, 2006).

- **Groundwater Quality Protection and Enhancement** – Groundwater quality concerns in the southern part of this subarea include elevated levels of arsenic and manganese. Chloride in groundwater is a problem along the Bear and Feather Rivers at concentrations in excess of 250 milligrams per liter (the U.S. Environmental Protection Agency maximum contaminant level, secondary standards).



- Legend**
- Interstate Highway
  - State / US Highway
  - River
  - Stream
  - County Boundary
  - Core IRWMP Region
  - DAU
- DWR Land Use**
- CITRUS AND SUBTROPICAL
  - DECIDUOUS FRUITS AND NUTS
  - FIELD CROPS
  - GRAIN AND HAY CROPS
  - IDLE
  - PASTURE
  - RICE
  - TRUCK, NURSERY, AND BERRY CROPS
  - VINEYARDS
  - RIPARIAN VEGETATION
  - NATIVE VEGETATION
  - WATER
  - SEMIAGRICULTURAL
  - URBAN
  - COMMERCIAL
  - INDUSTRIAL
  - URBAN LANDSCAPE
  - RESIDENTIAL
  - UV

Source:  
1. Land Use provided by DWR - 1998, (Sutter County, 1998).



**FIGURE 6.7-1**  
**SUTTER COUNTY LAND USE**  
SACRAMENTO VALLEY IRWMP