

# Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin

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## MLRA Explorer Custom Report

C - California Subtropical Fruit, Truck, and Specialty Crop Region  
16 - California Delta

# MLRA 16 - California Delta

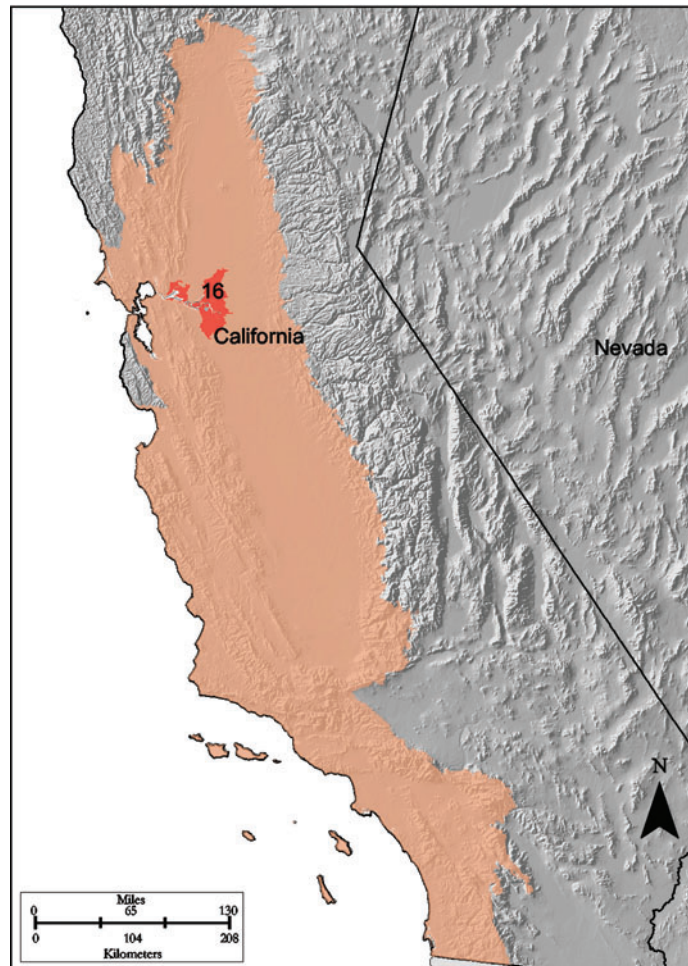


Figure 16-1: Location of MLRA 16 in Land Resource Region C

## Introduction

This area is entirely in California (fig. 16-1). It makes up about 805 square miles (2,080 square kilometers). It has no cities or large towns. Suisun, Honker, and Grizzly Bays and Franks Tract State Recreation Area are in the area. The delta is above the San Pablo and San Francisco Bays. It formed at the junction of the two major rivers draining the Central Valley of California—the Sacramento River to the north and the San Joaquin River to the south. A major pumping plant at Tracy lifts water from the delta into the California and Delta-Mendota Canals, which take the water south to farms in the Central Valley and Tulare Lake Basin and to southern California cities. During periods of low flow, the plant causes a flow reversal and brackish water from San Pablo Bay can move up into the delta. A system of levees keeps the farmland from flooding.

## Physiography

Most of this area is in the California Trough Section of the Pacific Border Province of the Pacific Mountain System. A small part at the west edge of the area is in the California Coast Ranges Section of the same province and division. This MLRA was originally the conjoined flood plain along the Sacramento and San Joaquin Rivers. As sediment from these rivers built up in San Pablo Bay, a delta formed, creating many streams that divide this nearly level area into “islands.” Strong levees and drainage systems are needed to protect the islands from flooding. Elevation of the islands ranges from below sea level to slightly above sea level.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: San Joaquin (1804), 47 percent; Sacramento (1802), 35 percent; and San Francisco Bay (1805), 18 percent.

## Geology

This area is underlain by interbedded marine, estuarine, and fine grained nonmarine sediments transported to the delta by the Sacramento and San Joaquin Rivers as they flowed into San Pablo Bay. As the sediments built up, a delta formed and freshwater mixed with brackish water in marshes and on flood plains. As the marsh vegetation became covered with new sediments, the organic matter content in the soils built up to very high levels. When drained and exposed to the air, these peaty soils oxidize and shrink and then subside.

## Climate

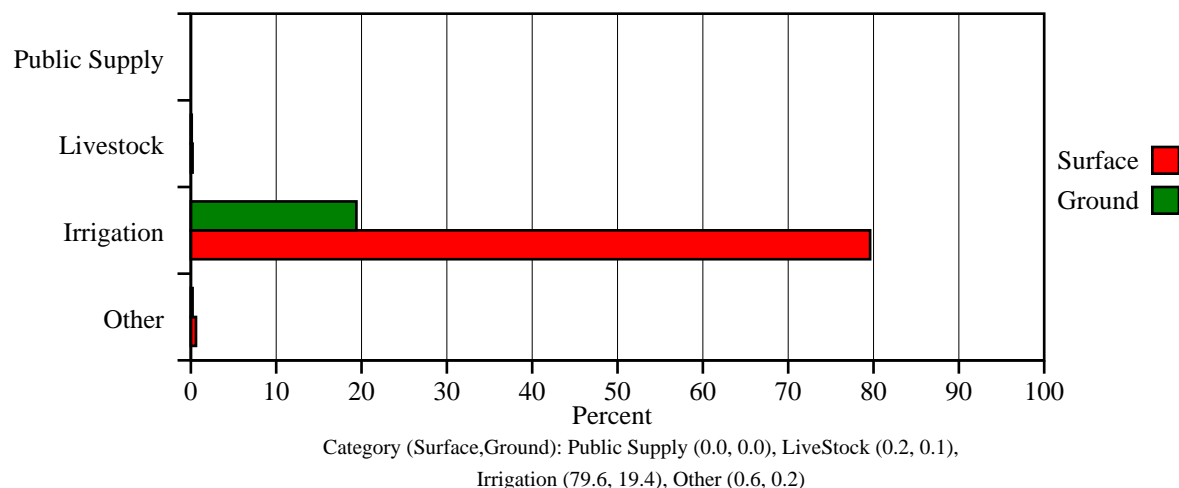
The average annual precipitation in this area is 12 to 21 inches (305 to 535 millimeters). Summers are dry. Most of the rainfall occurs as low- or moderate-intensity, Pacific frontal storms during the period October to May. Snowfall is rare in this area. The average annual temperature is 59 to 61 degrees F (15 to 16 degrees C). The freeze-free period averages 345 days and ranges from 330 to 360 days.

## Water

The total withdrawals average 720 million gallons per day (2,725 million liters per day). About 20 percent is from ground water sources, and 80 percent is from surface water sources. Almost all of the water is used for agriculture. Most of it comes from the many sloughs and waterways that cross the area. Controlling salinity and the intrusion of saltwater is a major concern.

The small amount of ground water used for irrigation on the east side of this area is pumped from the alluvium and older sediments in the Central Valley. This water is hard or very hard and generally contains about 300 parts per million (milligrams per liter) total dissolved solids. Nitrates from agricultural runoff can contaminate this shallow ground water.

## MLRA 16 Water Use by Category



## Soils

The dominant soil orders in the MLRA are Entisols, Histosols, and Mollisols. The soils in the area dominantly have a thermic soil temperature regime, an aquic soil moisture regime, and mixed mineralogy. They generally are very deep, poorly drained or very poorly drained, and clayey. Fluvaquents formed in alluvium on flood plains and deltas (Valdez series) and in marshes (Reyes series). Endoaquepts (Tamba series) formed in alluvium in salt marshes. Haplosaprists formed in organic material in salt marshes (Joice series) and freshwater marshes (Kingile and Rindge series). Endoaquolls (Egbert, Gazwell, Peltier, and Ryde series) formed in alluvium in basins, marshes, and sloughs and on deltas.

## Biology

This area supports marsh vegetation. Fat-hen saltweed, brass buttons, alkali bulrush, cattails, tules, saltgrass, and pickleweed characterize the area.

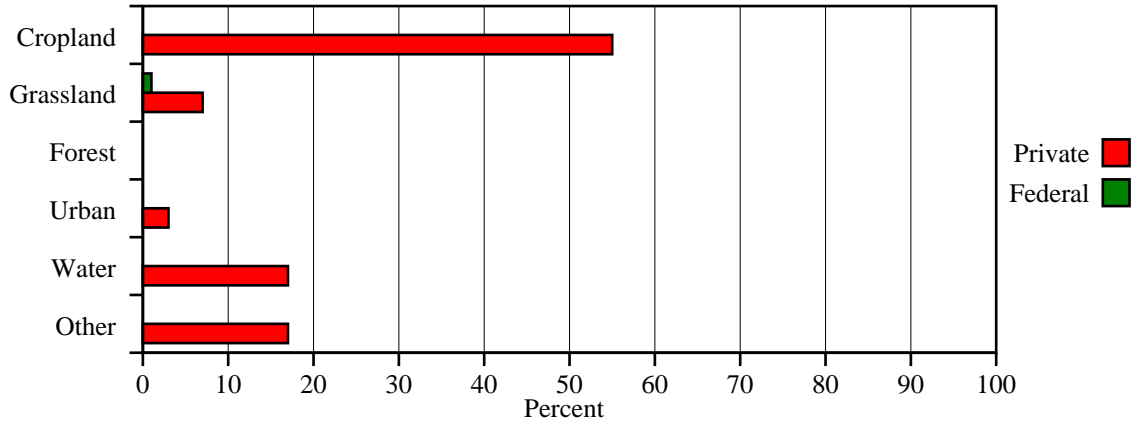
Some of the major wildlife species in this area are small mammals, river otter, beaver, and various songbirds. The species of fish in the area include striped bass, black bass, crappie, sunfish, catfish, salmon, steelhead, varieties of minnows, and sturgeon. The area is extremely important for wintering waterfowl, neotropical migrants, and year-round shore birds.

## Land Use

More than one-half of this area is farmed. The most important crops are asparagus, sugar beets, potatoes, corn, grain, and hay grown under intensive management. Fruit trees, mainly pear trees, and some grapes are grown on slopes of the protecting levee system. Erosion of the levees by wave action is a continuous problem. Subsidence of the peaty and mucky soils also is a problem.

The major soil resource concern is the subsidence caused mainly by oxidation, wind erosion, and shrinkage of organic soils. The most important conservation practice on cropland is controlling the water table by applying irrigation and drainage water management and by flooding the fields during idle periods. Other important practices are conservation cropping systems, selection of water-tolerant crops for planting, and nutrient and pest management.

### MLRA 16 Land Use by Category



Category (Private,Federal): Cropland (55.0, 0.0), Grassland (7.0, 1.0), Forest (0.0, 0.0), Urban (3.0, 0.0), Water (17.0, 0.0), Other (17.0, 0.0)