Documentation and Description of the Digital Spatial Data Base for the Southern California Regional Aquifer-System Analysis Program, Santa Clara-Calleguas Basin, Ventura County, California

By Steven K. Predmore, Kathryn M. Koczot, and Katherine S. Paybins

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BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
Gordon P. Eaton, Director

For additional information write to:

District Chief
U.S. Geological Survey
Placer Hall, Suite 2012
6000 J Street
Sacramento, CA 95819-6129

Copies of this report can be purchased from:

U.S. Geological Survey
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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
acre-foot (acre-ft)	0.4047	hectare
foot (ft)	0.3048	meter
gallon per minute per foot [(gal/min)/ft]	0.2070	cubic meter per second per meter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer

Temperature is given in degrees Fahrenheit (°F), which can be converted to degrees Celsius (°C) by the following equation:

$$°C=5/9\ (°F-32).$$

Vertical Datum

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Abbreviation

mg/L Milligram per liter

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Abstract

This report documents the geographic information system map layers and data files generated for the Santa Clara-Calleguas Basin, Ventura County, as part of a Regional Aquifer-System Analysis of southern California from 1989 to 1995. Thirty-six map layers and four data files are maintained in this geographic information system data base. The map layers cover the Santa Clara-Calleguas drainage basin and are stored in a common map projection. Attributes of the map layers and data files are described and referenced. The map layers are grouped by geography, geology, and hydrology.

Introduction

The Regional Aquifer-System Analysis (RASA) program of the U.S. Geological Survey began in 1978. The purpose of this program was to define the regional hydrology and geology of the Nation's important aquifer systems and to establish a framework of background information on the geology, hydrology, and geochemistry of these aquifer systems (Martin, 1986). This information is needed to develop an improved understanding of ground-water-flow systems and to support better management of ground-water resources. Twenty-eight regional aquifer systems have been identified and studied nationwide as part of this program. Unlike some aquifer systems, the 75,000 square mile regional aquifer system in southern California is not integrated; it consists of 89 separate alluvial basins. For the purpose of the Regional Aquifer-System Analysis study, these basins were grouped into coastal and desert basins. A representative basin was selected from each group for intensive study; the Santa Clara-Calleguas Basin was selected for the coastal basin study and the Mojave River Basin was selected for the desert basin study (fig. 1).

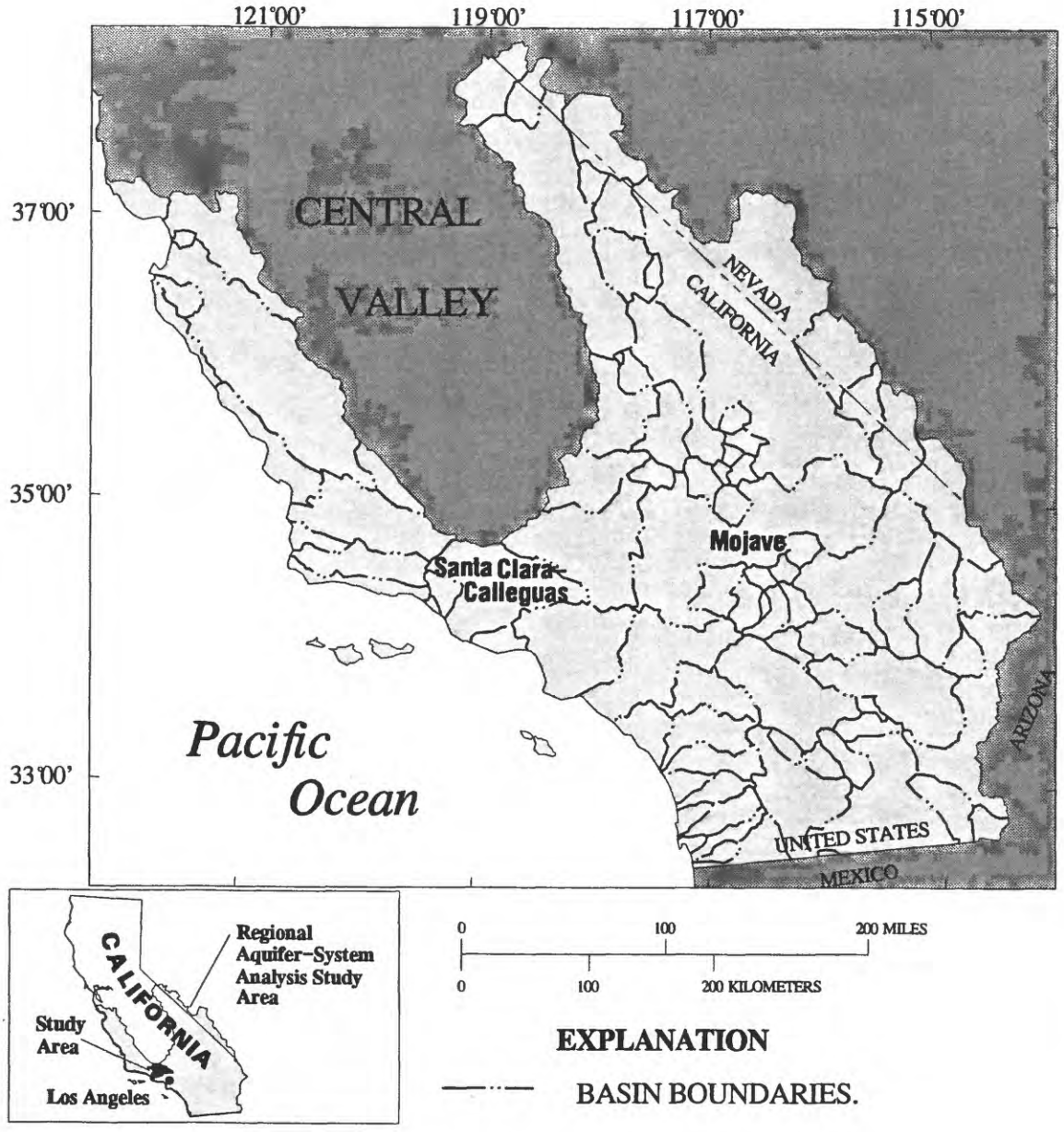

Figure 1. Location of the Santa Clara-Calleguas Basin and of the Southern California Regional Aquifer-System Analysis study area.

The Santa Clara-Calleguas Basin is about 60 miles northwest of Los Angeles. This basin was selected for intensive study because it contains a large, complex aquifer system that is affected by many of the hydrologic problems and issues that affect other coastal basins throughout southern California. These problems and issues include ground-water depletion, ground-water contamination, seawater intrusion, quantity and distribution of recharge, interaquifer flow, and consumptive use of ground water and surface water.

The Santa Clara-Calleguas Basin is 2,010 square miles. Although most of the area is characterized by rugged topography, about 310 square miles consists of relatively flat valley floor and coastal plain areas underlain by water-bearing deposits that are more than 1,000 feet thick in places. The area is drained by the Santa Clara River and Calleguas Creek, both of which discharge to the Pacific Ocean. (fig. 2)

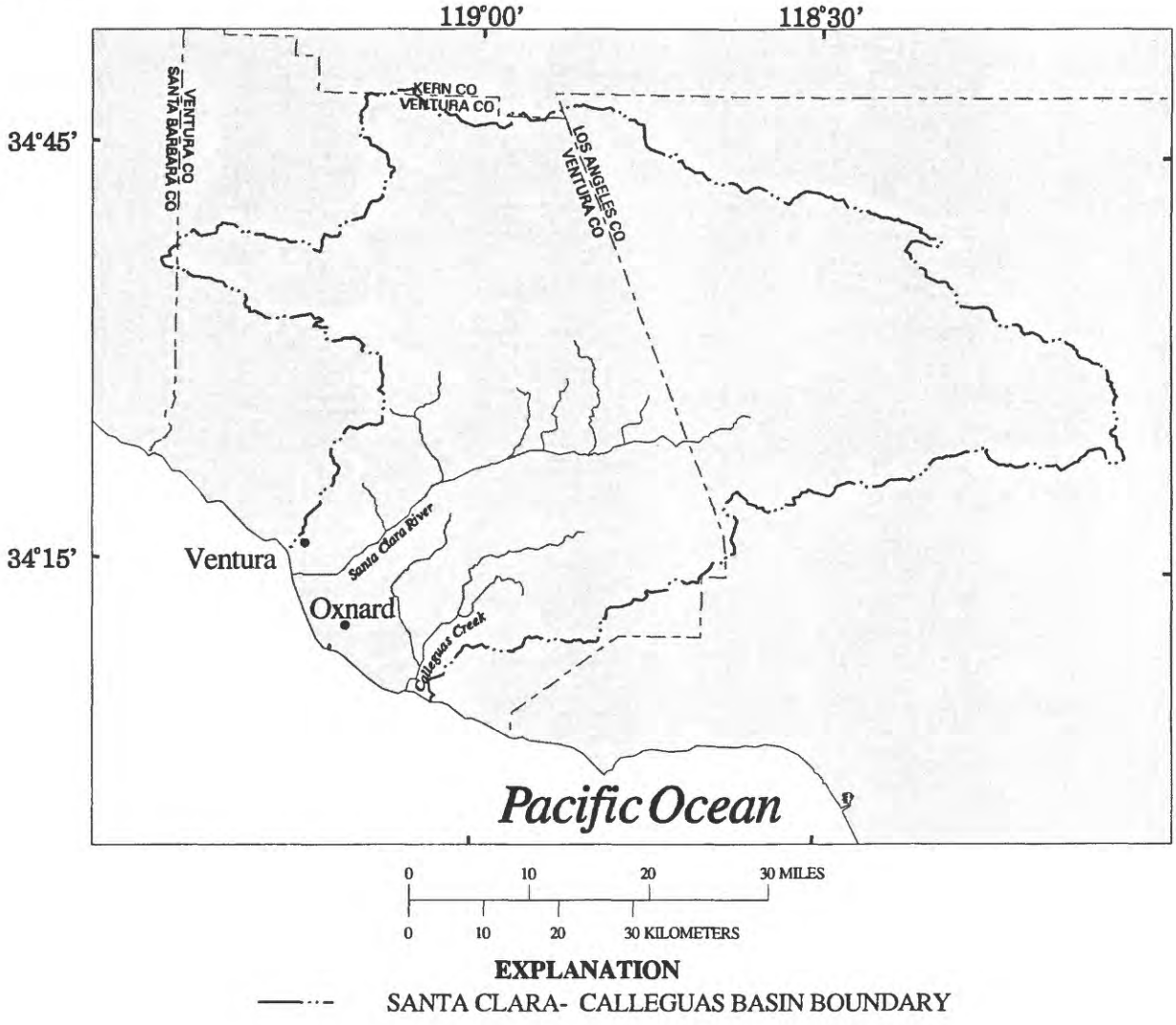

Figure 2. Santa Clara-Calleguas Basin.

The purpose of this report is to document digital spatial data compiled for the Santa Clara-Calleguas Basin between October 1989 and December 1995. A geographic information system (GIS) was used to assemble, store, analyze, and display the geographically referenced data collected during this study. This GIS data base contains 36 spatial data layers and 4 data tables. These data were collected as part of the Southern California Regional Aquifer-System Analysis study by the U.S. Geological Survey and as part of cooperative studies funded by the United Water Conservation District, Fox Canyon Ground Water Management Agency, Metropolitan Water District, Calleguas Municipal Water District, city of Channel Islands Beach, and U.S. Navy, Pacific Missile Test Center.

Geographic Information System

GIS is a computer system capable of assembling, storing, analyzing, and displaying geographically referenced information. Locations of geographic features are stored in layers called coverages. Geographic features are represented in the coverages as polygons, lines, or points. Attributes of geographic features and related information are stored in files called tables. Attribute tables contain one record for each feature in the coverage. For example, in a coverage representing wells, the attribute table contains one record for each well. An attribute table may contain information such as well identification number, depth, and other construction data. Data tables may be independent of a coverage but, because GIS is a relational data base, can be linked to the attribute table using a common attribute, such as well identification number. In this way, multiple observations (records) describing a single geographic feature can also be stored in the data base. For example, in a water-level data table, multiple records of historical water levels can be stored for each well. Because each of the multiple records contains the well identification number, which is the common variable, the well coverage attribute table can be related to the data table.

GIS can also be used to compare features and to analyze data between coverages. For example, a polygon coverage representing a basin boundary can be used to identify wells within the basin. GIS can also be used to display coverage features and data in the form of maps and other graphics.

All the coverages in the Santa Clara-Calleguas Basin data base are in the Universal Transverse Mercator (UTM) projection, zone 11 (Snyder, 1987). The units of the projection are in meters. The UTM projection was selected because the single UTM zone encompasses the entire RASA study area for southern California. The origin of the UTM coordinate system is defined by the equator (Y direction) and the central meridian (X direction) of the UTM zone. The coordinates for the coverages are stored as single-precision values that allow as many as seven significant digits for each coordinate. As a result of the distance from the equator north to the study area, the coordinates in the Y direction are large and software limits on the number of significant digits can cause a loss of precision. To maintain precision, a value of 3.5 million meters was subtracted from all coordinates in the Y direction during the projection process.

The GIS software ARC/INFO was used during this study. ARC/INFO version 4 on a PRIME mini computer was used at the start of this study. At the completion of the study, ARC/INFO version 7 on Data General Aviion 300 workstations was being used.

Description of Spatial Data-Base Documentation

This report documents the spatial data base with a description for each coverage or data table. Coverages have a figure showing its spatial extent accompanying its description. The format for the documentation is shown below.

COVERAGE OR DATA TABLE NAME (for example, BENCHMARK)

Description: This field contains a brief description of the coverage or data table.

Data type: For coverages, this field identifies the geographic features as POLYGON, LINE, or POINT. For data tables, the field contains DATA TABLE.

Source: The references for the source data are cited in this field.

Source scale: For coverages, this field contains the scale of the source map.

Source projection: For coverages, this field contains a description of the original source map projection, when known.

Method of entry: This field describes procedures used to digitize the data. For example, data were either manually digitized, scanned, or imported from (a) DXF files, (b) ARC/INFO interchange files, (c) latitude-longitude coordinates, or (d) text files. Specific information on the hardware and software used is included.

Quality control: This field contains information on the specific procedures used to verify the accuracy of digital conversions.

Projection of data: This field contains the final map projection of the coverages in the data base. All coverages in the data base are stored in the Universal Transverse Mercator (UTM) projection, zone 11. To maintain greater precision, 3.5 million meters were subtracted from the Y coordinates.

Final update: This field contains the date that the coverage or data table was last updated.

Description of variables: This field contains the description of variables in the attribute or data tables. Coverages may have more than one attribute table.

Variable	Type	Length	Definition
NAME of the variable in the coverage or data file.	Description of the variable type: integer, character, binary, floating decimal or date.	Length of the field.	A short description of the variable.

Data-Base Contents

This report describes the contents of the GIS data base. It is divided into three sections: "Geography," "Geology," and "Hydrology." The geography section describes data layers that show human interaction with the environment. The geology section describes data layers that represent the Earth's composition, structure, and history. The hydrology section describes data layers and tables that represent the occurrence, movement, and quality of fresh water.

Geography

This section contains data layers that represent human interaction with the environment. The data layers include information on bench marks, canals and pipelines in 1912, location of cities, canals and pipeline diversions in 1912, land use, United Water Conservation District pipelines, public land survey system, 7.5-minute quadrangle boundaries, roads, and wastewater-treatment facilities.

BENCHMARK

Description: Location of selected bench marks.

Data type: POINT.

Source: Modified from:

Ventura County Department of Public Works, 1994a, Benchmark transect data: Unpublished data on file with Ventura County Surveying and Engineering Department.

Source scale: Not applicable.

Source projection: Geographic.

Method of entry: Data were obtained in latitude-longitude coordinates, converted to a coverage, and transformed to UTM coordinates.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: September 29, 1994

Description of variables: BENCHMARK point attribute table.

Variable	Type	Length	Definition
PID	Character	17	Point identification number unique to each surveyed site

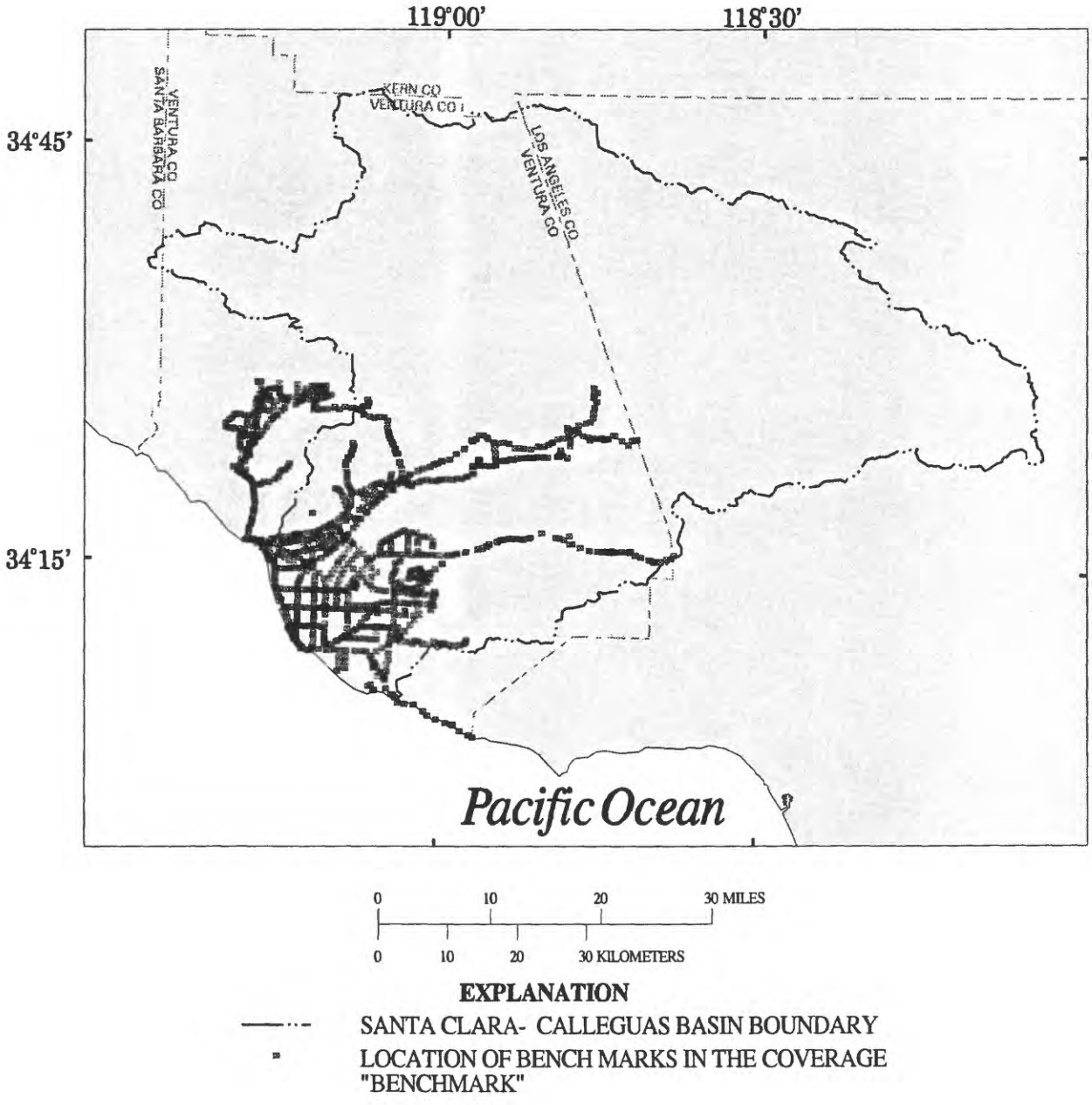

Figure 3. Location of selected bench marks.

CANALS1912

Description: Selected fresh-water canals and pipelines, 1912.

Data type: LINE.

Source: Modified from:

Adams, Frank, 1913, Irrigation resources of California and their utilization: U.S. Department of Agriculture, Office of Experiment Stations Bulletin 254, 95 p., pl. XVI.

Source scale: 1:70,400 (approximate)

Source projection: Unknown.

Method of entry: Canal lines were manually digitized from mylar source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: October 27, 1992

Description of variables: CANALS1912 line attribute table.

Variable	Type	Length	Definition
NAME	Character	30	Name of canal or pipeline from the source map.
CANALS_1912_ID	Integer	3	Identification number.

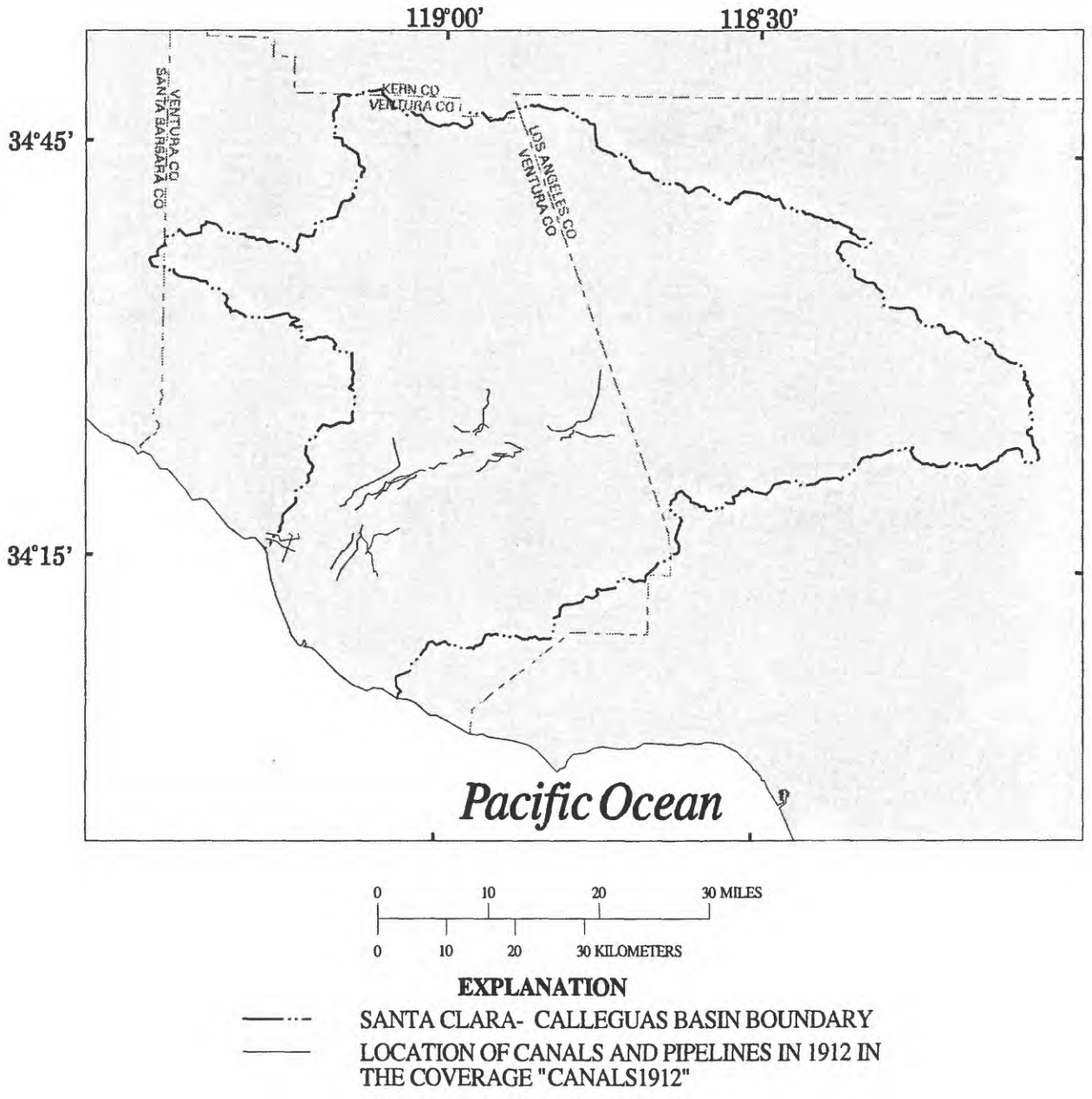

Figure 4. Selected fresh-water canals and pipelines, 1912.

CITIES

Description:	Locations of selected cities.
Data type:	POINT.
Source:	Modified from: U.S. Geological Survey 30- x 60-minute topographic quadrangle maps.
Source scale:	1:100,000
Source projection:	Universal Transverse Mercator projection, zone 11.
Method of entry:	City points were manually digitized from paper source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.
Quality control:	The coverage was plotted and compared with the source maps.
Projection of data:	Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.
Final update:	June 15, 1992
Description of variables:	CITIES point attribute table.

Variable	Type	Length	Definition
NAME	Character	20	City name.

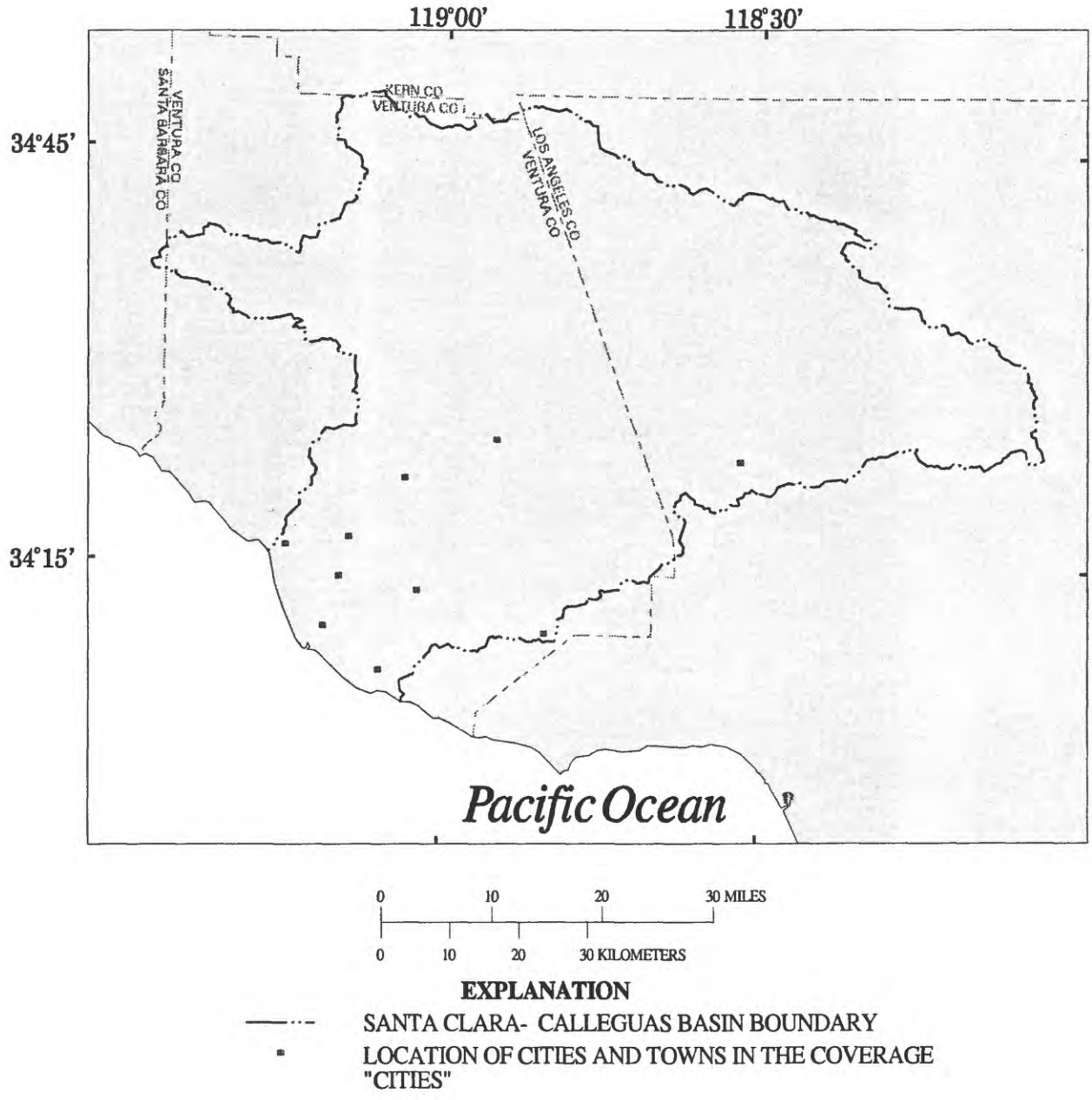

Figure 5. Location of selected cities.

DIVERSION1912

Description: Location of selected surface-water canal and pipeline diversions, 1912.

Data type: POINT.

Source: Modified from:

Adams, Frank, 1913, Irrigation resources of California and their utilization: U.S. Department of Agriculture, Office of Experiment Stations Bulletin 254, 95 p., pl. XVI.

Source scale: 1:70,400 (approximate)

Source projection: Unknown.

Method of entry: Diversion location points were manually digitized from a mylar source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: October 5, 1992

Description of variables: DIVERSION1912 point attribute table.

Variable	Type	Length	Definition
RIVER	Character	19	Name of river at diversion location.
DIVERSION_NAME	Character	30	Name of source canal or pipeline.
CANAL/PIPELINE	Character	9	Identifies diversion structure as canal or pipeline.
DIVERSION_ID	Integer	3	Identification number.

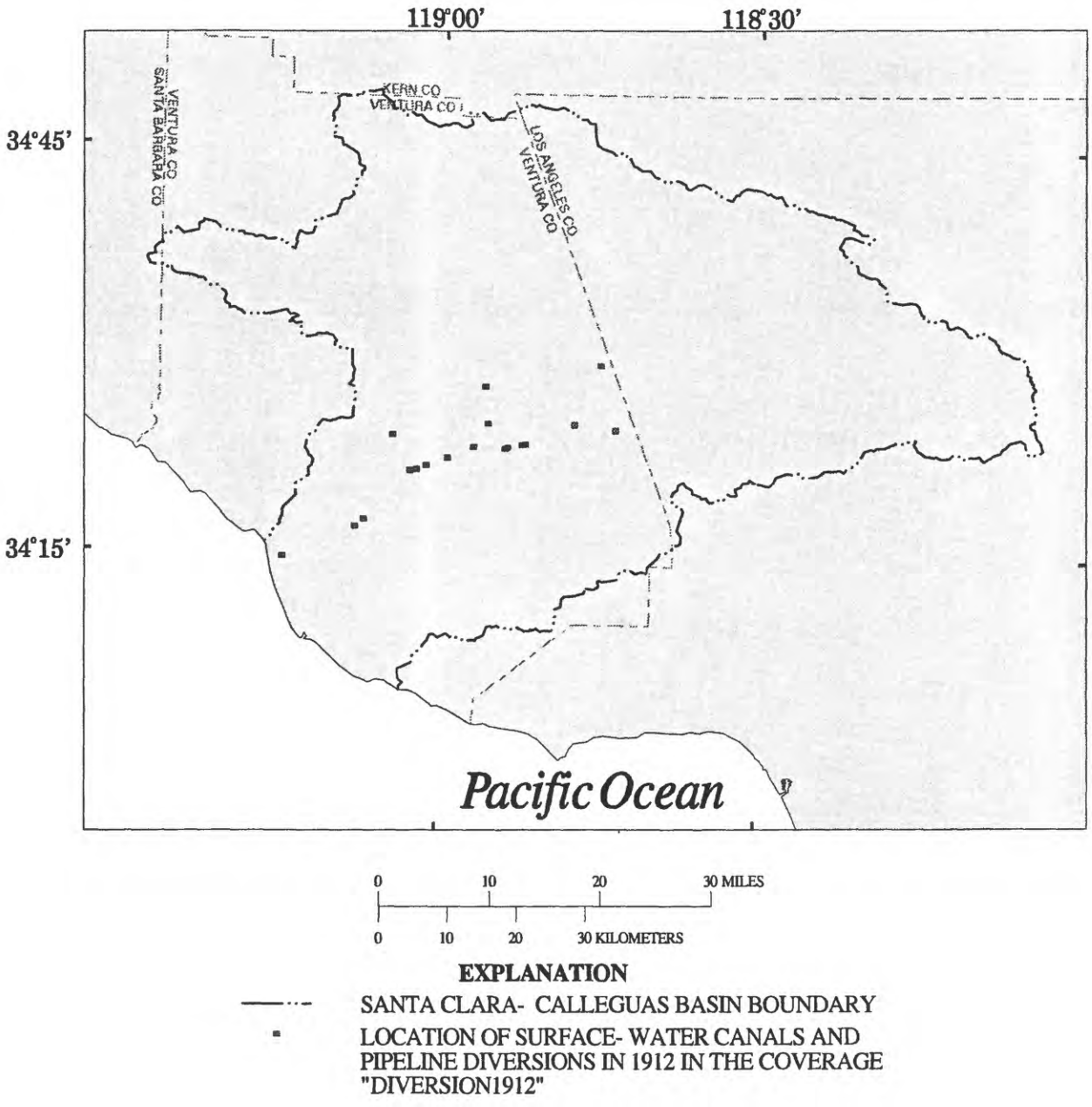

Figure 6. Location of selected surface-water canal and pipeline diversions, 1912.

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Land Use

This section contains the land-use information for 1912, 1927, 1932, 1950, 1969, and 1988.

LU1912

Description: Selected land use in 1912.

Data type: POLYGON.

Source: Modified from:

Adams, Frank, 1913, Irrigation resources of California and their utilization: U.S. Department of Agriculture, Office of Experiment Stations Bulletin 254, 95 p., pls. III and XVI.

Source scale: 1:70,400 (approximate)

Source projection: Unknown.

Method of entry: Land-use polygons were manually digitized from paper source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: November 30, 1993

Description of variables: LU1912 polygon attribute table.

Variable	Type	Length	Definition
ACRES	Floating decimal	9	Acreage.
NAME_1912	Character	20	Land-use classification.
IRR/DRY	Character	3	Identifies parcel as irrigated or dry farmed.

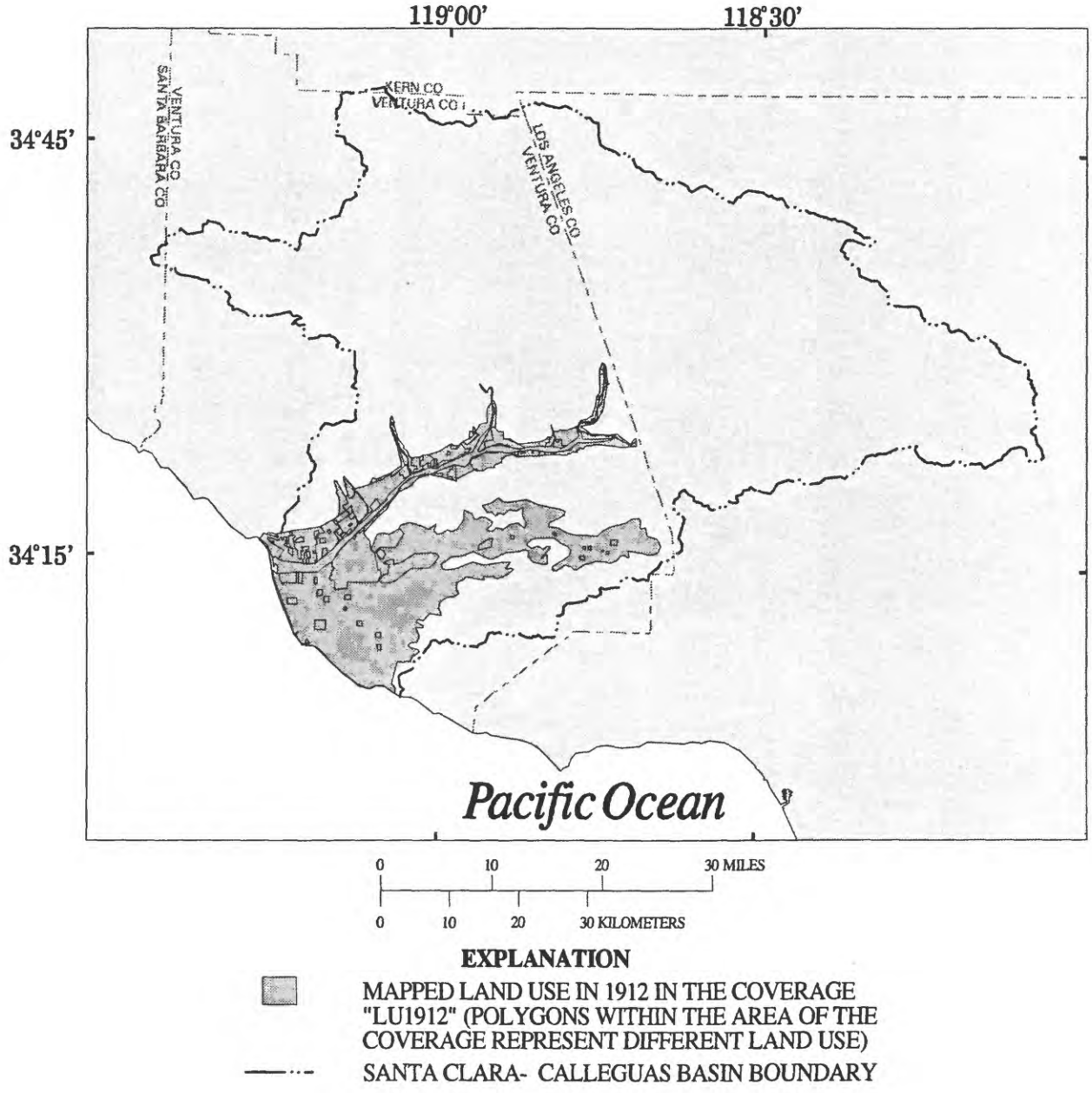

Figure 7. Selected land use in 1912.

LU1927

Description: Selected land use in 1927.

Data type: POLYGON.

Source: Modified from:

(a) Whittier College, 1927, Untitled: Aerial photo mosaic of west central Santa Clara - Calleguas Basin, Ventura County, California: Fairchild Aerial Photography Collection, Department of Geology, 1:43,200 (approximate), 1 sheet.

Supplementary data:

(b) Grunsky, C.E., 1925, Report on the water resources of the Santa Clara River Valley: C.E. Grunsky Company, Engineers, 100 p. (on file at U.S. Geological Survey, San Diego, Calif.).

Source scale: (a) 1:43,200 (approximate)

(b) Not applicable.

Source projection: (a) Air photo mosaic, not rectified.

(b) Not applicable.

Method of entry: Polygons were interpreted from a 1927 air photo mosaic onto a mylar sheet. Land-use polygons were manually digitized from the mylar map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: June 17, 1992

Description of variables: LU1927 polygon attribute table.

Variable	Type	Length	Definition
ACRES	Floating decimal	9	Acreage.
NAME	Character	30	Land-use classification.
CODE_1927	Character	10	Abbreviated land-use classification.
IRR/DRY	Character	3	Identifies parcel as irrigated or dry farmed.

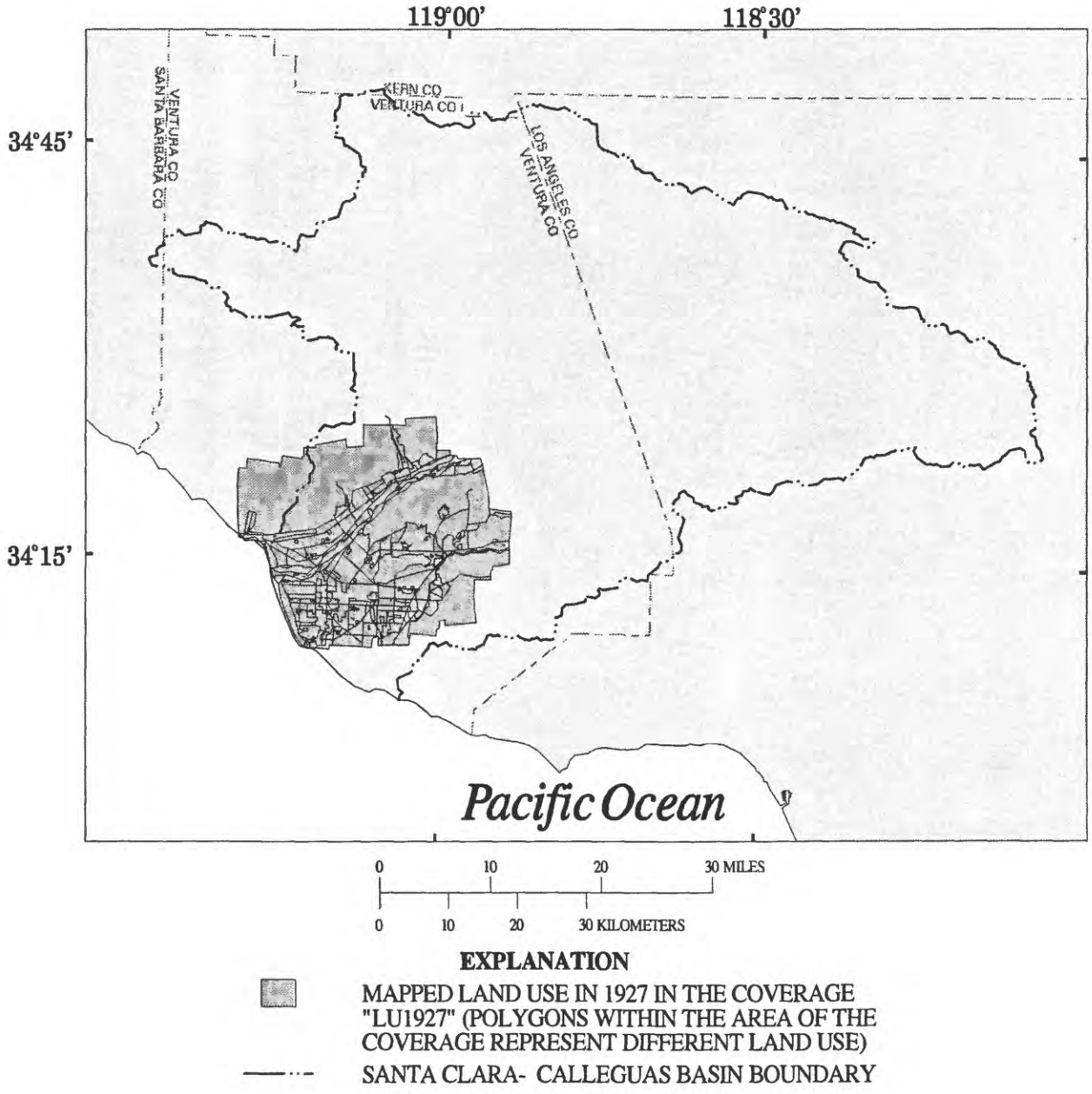

Figure 8. Selected land use in 1927.

LU1932

Description: Selected land use in 1932.

Data type: POLYGON.

Source: Modified from:

California Department of Public Works, 1933, Ventura County investigation: California Department of Public Works, Division of Water Resources Bulletin No. 46, 244 p., pl. B

Source scale: 1:74,400 (approximate)

Source projection: Unknown.

Method of entry: Land-use polygons and control points (points of known coordinate locations) were scanned from mylar source maps with a Contex high resolution scanner and vectorized using Cadcore software. The vectorized data were output in DXF-file format, converted to a coverage, and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1, 1994

Description of variables: LU1932 polygon attribute table.

Variable	Type	Length	Definition
ACRES	Floating decimal	9	Acreage.
NAME	Character	30	Land-use classification.
CODE_1932	Character	10	Abbreviated land-use classification.
IRR/DRY	Character	3	Identifies parcel as irrigated or dry farmed.

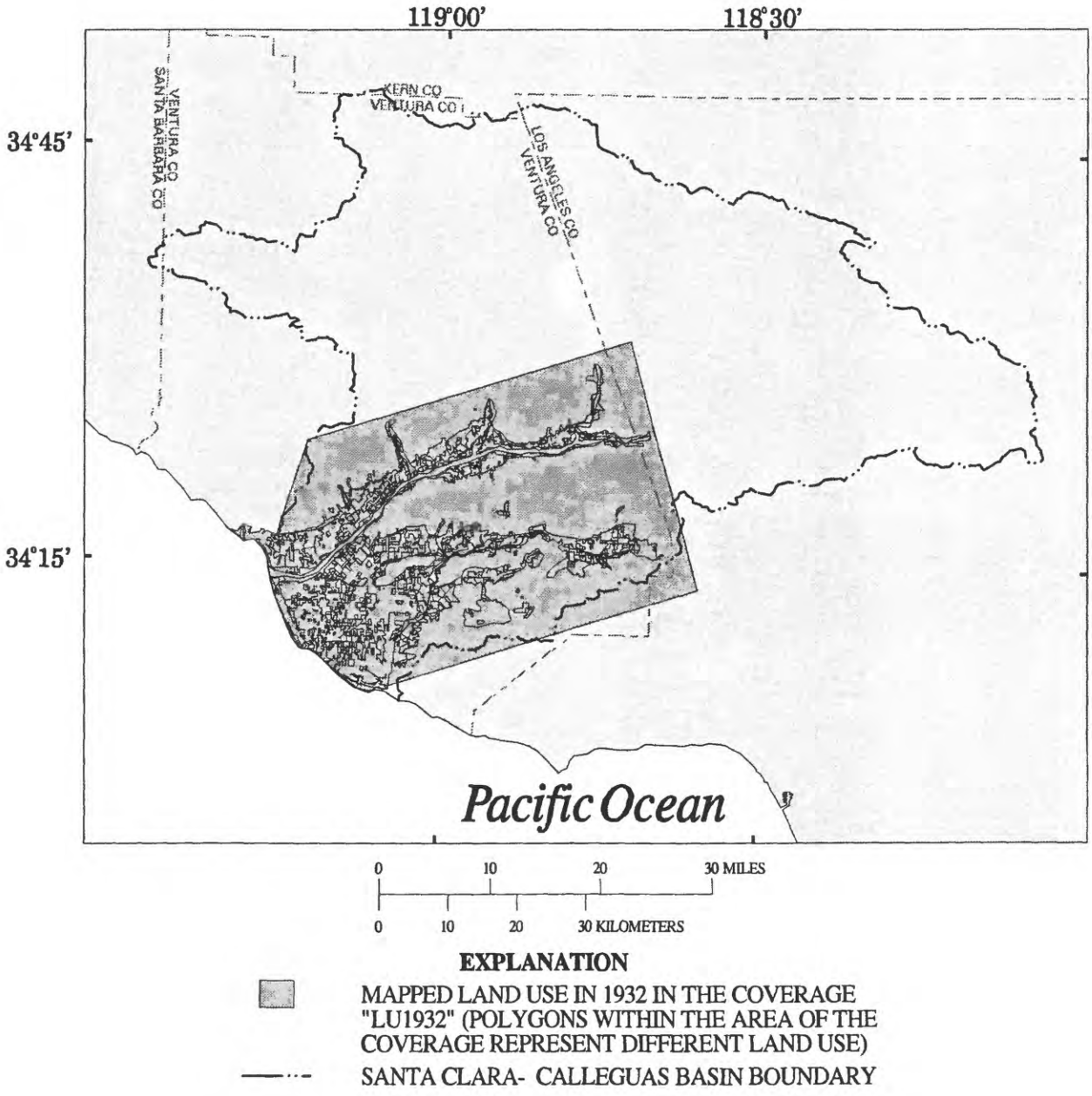

Figure 9. Selected land use in 1932.

LU1950

Description: Selected land use in 1950.

Data type: POLYGON.

Source: Modified from:

California Department of Public Works, 1950, Crop survey -- Ventura County surveyed 1949-50: Unpublished map series on file with California Department of Public Works, Division of Water Resources, Los Angeles Office.

Source scale: 1:15,960 (approximate)

Source projection: Unknown.

Method of entry: Land-use polygons and control points (points of known coordinate locations) were scanned from mylar source maps with a Contex high resolution scanner and vectorized using Cadcore software. The vectorized data were output in DXF-file format, converted to a coverage, and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: October 6, 1992

Description of variables: LU1950 polygon attribute table.

Variable	Type	Length	Definition
ACRES	Floating decimal	9	Acreage.
NAME	Character	30	Land-use classification.
CODE_1950	Character	10	Abbreviated land-use classification.
MAP	Integer	3	Map-sheet number.
IRR/DRY	Character	3	Identifies parcel as irrigated or dry farmed.

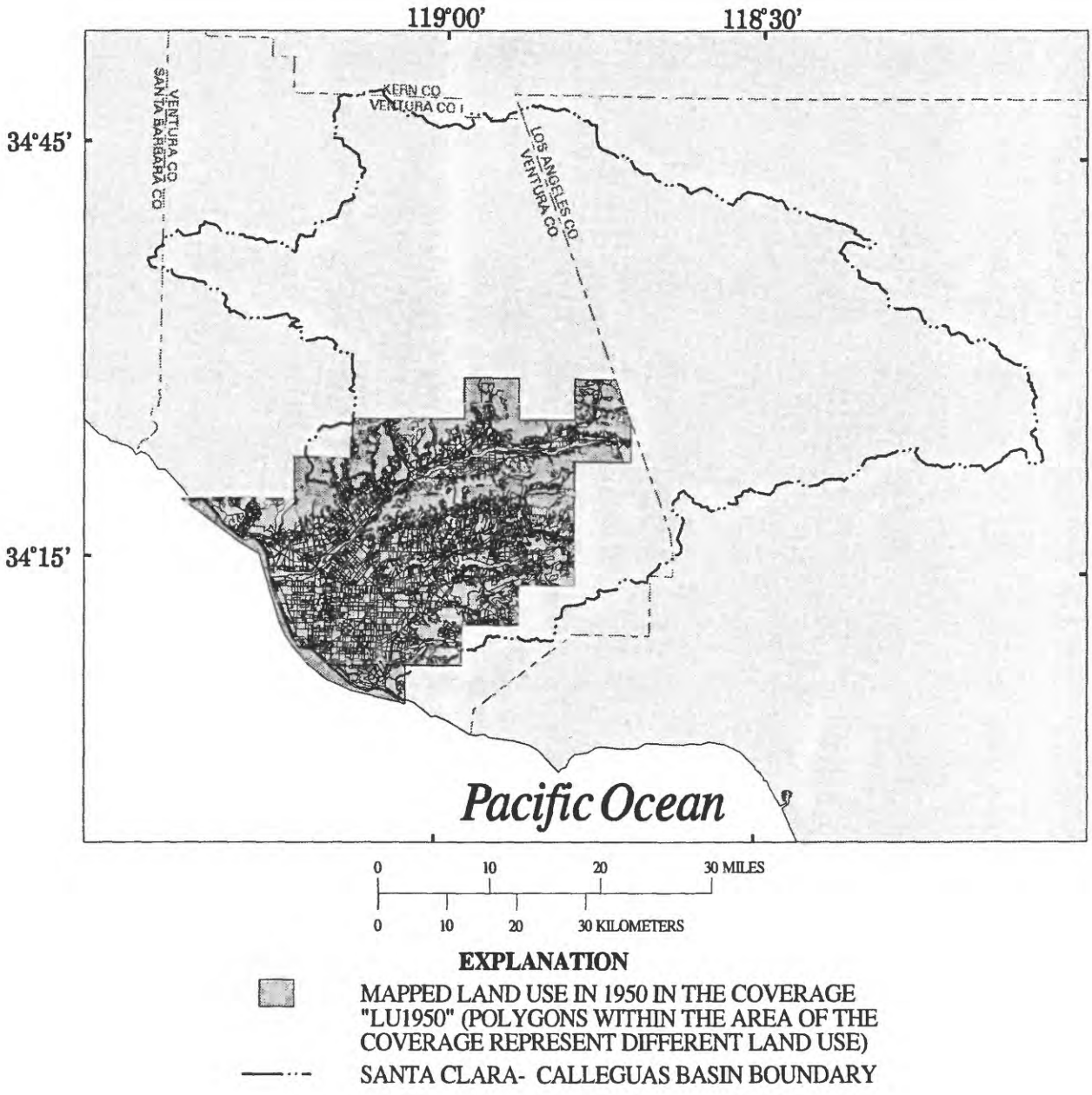

Figure 10. Selected land use in 1950.

LU1969

Description: Selected land use in 1969.

Data type: POLYGON.

Source: Modified from:

California Department of Water Resources, 1970, Ventura County land-use survey: 1969 Ventura County and upper Santa Clara River drainage area land and water-use study: California Department of Water Resources, Southern District, Memorandum Report.

Source scale: 1:24,000

Source projection: Polyconic.

Method of entry: Land-use polygons and control points (points of known coordinate locations) were scanned from mylar source maps with a Contex high resolution scanner and vectorized using Cadcore software. The vectorized data were output in DXF-file format, converted to a coverage, and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: June 24, 1994

Description of variables: LU1969 polygon attribute table.

Variable	Type	Length	Definition
ACRES	Floating decimal	9	Acreage.
NAME	Character	30	Land-use classification.
CODE_1969	Character	10	Abbreviated land-use classification.
MAP	Character	5	Map-sheet number.
IRR/DRY	Character	3	Identifies parcel as irrigated or dry farmed.

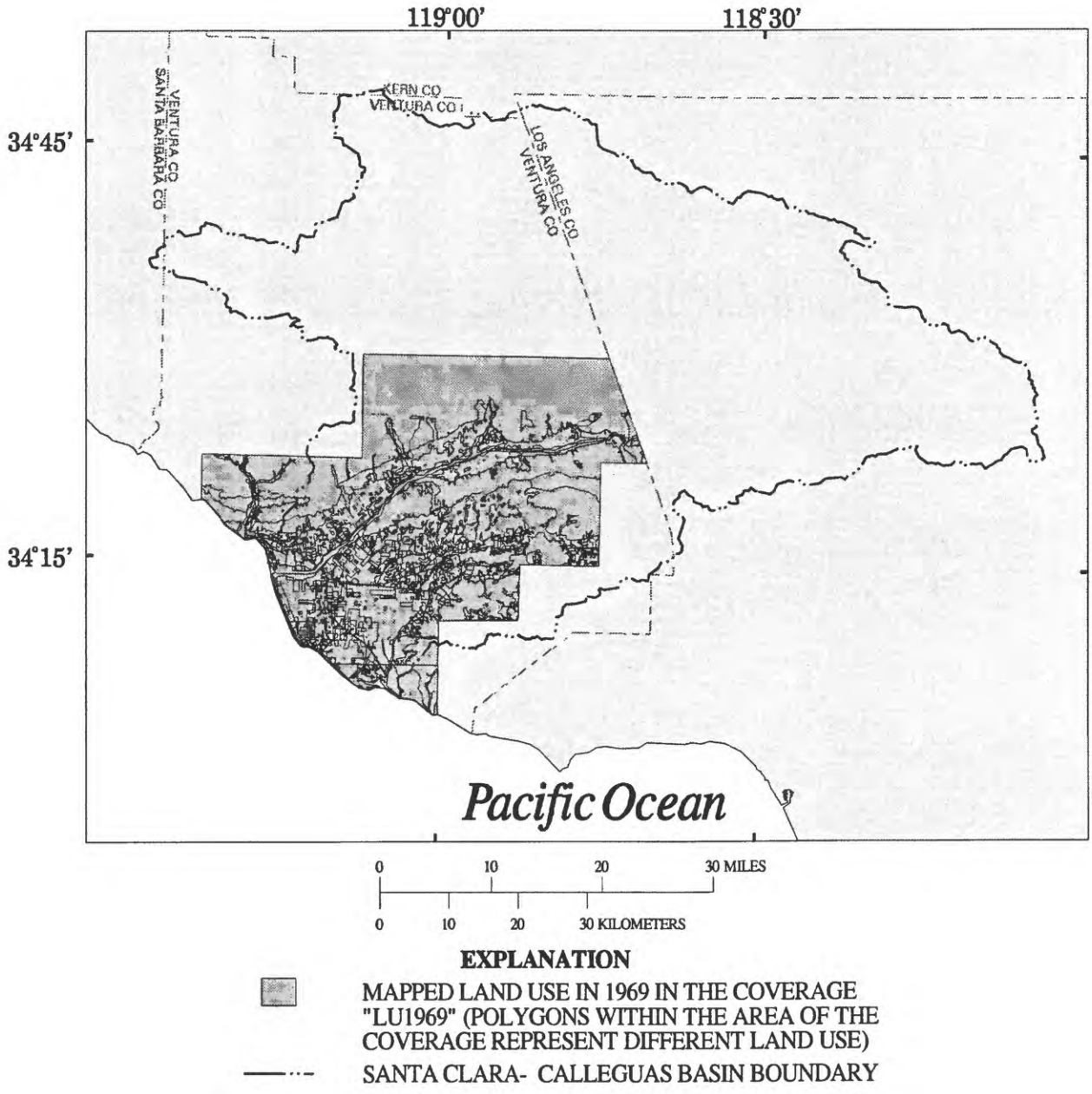

Figure 11. Selected land use in 1969.

LUOX1988

Description: Selected land use in1988 for the Oxnard quadrangle.

Data type: POLYGON.

Source: Modified from:

California Department of Water Resources, Southern District, 1988, Ventura County and the Upper Santa Clara River drainage area land-use survey, map 63-43 Oxnard, Calif.: Unpublished map series on file with California Department of Water Resources, Southern District.

Source scale: 1:24,000

Source projection: Polyconic.

Method of entry: Land-use polygons and control points (points of known coordinate locations) were scanned from mylar source map with a Contex high resolution scanner and vectorized using Cadcore software. The vectorized data were output in DXF-file format, converted to a coverage, and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: December 1, 1992

Description of variables: LUOX1988 polygon attribute table.

Variable	Type	Length	Definition
ACRES	Floating decimal	9	Acreage.
NAME	Character	30	Land-use classification.
CODE_1969	Character	10	Abbreviated land-use classification.
IRR/DRY	Character	3	Identifies parcel as irrigated or dry farmed.

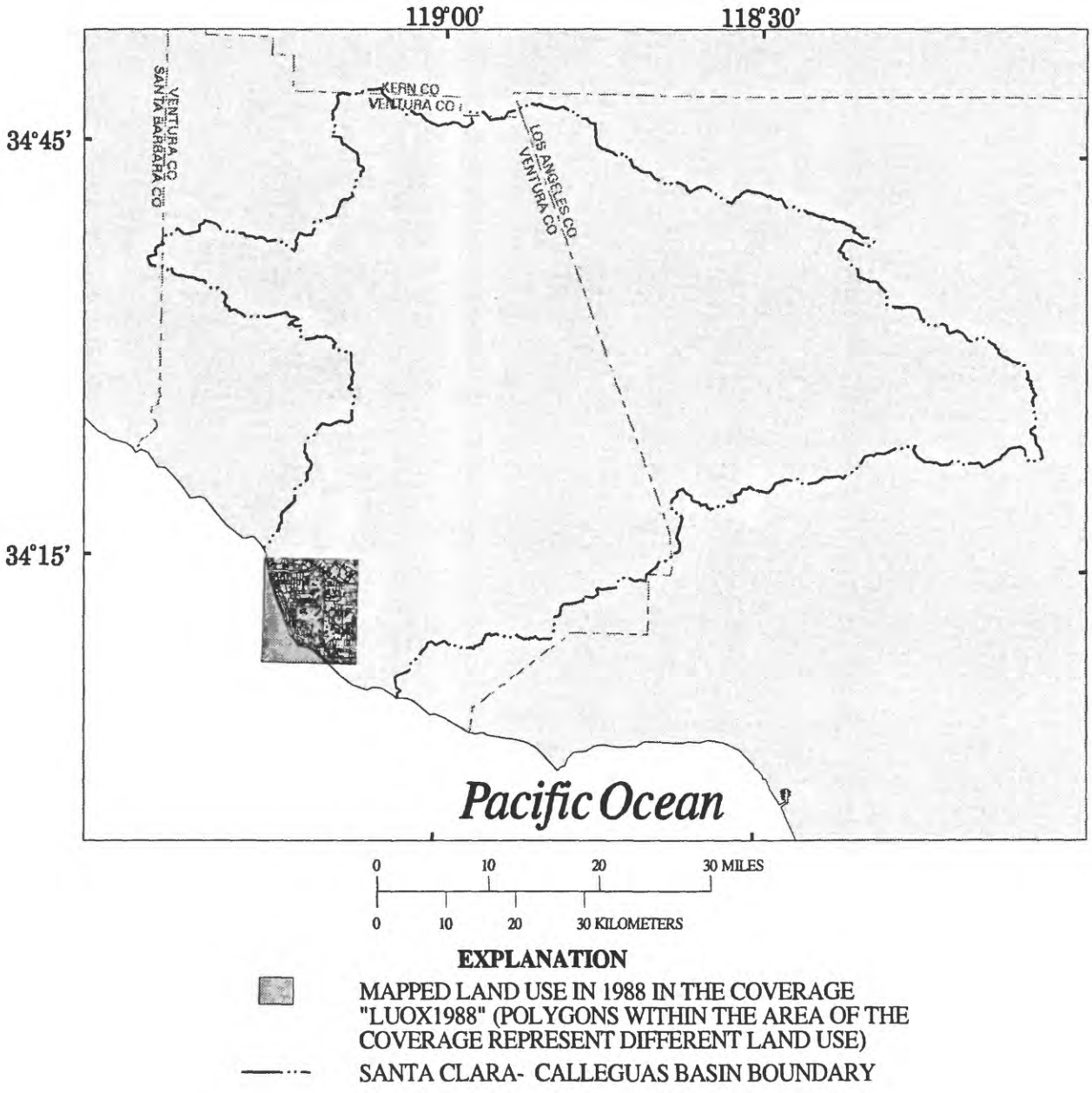

Figure 12. Selected land use in 1988 for the Oxnard quadrangle.

PIPELINE

Description: Selected pipelines within the United Water Conservation District.

Data type: LINE.

Source: Modified from:

(a) United Water Conservation District, 1991b, Untitled: Unpublished map representing all pipelines managed or billed by United Water Conservation District: Ventura County, Calif. (on file with the United Water Conservation District).

(b) United Water Conservation District, 1989b, Pumping Trough Pipeline Unit I and Unit II: Unpublished schematic,Y2-1895 7/21/89 (on file with the United Water Conservation District, Ventura County, Calif.).

(c) United Water Conservation District, 1989a, Oxnard-Hueneme Pipeline with Point Mugu Lateral and Oceanview Pipeline: Unpublished schematic, OH-100-145 8/15/89 (on file with the United Water Conservation District, Ventura County, Calif.).

Source scale: (a) 1:62,500 (approximate) (b) 1:12,000 (c) 1:12,000

Source projection: (a) Unknown (b) Unknown (c) Unknown.

Method of entry: Pipeline lines were manually digitized from paper and/or mylar source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: January 15, 1993

Description of variables: PIPELINE line attribute table.

Variable	Type	Length	Definition
NAME	Character	30	Name of pipeline segments or spreading grounds.
PIPELINE_ID	Integer	3	Identification number.

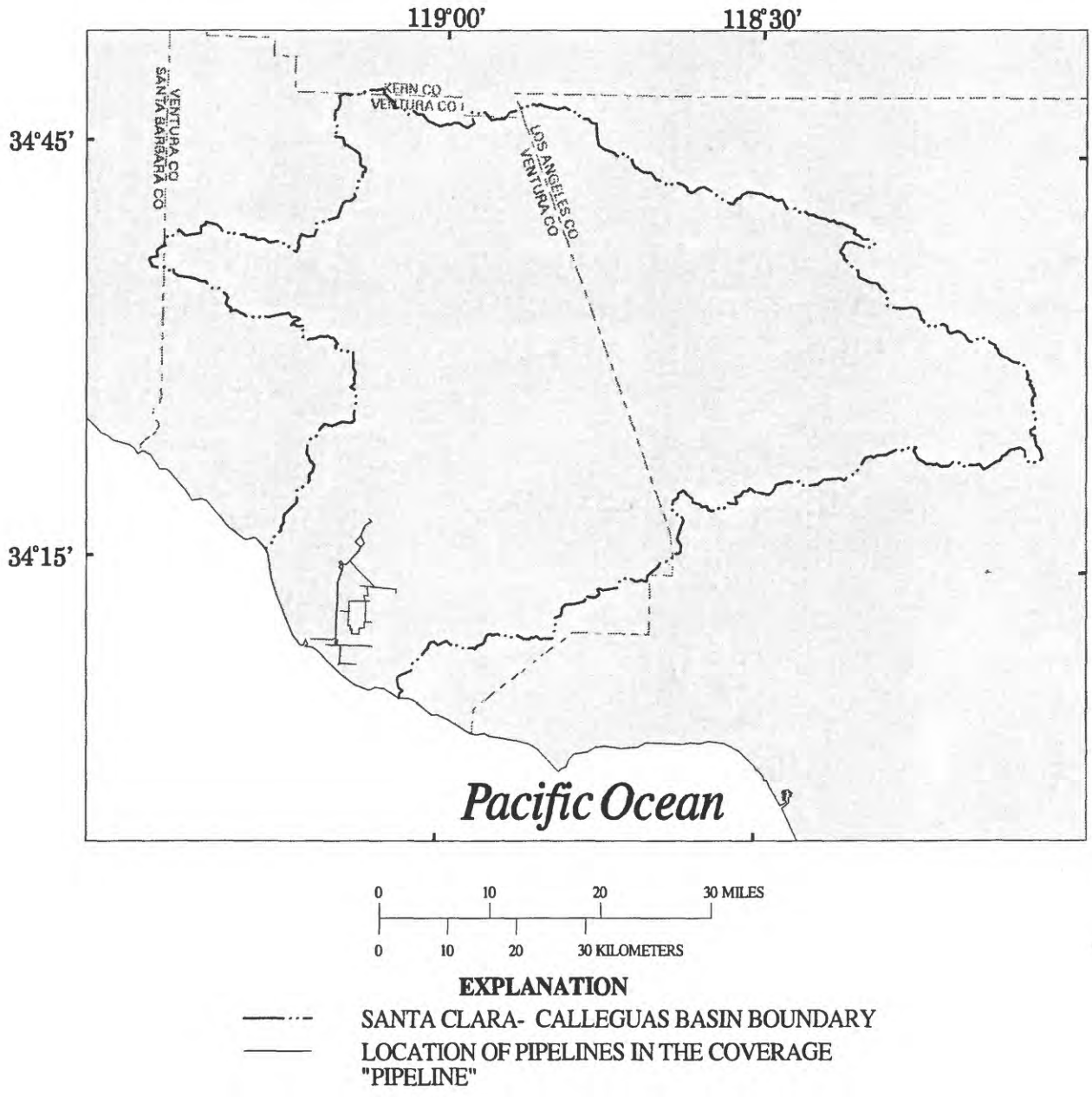

Figure 13. Selected pipelines within the United Water Conservation District.

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Public Land Survey System

This section contains the Public Land Survey System information including townships and sections.

PLSS

Description: Public Land Survey System lines in Santa Clara-Calleguas Basin.

Data type: POLYGON.

Source: Modified from:

Teale Data Center, 1989, Untitled: Digital data: Teal Data Center, GIS Technology Center, Public Land Survey data, Sacramento, Calif.

Source scale: 1:100,000

Source projection: Universal Transverse Mercator projection, zone 11.

Method of entry: Data were obtained in ARC/INFO interchange-file format and imported into a coverage.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1994

Description of variables: PLSS polygon attribute table.

Variable	Type	Length	Definition
TOWN	Character	4	Township.
RANGE	Character	4	Range.
SECTION	Integer	2	Section.
MERIDIAN	Character	1	Meridian.
TRS	Character	10	Township, range, and section.
TR	Character	8	Township and range.

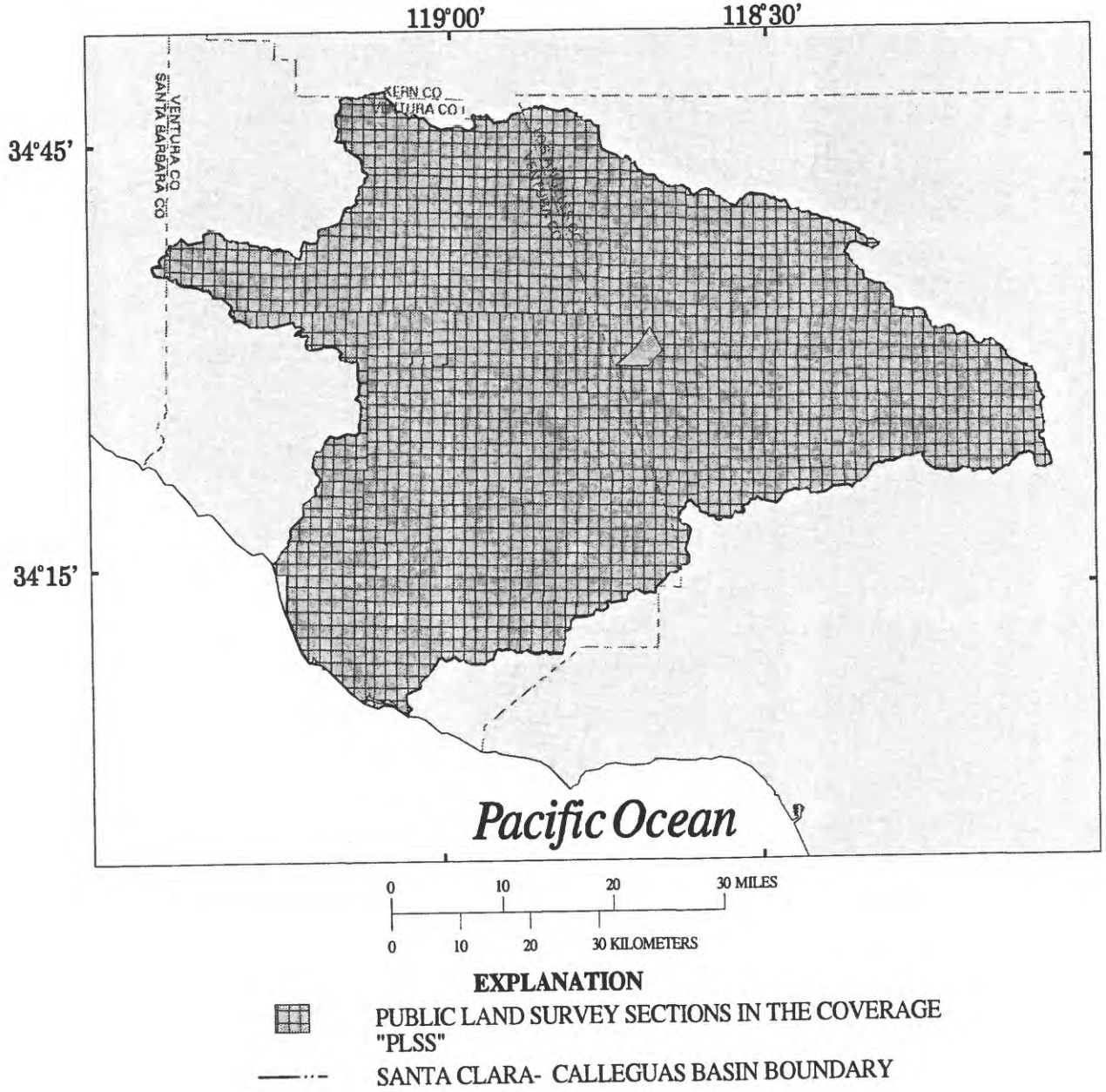

Figure 14. Public Land Survey System lines in Santa Clara-Calleguas Basin.

PLSS_TR

Description: Township and range lines in Santa Clara-Calleguas Basin.

Data type: POLYGON.

Source: Modified from:

Teale Data Center, 1989, Untitled: Digital data: Teal Data Center, GIS Technology Center, Public Land Survey data, Sacramento, Calif.

Source scale: 1:100,000

Source projection: Universal Transverse Mercator projection, zone 11.

Method of entry: Section level digital data were acquired from Teale Data Center. The sections were removed from the public land survey to give the township and range polygons.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1994

Description of variables: PLSS_TR polygon attribute table.

Variable	Type	Length	Definition
TOWN	Character	4	Township.
RANGE	Character	4	Range.
TR	Character	8	Township and range.

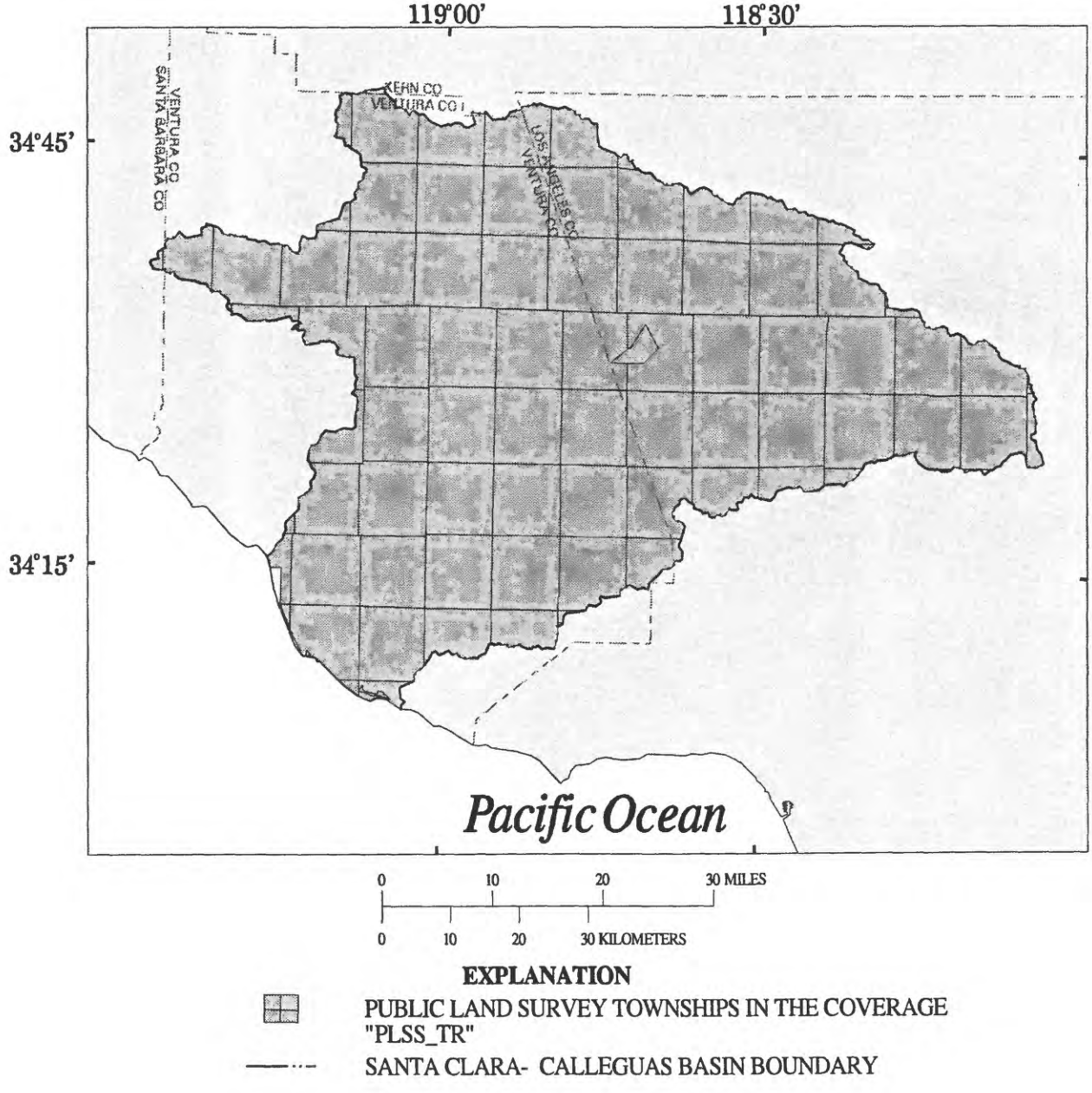

Figure 15. Township and range lines in Santa Clara-Calleguas Basin.

QUADS_BND

Description: 7.5-minute quadrangle boundaries.

Data type: POLYGON.

Source: U.S. Geological Survey 7.5-minute topographic quadrangle maps.

Source scale: 1:24,000

Source projection: Not applicable.

Method of entry: Data were obtained in latitude-longitude coordinates, converted to a coverage, and transformed to Universal Transverse Mercator projection.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1994

Description of variables: QUADS_BND polygon attribute table.

Column	Type	Length	Definition
NAME_7.5	Character	50	U.S. Geological Survey 7.5-minute topographic quadrangle name.
NAME_100K	Character	30	U.S. Geological Survey 30- x 60-minute topographic quadrangle name.

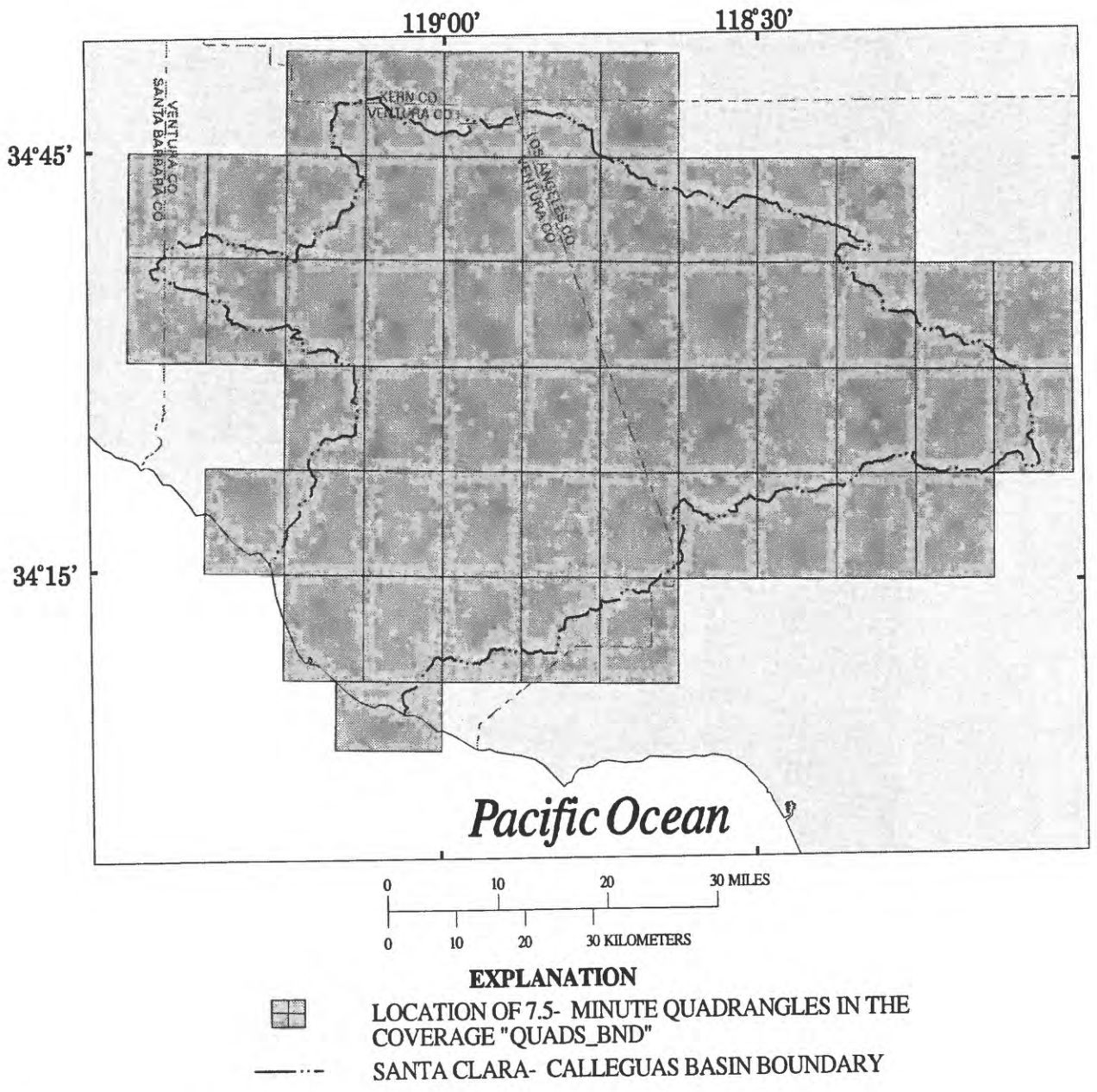

Figure 16. 7.5-minute quadrangle boundaries.

ROADS

Description: Selected roads.

Data type: LINE.

Source: Modified from:

U.S. Geological Survey 30- x 60-minute topographic quadrangles.

Source scale: 1:100,000

Source projection: Universal Transverse Mercator projection, zone 11.

Method of entry: Road lines were manually digitized from paper source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1, 1994

Description of variables: RASA_ROADS line attribute table.

Item	Type	Length	Definition
NAME	Character	30	Road name.

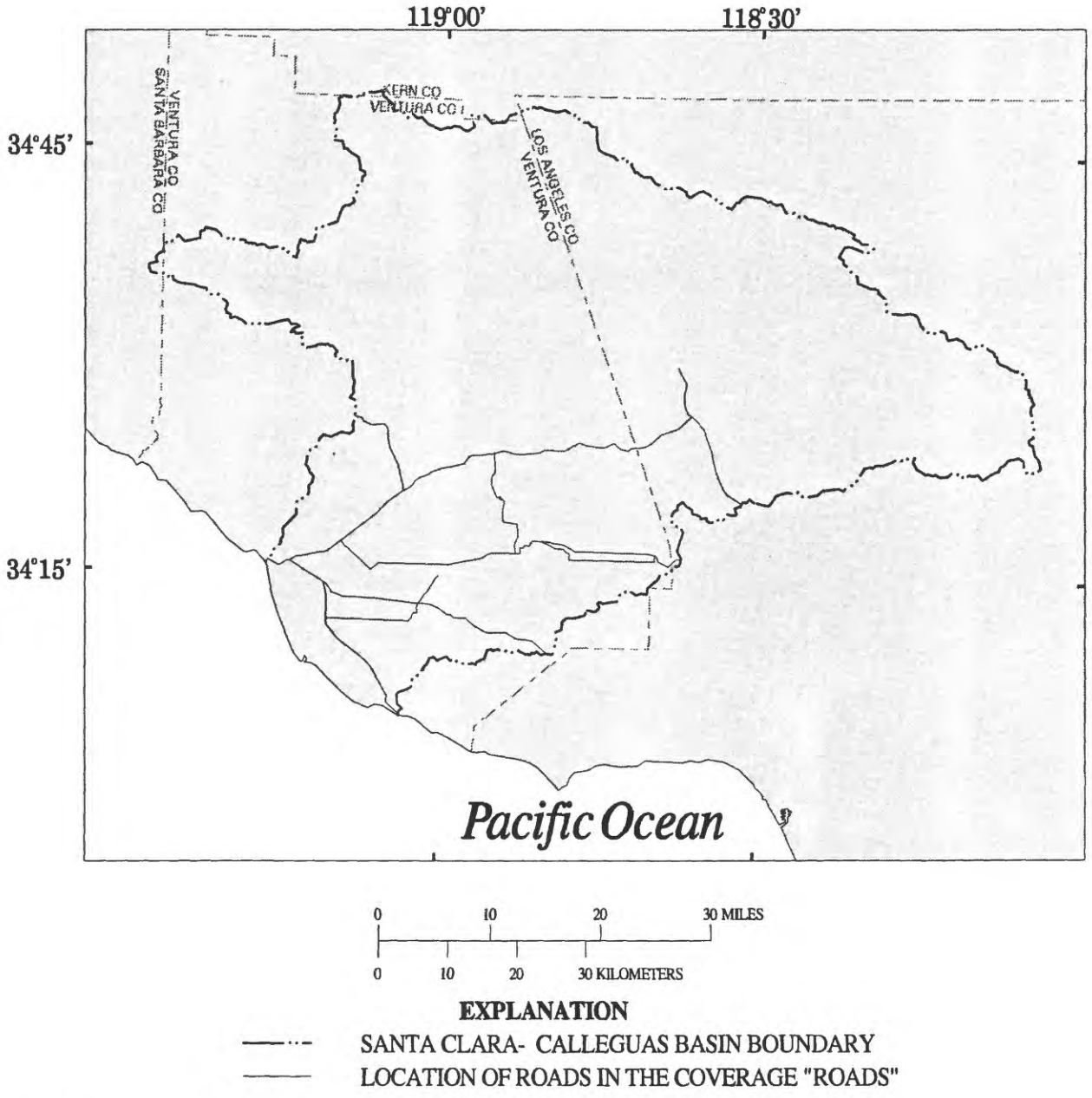

Figure 17. Selected roads.

WWTP_SITES

Description: Discharge locations of selected wastewater-treatment facilities.

Data type: POINT.

Source: Modified from:

Hanson, Randy, 1995, Untitled: Unpublished data base on file with the U.S. Geological Survey, San Diego, Calif.

Source scale: Not applicable.

Source projection: Not applicable.

Method of entry: Data were obtained in latitude-longitude coordinates, converted to a coverage, and transformed to Universal Transverse Mercator coordinates.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: March 8, 1996

Description of variables: WWTP_SITES point attribute table.

Variable	Type	Length	Definition
LAT	Integer	6	Latitude in degrees, minutes, and seconds.
LONG	Integer	7	Longitude in degrees, minutes, and seconds.
STREAM	Character	30	Name of stream receiving wastewater.
DIS_AGENCY	Character	30	Wastewater discharging agency.
PER_RECORD	Character	10	Period of record, in years.
OUTFALL_ID	Integer	2	Identification number.

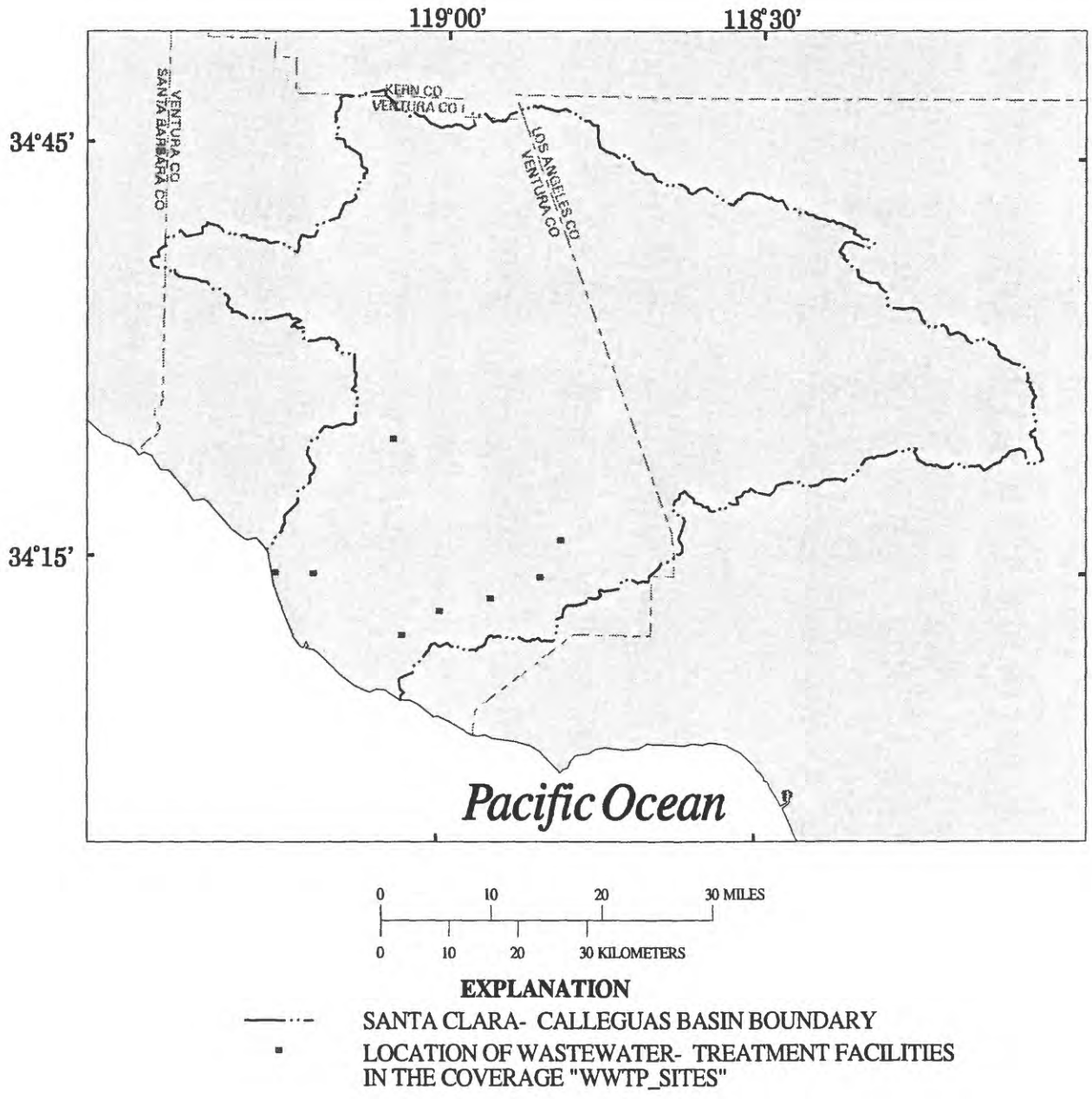

Figure 18. Discharge locations of selected wastewater-treatment facilities.

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Geology

This section contains data layers that represent the Earth's composition, structure, and history. The data layers include information on the tops and bases of aquifers, offshore bathymetry, faults, synclines, anticlines, monoclines, surficial geology, and soils.

Aquifer Tops and Bases

This section contains information on the aquifer top and base. This information includes average elevation and lines of equal elevation for top of the Oxnard aquifer, base of the Oxnard aquifer, top of the Mugu aquifer, base of the Mugu aquifer, top of the lower aquifer system, and the base of the ground-water system.

OXN_TOP

Description: Elevation contours of the top of the Oxnard aquifer.

Data type: POLYGON and LINE.

Source: Modified from:

California Department of Water Resources, 1975b, Lines of equal elevation on the top of the upper aquifer system: California Department of Water Resources, Southern District, Water Resources Management, pl. 1.

Source scale: 1:63,360

Source projection: Unknown.

Method of entry: Contour lines were manually digitized from mylar source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: May 1994

Description of variables: OXN_TOP polygon attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Average elevation, in feet, referenced to sea level.

Description of variables: OXN_TOP line attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Lines of equal elevation, in feet, referenced to sea level.

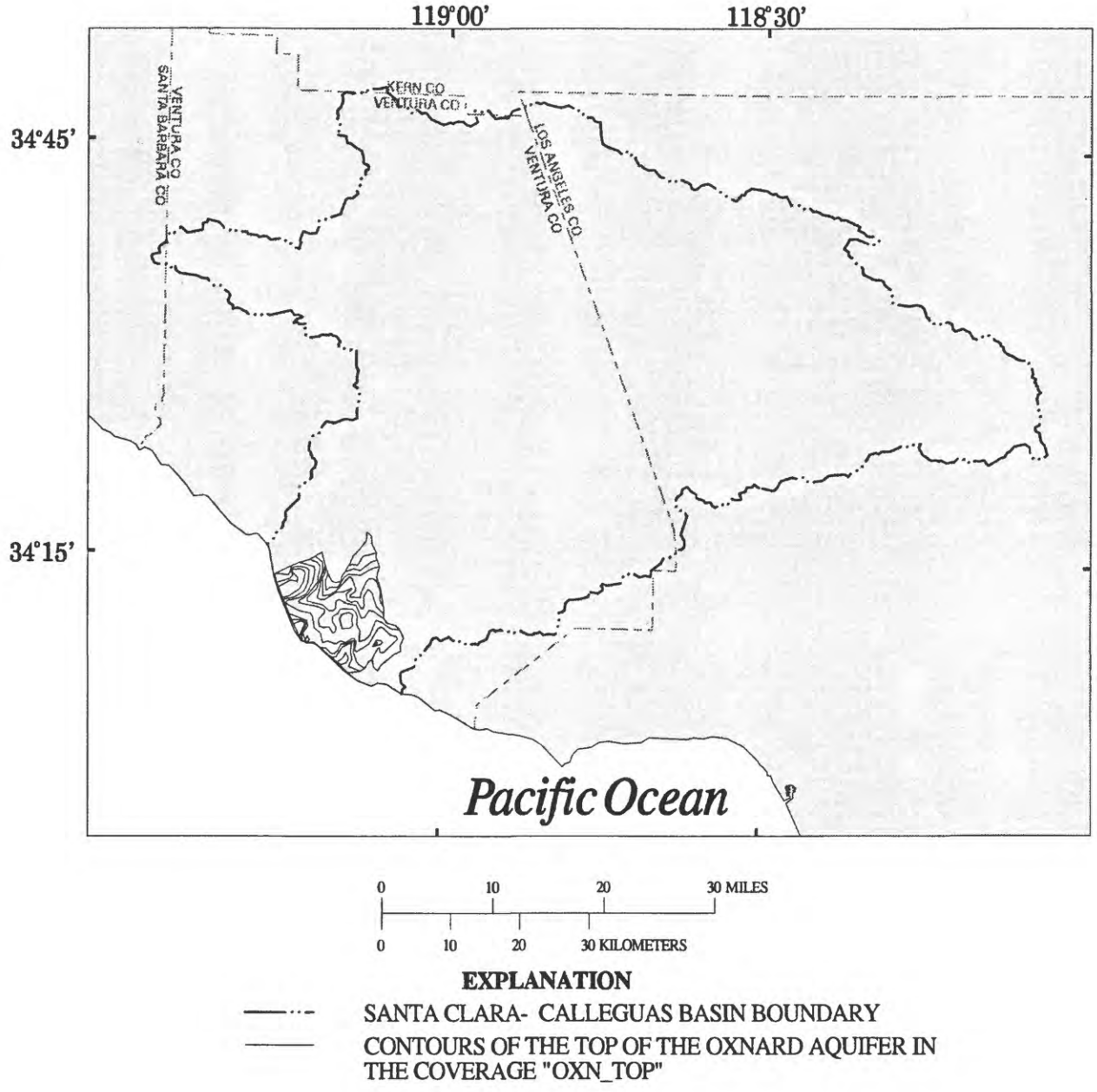

Figure 19. Elevation contours of the top of the Oxnard aquifer.

OXN_BOT

Description: Elevation contours of the bottom of the Oxnard aquifer.

Data type: POLYGON and LINE.

Source: Modified from:

Ventura County, 1978, 208 Seawater Intrusion Study, Ventura County: Generalized lines of equal elevation on the base of the Oxnard aquifer zone: Ventura County, Calif., 1 sheet.

Source scale: 1:63,360

Source projection: Unknown.

Method of entry: Contour lines were manually digitized from mylar source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: May 1994

Description of variables: OXN_BOT polygon attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Average elevation, in feet, referenced to sea level.

Description of variables: OXN_BOT line attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Lines of equal elevation, in feet, referenced to sea level.

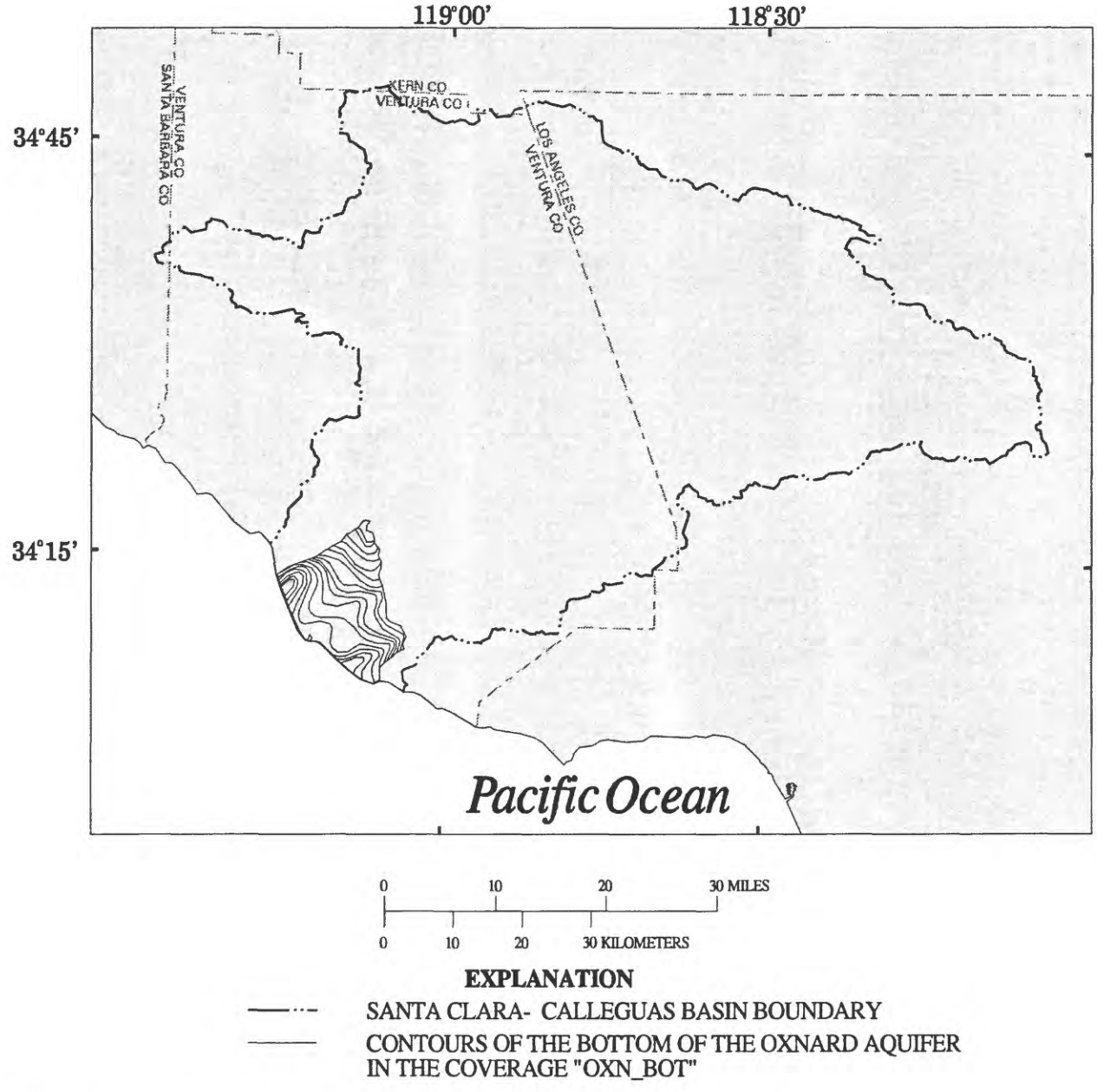

Figure 20. Elevation contours of the bottom of the Oxnard aquifer

MUGU_TOP

Description: Elevation contours of the top of the Mugu aquifer.

Data type: LINE and POLYGON.

Source: Modified from:

Turner, John M., 1975, Groundwater management plan: Lines of equal elevation on the top of the Mugu aquifer: County of Ventura, Public Works Agency, Flood Control and Water Resources Department, Fox Canyon Groundwater Management Agency, pl. 1.

Source scale: 1:63,360

Source projection: Unknown.

Method of entry: Contour lines were manually digitized from mylar source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: May 1994

Description of variables : MUGU_TOP polygon attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Average elevation, in feet, referenced to sea level.

Description of variables : MUGU_TOP polygon attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Lines of equal elevation, in feet, referenced to sea level.

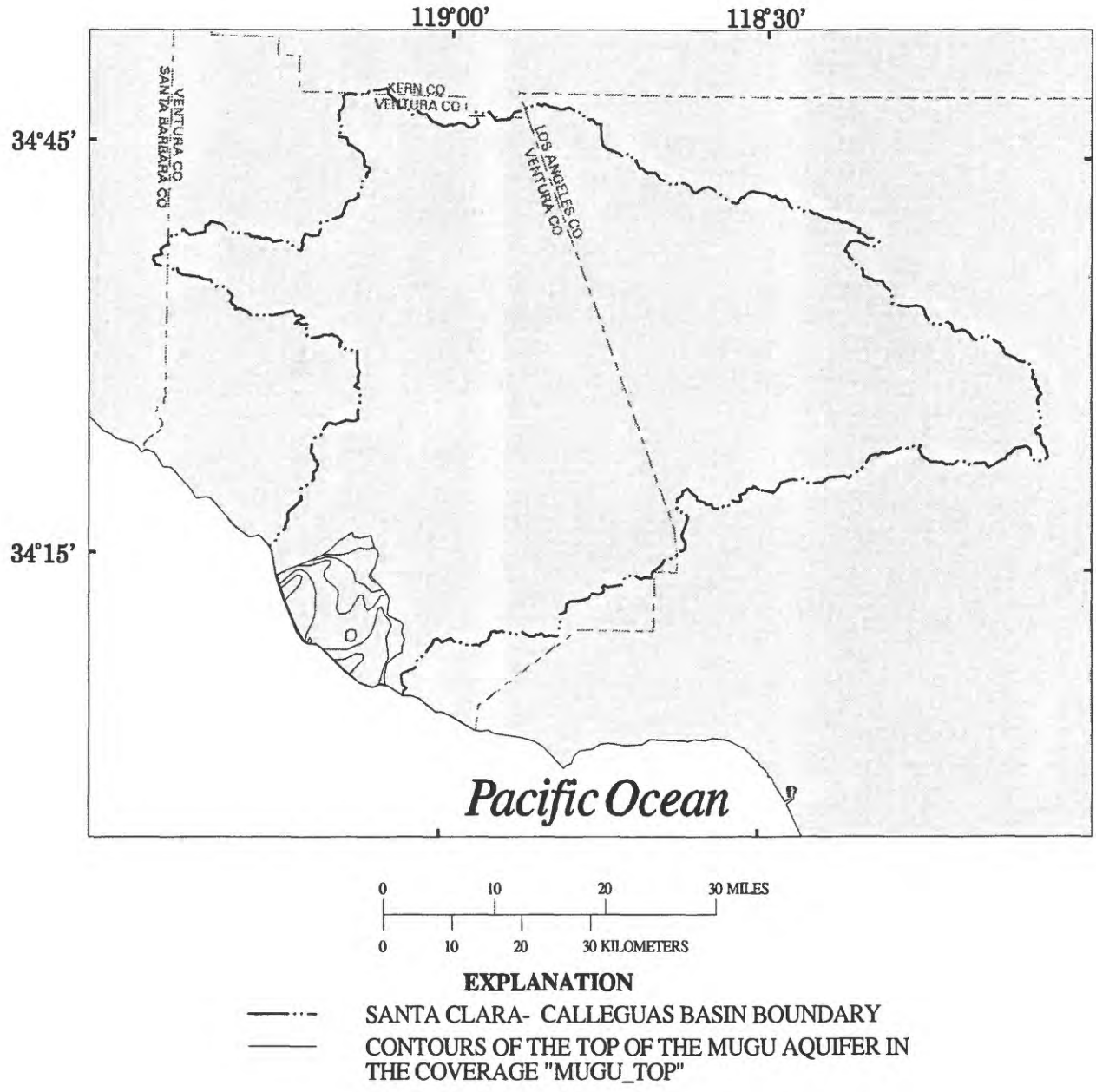

Figure 21. Elevation contours of the top of the Mugu aquifer.

MUGU_BOT

Description: Elevation contours of the bottom of the Mugu aquifer.

Data type: POLYGON and LINE.

Source: Modified from:

Turner, John M., 1975, Groundwater management plan: Lines of equal elevation on the bottom of the Mugu aquifer: County of Ventura, Public Works Agency, Flood Control and Water Resources Department, Fox Canyon Groundwater Management Agency, pl. 2.

Source scale: 1:63,360

Source projection: Unknown.

Method of entry: Contour lines were manually digitized from a mylar source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: May 1994

Description of variables: MUGU_BOT polygon attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Average elevation, in feet, referenced to sea level.

Description of variables: MUGU_BOT line attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Lines of equal elevation, in feet, referenced to sea level.

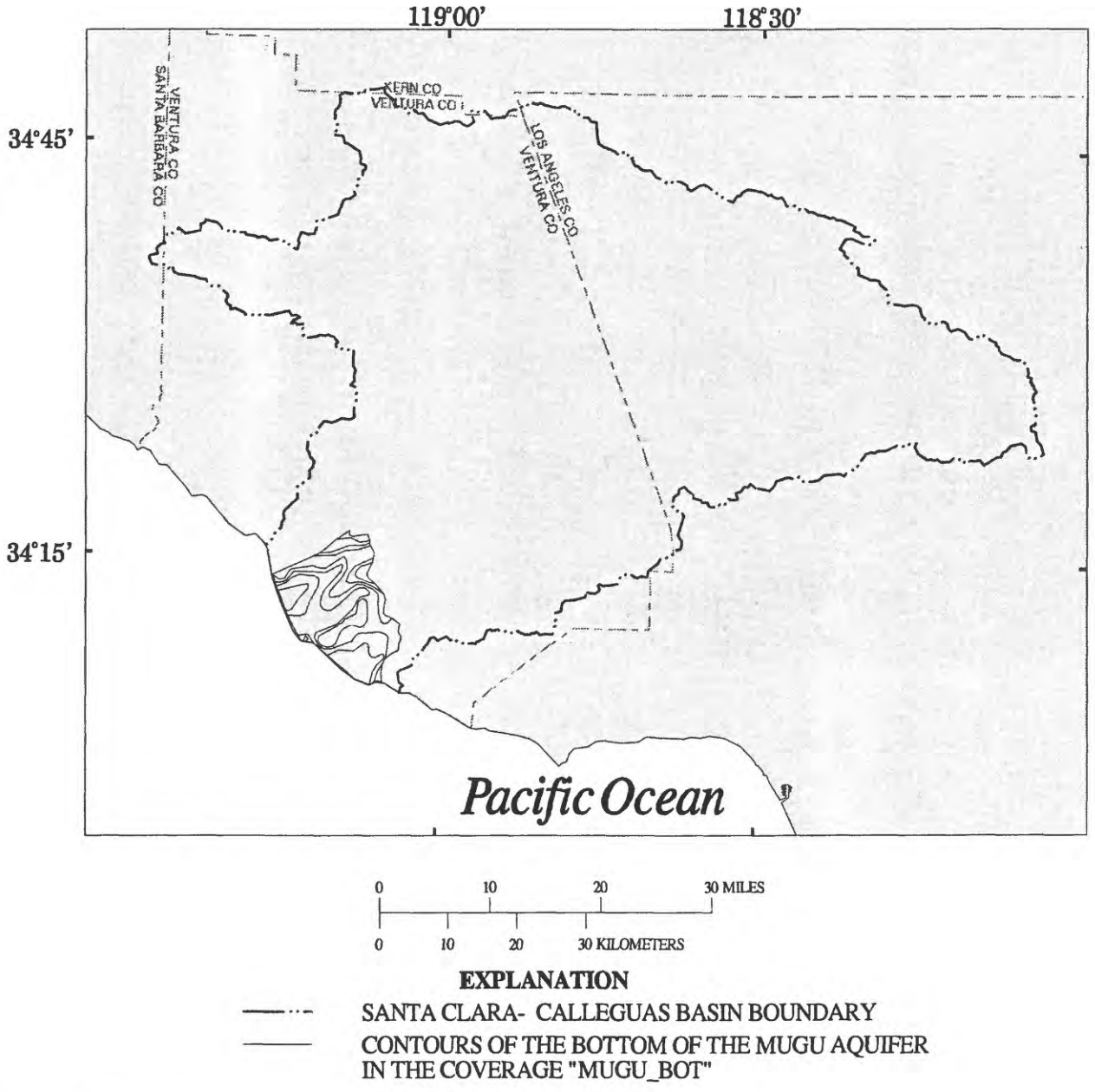

Figure 22. Elevation contours of the bottom of the Mugu aquifer.

LAS_TOP

Description: Elevation contours of the top of the lower aquifer system.

Data type: POLYGON and LINE.

Source: Modified from:

Turner, John M., 1975, Groundwater management plan: Lines of equal elevation on the top of the lower aquifer system: County of Ventura, Public Works Agency, Flood Control and Water Resources Department, Fox Canyon Groundwater Management Agency, pl. 4.

Source scale: 1:63,360

Source projection: Unknown.

Method of entry: Contour lines were manually digitized from a mylar source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: May 1994

Description of variables: FOX_TOP polygon attribute table.

Column	Type	Length	Definition
ELEVATION	Integer	6	Average elevation, in feet, referenced to sea level.

Description of variables: FOX_TOP line attribute table.

Column	Type	Length	Definition
ELEVATION	Integer	6	Lines of equal elevation, in feet, referenced to sea level.

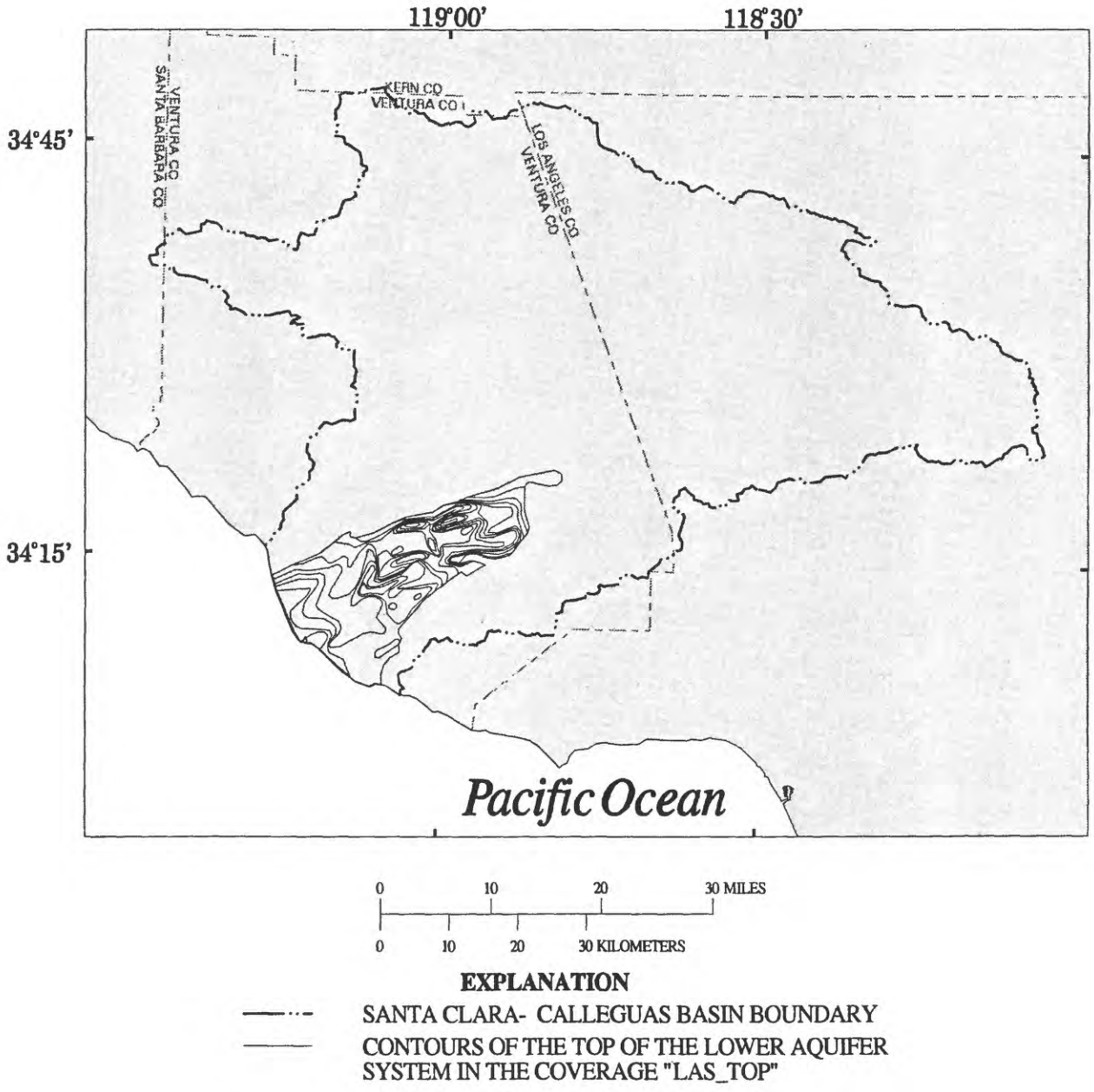

Figure 23. Elevation contours of the top of the lower aquifer system.

LAS_BOT

Description: Elevation contours of the base of the ground-water system.

Data type: POLYGON and LINE.

Source: Modified from:

Turner, John M., 1975, Groundwater management plan: Lines of equal elevation on the base of the ground-water system: County of Ventura, Public Works Agency, Flood Control and Water Resources Department, Fox Canyon Groundwater Management Agency, pl. 5.

Source scale: 1:63,360

Source projection: Unknown.

Method of entry: Contour lines were manually digitized from a mylar source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: May 1994

Description of variables: FOX_BOT polygon attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Average elevation, in feet, referenced to sea level.

Description of variables: FOX_BOT line attribute table.

Variable	Type	Length	Definition
ELEVATION	Integer	6	Lines of equal elevation, in feet, referenced to sea level.

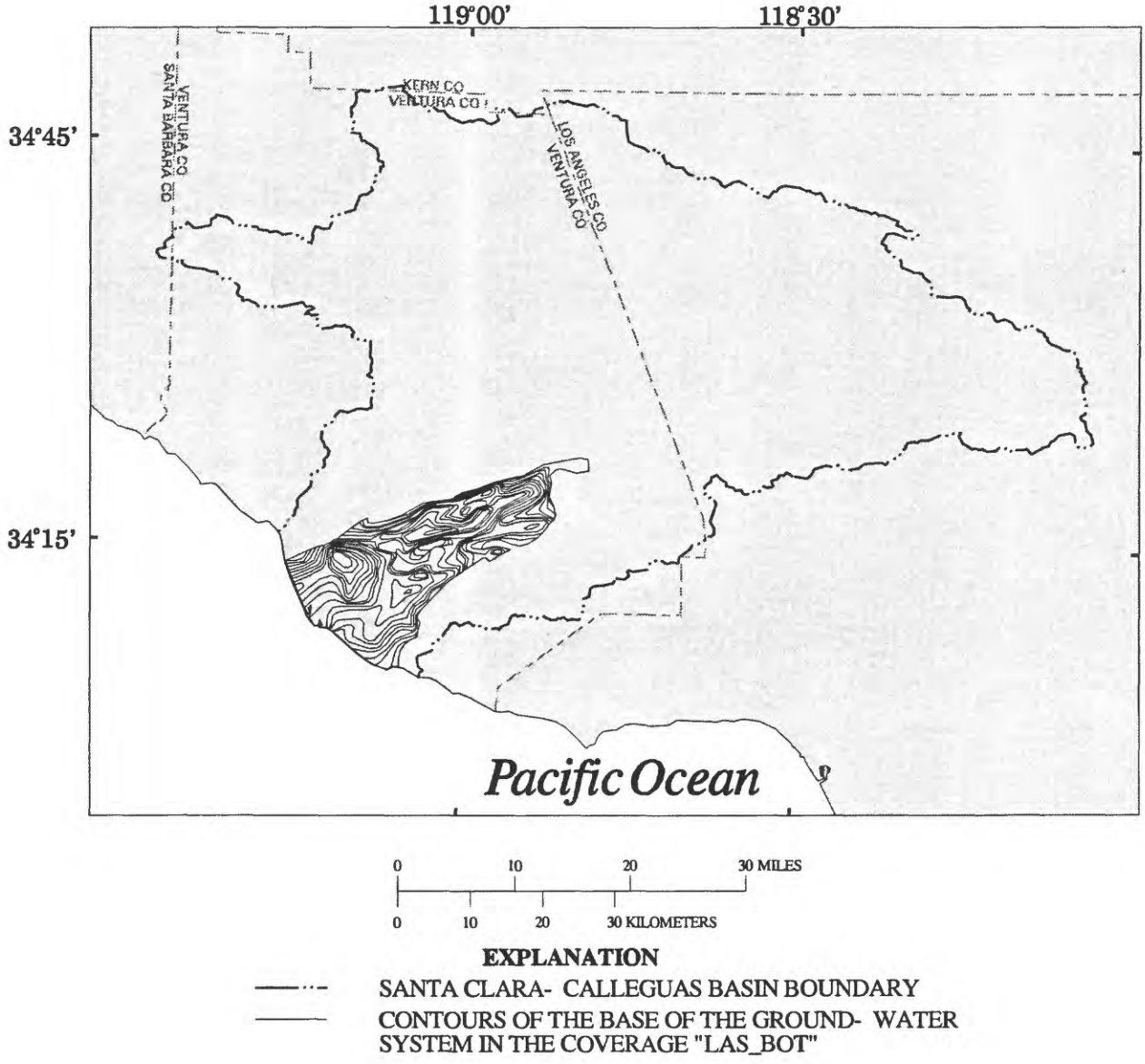

Figure 24. Elevation contours of the base of the ground-water system.

BATHY

Description: Offshore bathymetry.

Data type: LINE.

Source: Modified from:

Greene, H.G., Wolf, S.C., and Blom, K.G., 1978, The marine geology of the eastern Santa Barbara Channel, with particular emphasis on the ground-water basins offshore from the Oxnard Plain, Southern California: U.S. Geological Survey Open-File Report 78-305, 104 p., pl. 2.

Source scale: 1:62,500

Source projection: California Coordinate System, zone 5.

Method of entry: Bathymetry lines were manually digitized from a paper source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: July 11, 1991

Description of variables: BATHY line attribute table.

Variable	Type	Length	Definition
METERS	Floating decimal	8	Bathymetric contours, in meters.
FEET	Floating decimal	8	Bathymetric contours, in feet, as calculated from meters.

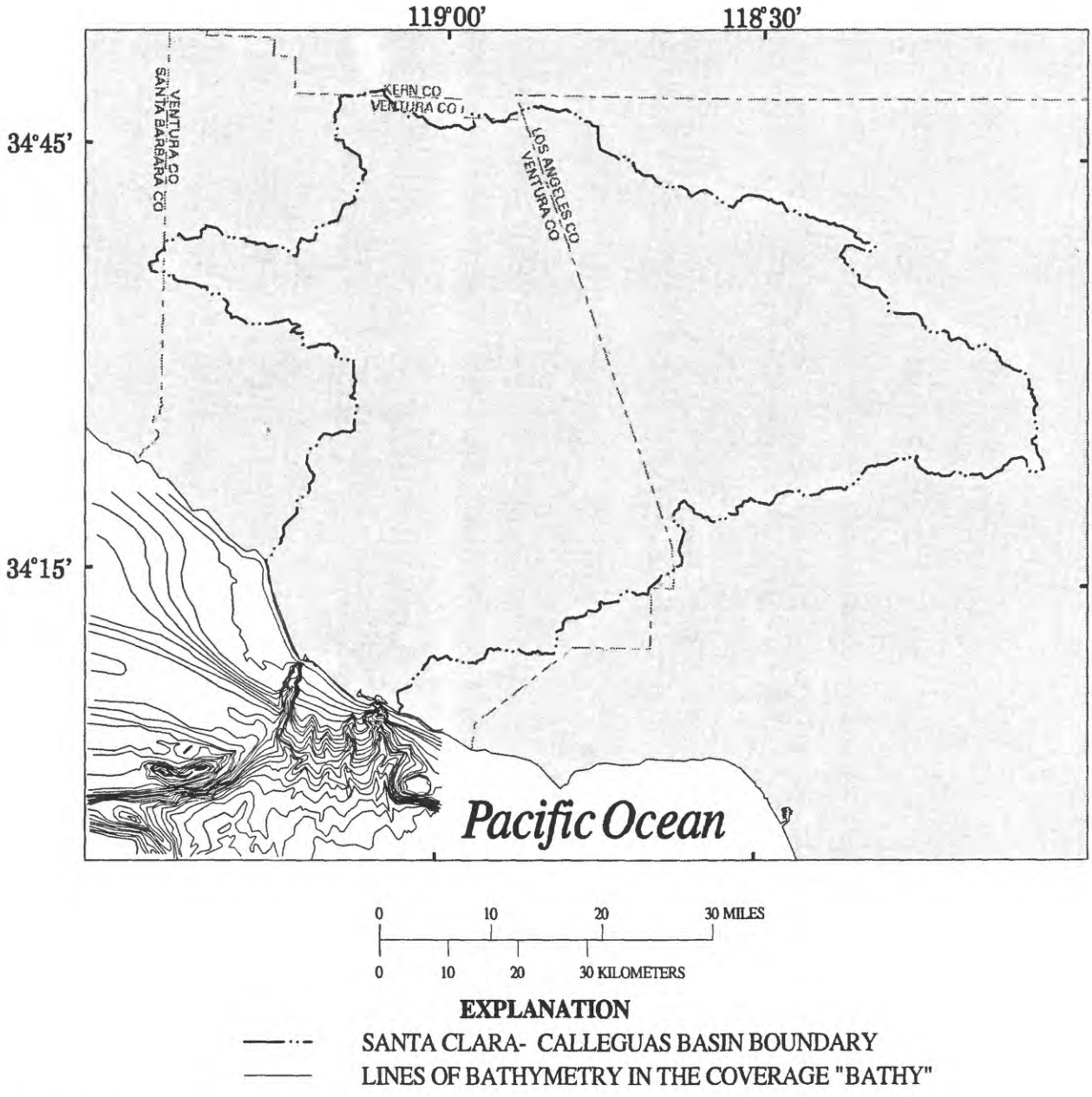

Figure 25. Offshore bathymetry.

FAULTS

Description: Selected faults.

Data type: LINE.

Source: Modified from:

(a) Weber, F.H., Kiessling, E.W., Sprotte, E.C., Johnson, J.A., Sherburne, R.W., and Cleveland, G.B., 1976, Seismic hazards study of Ventura County, California: California Department of Conservation, California Division of Mines and Geology Open-File Report 76-5, 396 p., pls. 3A and 3B.

(b) Greene, H.G., Wolf, S.C., and Blom, K.G., 1978, The marine geology of the eastern Santa Barbara Channel, with particular emphasis on the ground-water basins offshore from the Oxnard Plain, Southern California: U.S. Geological Survey Open-File Report 78-305, 104 p., pl. 2.

Source scale: (a) 1:48,000 (b) 1:62,500

Source projection: (a) California Coordinate System, zone 5.

(b) California Coordinate System, zone 5.

Method of entry: Fault lines were manually digitized from paper source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: September 1, 1992

Description of variables: FAULTS line attribute table.

Variable	Type	Length	Definition
CODE	Integer	4	Unique number for each fault trace.
TYPE	Character	16	Description of fault trace.
SYMBOL	Integer	4	Number used to assign a line color.
NAME	Character	20	Published name of fault trace.
SOURCE	Character	6	Abbreviated source for fault trace.
LOCATION	Character	9	Identifies fault as onshore or offshore.

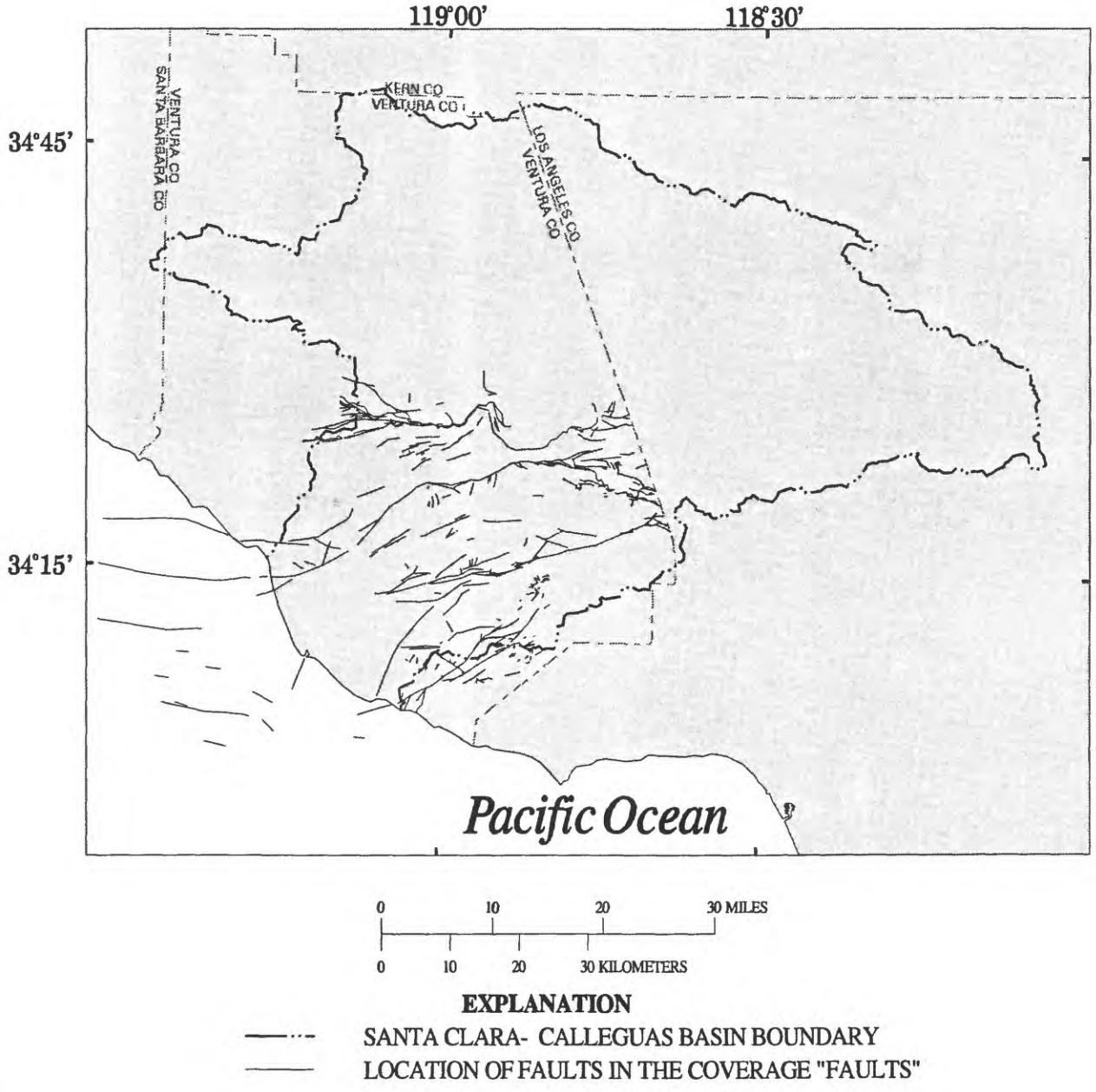

Figure 26. Selected faults.

FOLDS

Description: Selected synclines, anticlines, and monoclines.

Data type: LINE.

Source: Modified from:

Greene, H.G., Wolf, S.C., and Blom, K.G., 1978, The marine geology of the eastern Santa Barbara Channel, with particular emphasis on the ground-water basins offshore from the Oxnard Plain, Southern California: U.S. Geological Survey Open-File Report 78-305, 104 p., pl. 2.

Source scale: 1: 62,500

Source projection: Polyconic.

Method of entry: Synclines, anticlines, and monocline lines were manually digitized from a mylar source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: September 1, 1991

Description of variables: FOLDS line attribute table.

Variable	Type	Length	Definition
CODE	Integer	4	Unique number for each syncline, anticline, and monocline trace.
NAME	Character	21	Identifies feature as "observed," "inferred," or "concealed."
SYMBOL	Integer	4	Number used to assign a line color.

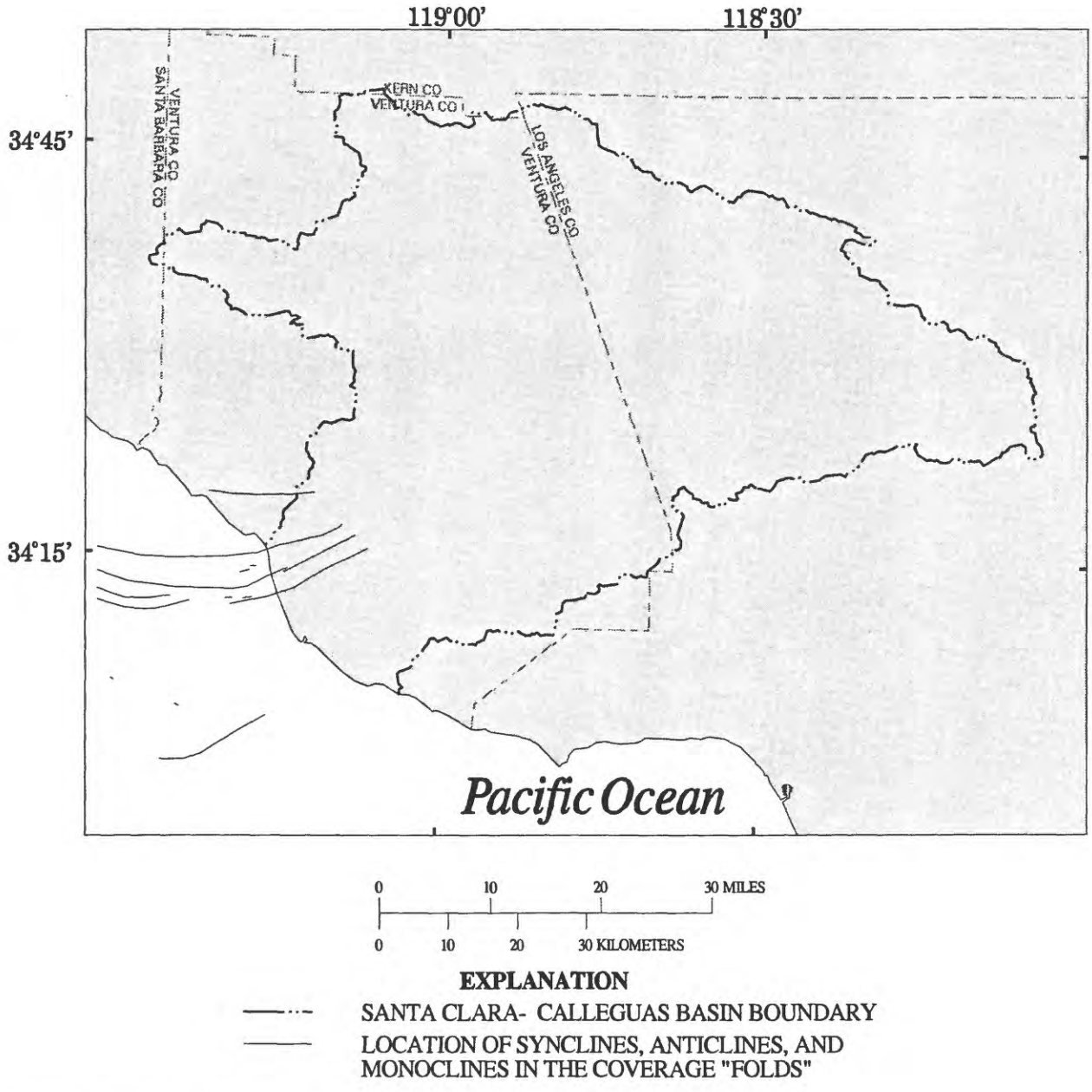

Figure 27. Selected synclines, anticlines, and monoclines.

GEOLOGY

Description: Selected surficial geology.

Data type: POLYGON.

Source: Modified from:

(a) Weber, F.H., Kiessling, E.W., Sprotte, E.C., Johnson, J.A., Sherburne, R.W., and Cleveland, G.B., 1976, Seismic hazards study of Ventura County, California: California Department of Conservation, California Division of Mines and Geology Open-File Report 76-5, 396 p., pls. 3A and 3B.

(b) Greene, H.G., and Kennedy, M.P., 1987, Geology of the California Continental Margin: Explanation of the California Continental Margin Geologic Map Series-- interpretive methods, symbology, stratigraphic units and bibliography: area 2, California Continental Margin Geologic Map Series, Mid-Southern California Continental Margin: U.S. Geological Survey Bulletin 207, pl. 2A.

Source scale: (a) 1:48,000 (b) 1:62,500

Source projection: (a) California Coordinate System, zone 5.

(b) California Coordinate System, zone 5.

Method of entry: Geology polygons were manually digitized from paper source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: June 30, 1992

Description of variables: GEOLOGY polygon attribute table.

Variable	Type	Length	Definition
CODE1	Integer	2	Unique number for each degree of consolidation.
NAME1	Character	15	Degree of consolidation.
CODE2	Integer	3	Unique number for each stratigraphic designation.
NAME2	Character	28	Stratigraphic designation.
LOCATION	Character	9	Location of feature.

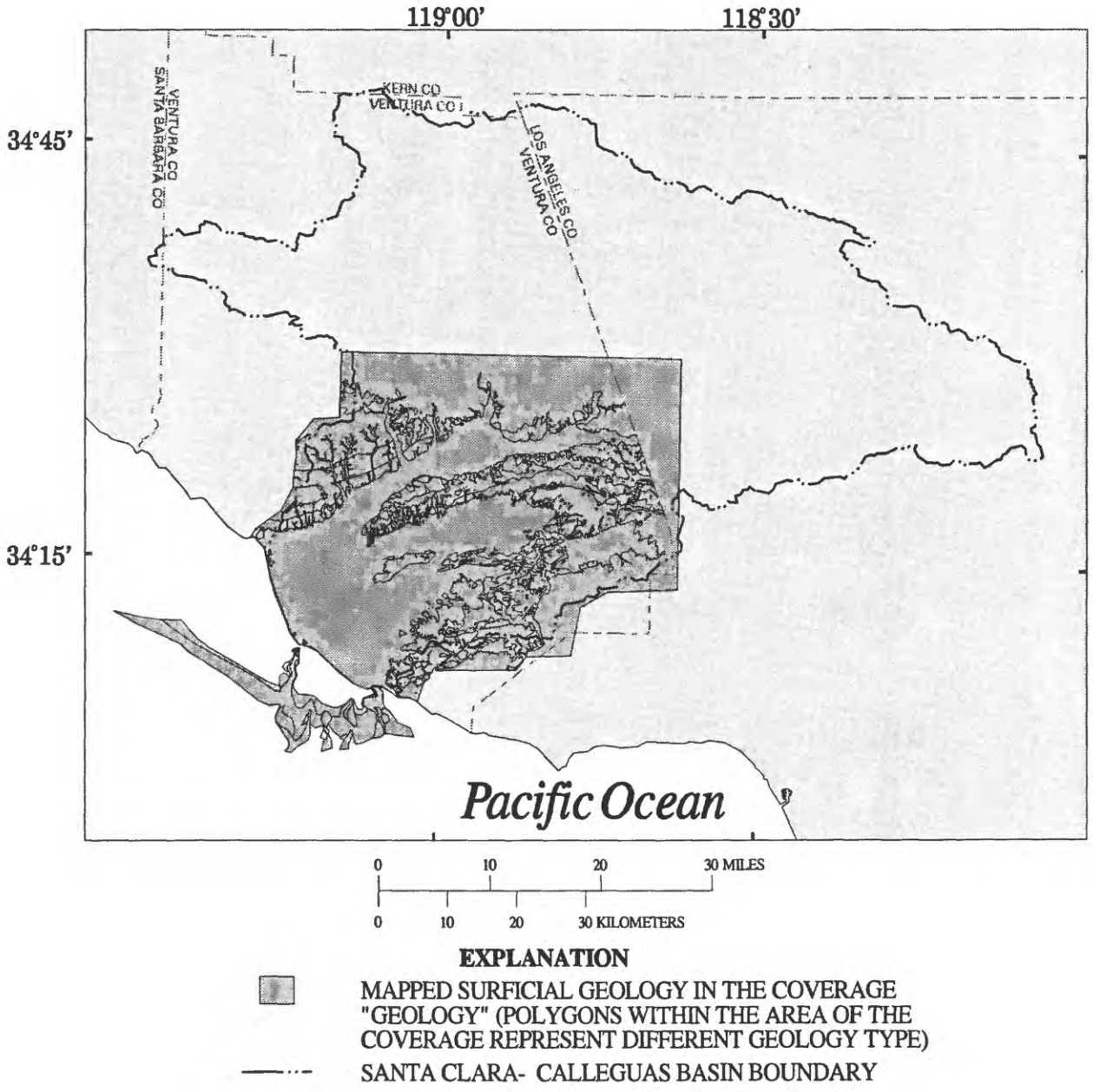

Figure 28. Selected surficial geology.

SOILS

Description: Selected soils.

Data type: POLYGON.

Source: Modified from:

U.S. Department of Agriculture, Soil Conservation Service, 1970, Soil survey of Ventura area, California. (Soil maps on orthophoto series taken in 1959 and 1965.)

Source scale: 1:24,000

Source projection: California Coordinate System, zone 5.

Method of entry: Soil polygons and control points (points of known coordinate locations) were scanned from paper source maps with a Contex high resolution scanner and vectorized using Cadcore software. The vectorized data were output in DXF-file format, converted to a coverage, and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: June 30, 1991

Description of variables: SOILS polygon attribute table.

Variable	Type	Length	Definition
SOILT	Character	5	Name of each individual soil type.
CLASS	Binary	2	Code describing relative permeability of the different soil types.
SHADE	Binary	2	Number used to assign a fill color.
HYDRO	Character	2	Four hydrologic soil groups that are based on soil properties that influence runoff.

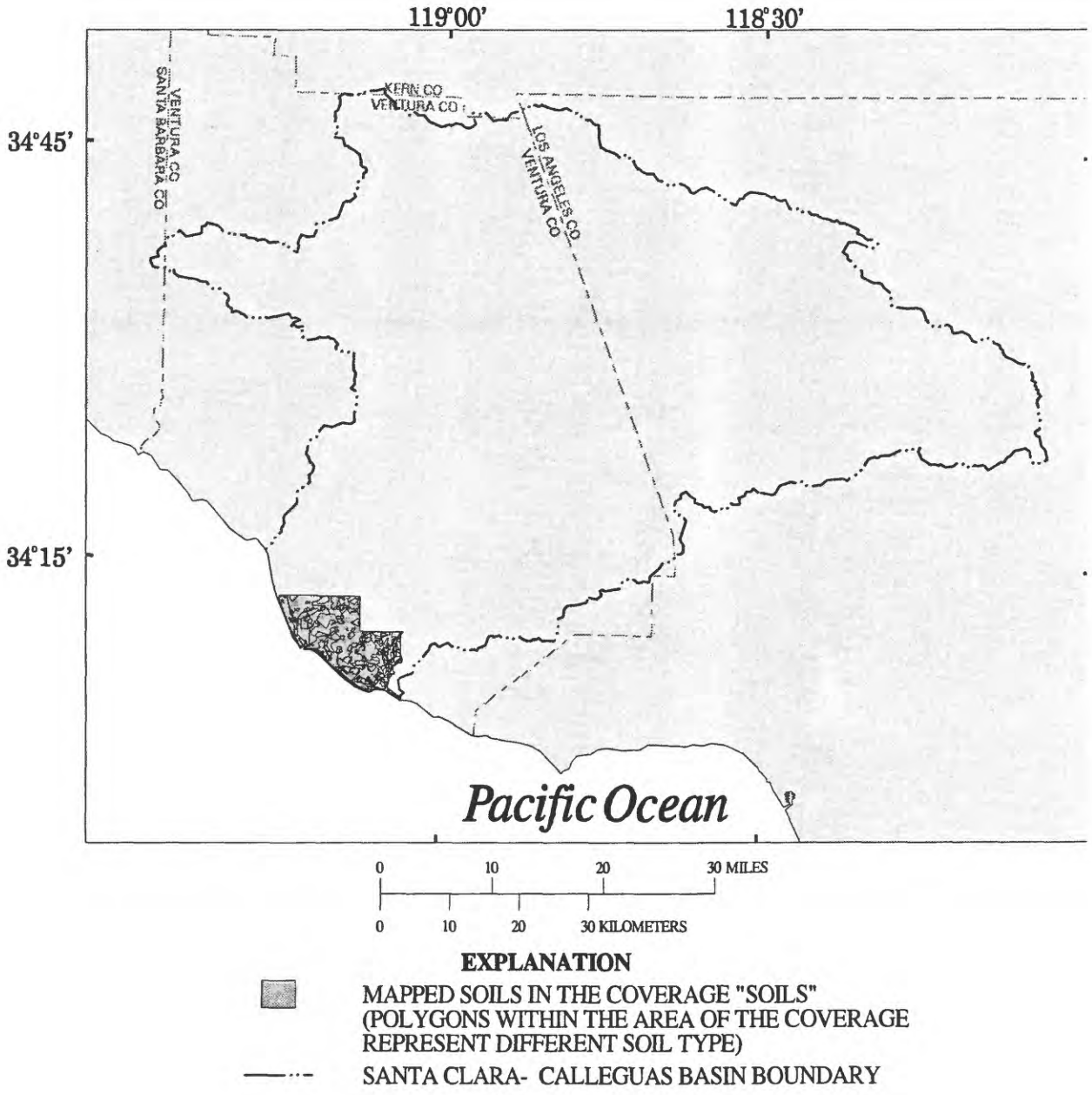

Figure 29. Selected soils.

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Hydrology

This section contains data layers that represent the occurrence, movement, and quality of fresh water. The data layers include information on basins, gaging stations, lagoons, streams, lakes, wells, and 1931 ground-water levels.

Basins

This section contains information on hydrologic subunits, ground-water basins, and surface-water basins.

BASINS_HU

Description: Hydrologic subunits.

Data type: POLYGON.

Source: Modified from:

(a) California Department of Water Resources, 1964, Names and areal code numbers of hydrologic areas in the Southern District: California Department of Water Resources, Office Report, 57 p., pl. 4.

(b) United Water Conservation District, 1991a, Untitled: Unpublished map delineating groundwater basins in the United Water Conservation District: Ventura County, Calif. (on file with United Water Conservation District).

(c) Greg Middleton, United Water Conservation District, written commun., 1991.

Source scale: (a) 1:260,00 (b) 1:100,000

Source projection: (a) Unknown

(b) Base map from U.S. Geological Survey 30- x 60-minute topographic quadrangles.

Method of entry: Ground-water basin polygons were manually digitized from paper source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1994

Description of variables: BASINS_HU polygon attribute table.

Variable	Type	Length	Definition
BASIN	Character	4	California Department of Water Resources identification number.
NAME	Character	30	Name of hydrologic subunit.
BASIN_NAME	Character	20	Abbreviated name.

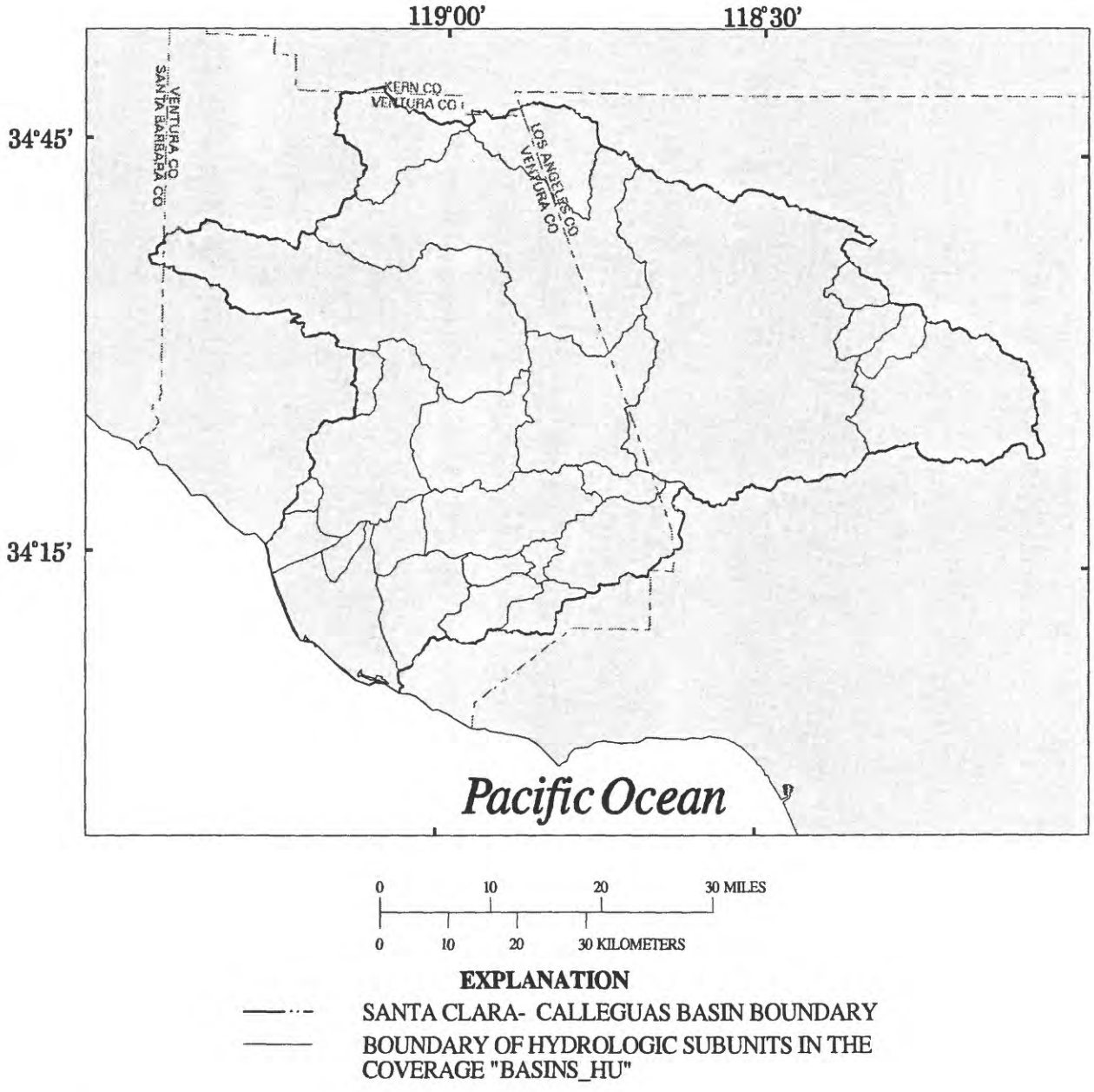

Figure 30. Hydrologic subunits.

BASINS_GW

Description: Selected ground-water basins.

Data type: POLYGON.

Source: Modified from:

(a) California Department of Water Resources, 1964, Names and areal code numbers of hydrologic areas in the Southern District: California Department of Water Resources, Office Report, 57 p., pl. 4.

(b) California Department of Water Resources, 1975a, Compilation of technical information for the Ventura County cooperative investigation: California Department of Water Resources, v. II, 234 p., pl. 2.

(c) United Water Conservation District, 1991a, Untitled: Unpublished map delineating groundwater basins in the United Water Conservation District: Ventura County, Calif. (on file with United Water Conservation District).

(d) Greg Middleton, United Water Conservation District, written commun., 1991.

Source scale: (a) 1:260,000 (b) 1:126,720 (c) 1:100,000

Source projection: (a) Unknown (b) Unknown

(c) Base map from U.S. Geological Survey 30- x 60-minute topographic quadrangles.

Method of entry: Ground-water basins polygons were manually digitized from source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: July 6, 1994

Description of variables: BASINS_GW polygon attribute table.

Variable	Type	Length	Definition
NAME	Character	20	Name of ground-water basin.
BASIN_ID	Integer	3	Identification number.
ACRES	Floating decimal	9	Acreage.

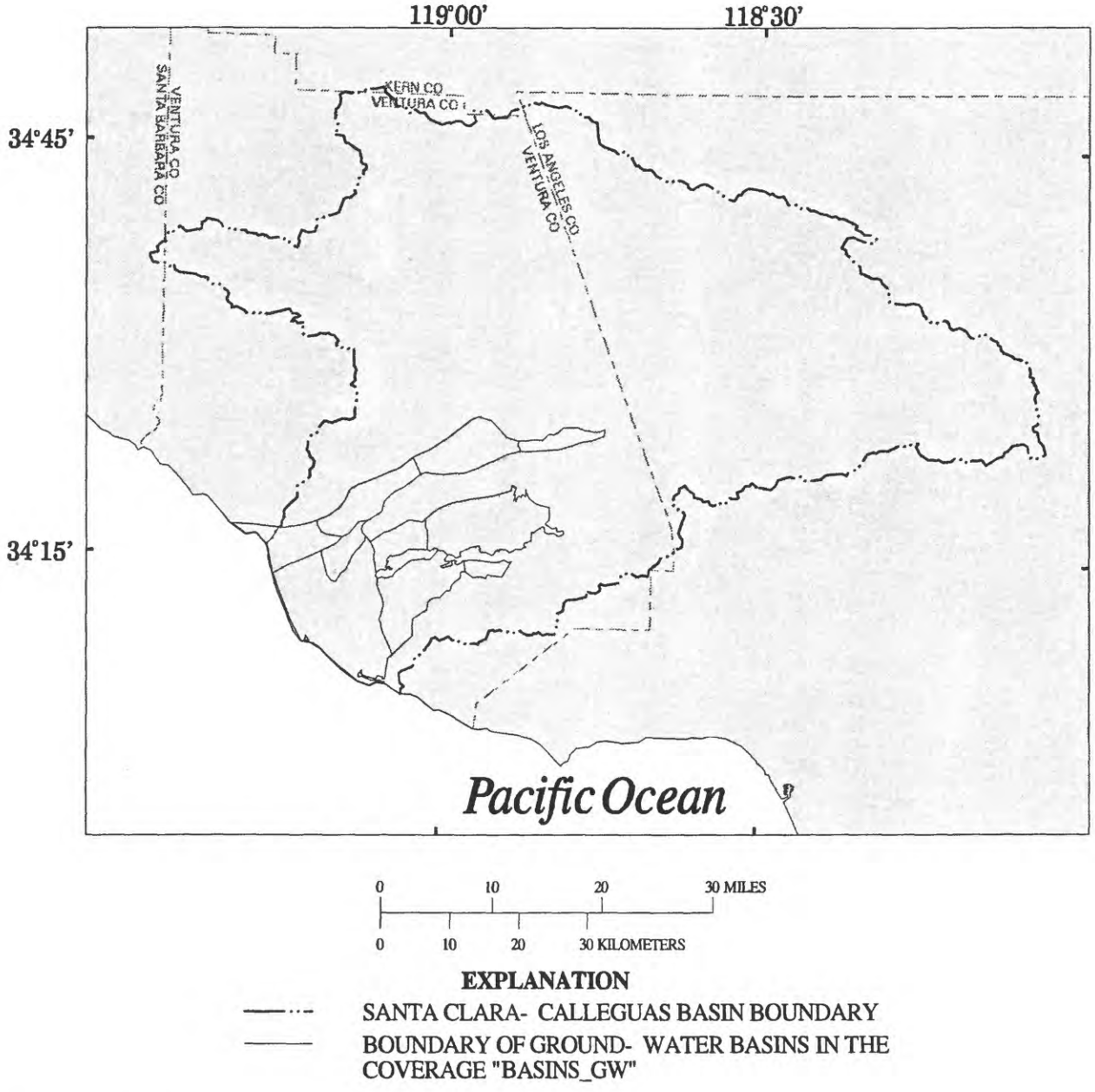

Figure 31. Selected ground-water basins.

BASINS_SW

Description: Surface-water basins.

Data type: POLYGON.

Source: Modified from:

(a) California Department of Water Resources, 1975a, Compilation of technical information for the Ventura County cooperative investigation: California Department of Water Resources, v. II, 234 p., pl. 2.

(b) California Department of Water Resources, 1964, Names and areal code numbers of hydrologic areas in the Southern District: California Department of Water Resources, Office Report, 57 p., pl. 4.

Source scale: (a) 1:126,720 (b) 1:260,000

Source projection: (a) Unknown (b) Unknown.

Method of entry: Surface-water basin polygons were manually digitized from the paper source maps using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source maps.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: June 15, 1993

Description of variables: BASINS_SW polygon attribute table.

Variable	Type	Length	Definition
NAME	Character	40	Name of surface-water basin from source (a).
SOURCE	Character	7	Modifications made to source (a) data.
ID_SOURCE	Character	4	Identification number from source (a).
GAGED?	Character	2	Identifies basin as gaged or ungaged.
BASIN_ID	Integer	3	Identification number.

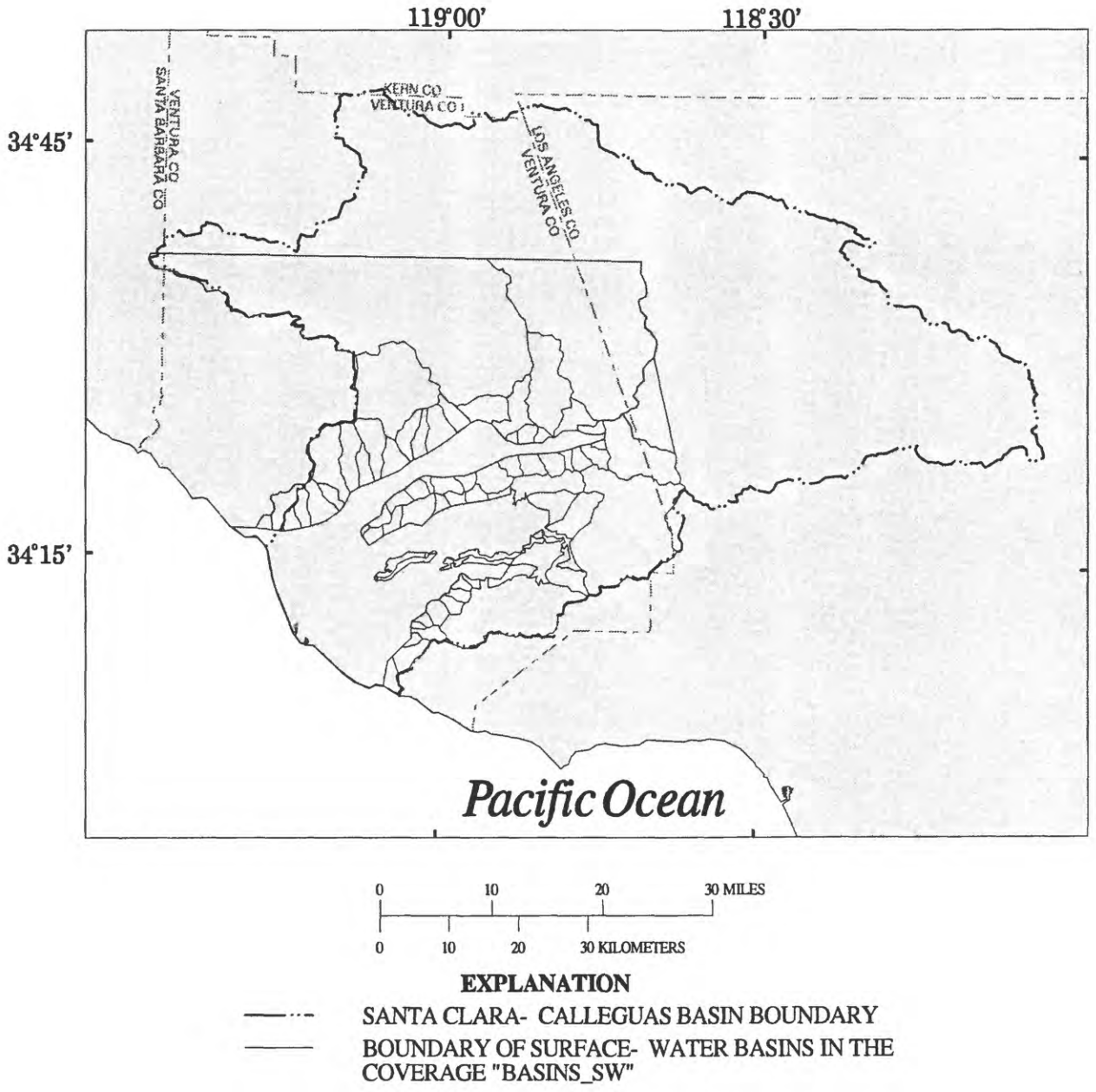

Figure 32. Surface-water basins.

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Gaging stations

This section contains gaging-station information for precipitation stations and stream-gaging sites.

PRECIP_GAGE

Description: Location of selected precipitation stations.

Data type: POINT.

Source: Modified from:

County of Ventura Public Works Agency, 1990, Quadrennial report of hydrologic data. 1985-1988: County of Ventura Public Works Agency, variously paged.

Source scale: Not applicable.

Source projection: Geographic.

Method of entry: Data were obtained in latitude-longitude coordinates, converted to a coverage, and transformed to Universal Transverse Mercator projection coordinates.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1, 1994

Description of variables: PRECIP_GAGE point attribute table.

Variable	Type	Length	Definition
GAGEID	Integer	4	Gaging station numeric identification number.
LAT	Integer	6	Latitude in degrees, minutes, and seconds.
LONG	Integer	8	Longitude in degrees, minutes, and seconds.
ALT	Numeric	5	Land-surface elevation, in feet above sea level.
LOCALID	Character	8	Township, range, and section location of the station.
FIRSTYEAR	Integer	5	The first year the precipitation station was in operation.
STA.NAME	Character	40	Name of each precipitation station.

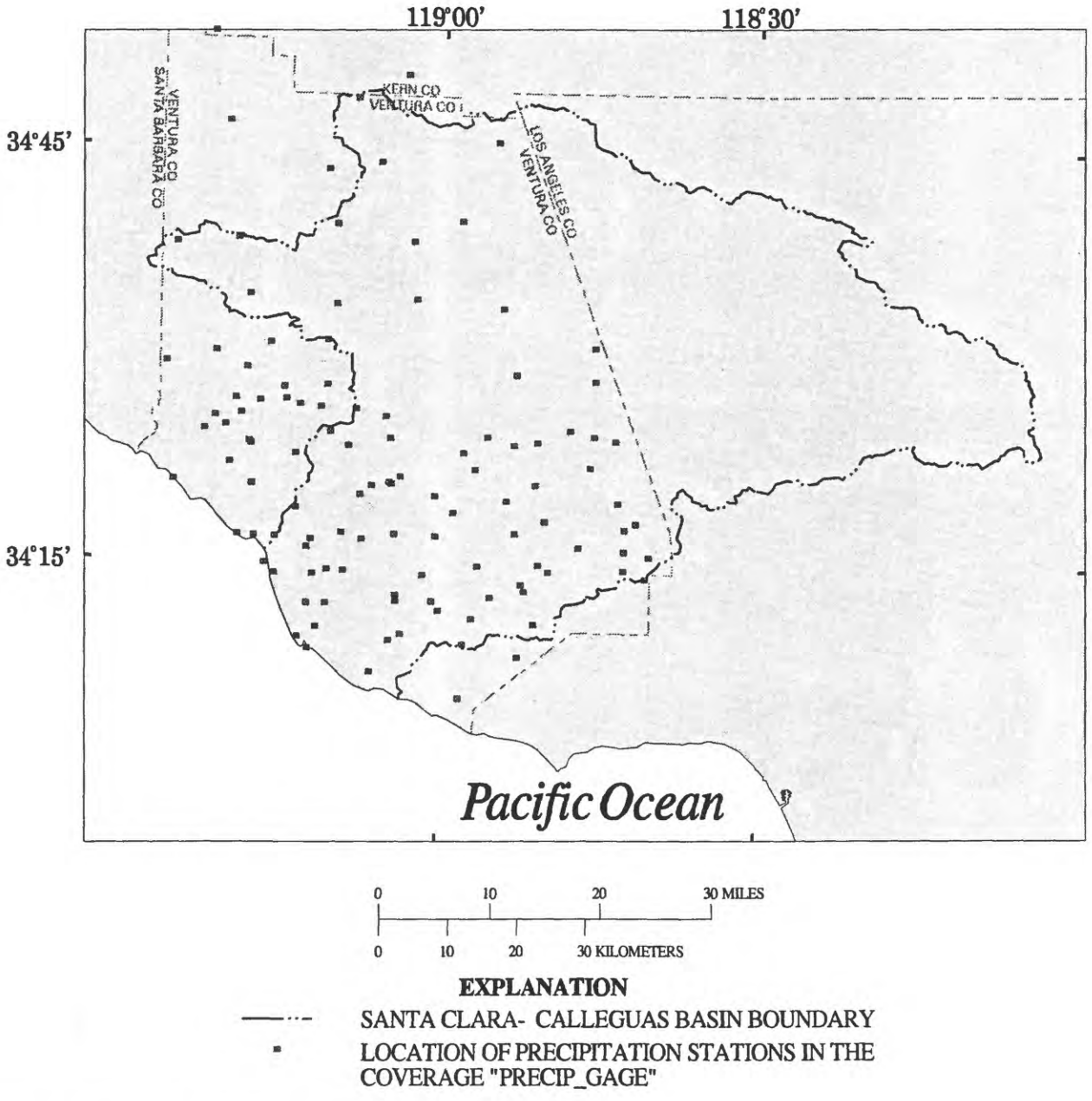

Figure 33. Location of selected precipitation stations.

STREAM_GAGE

Description: Selected U.S. Geological Survey and Ventura County stream-gaging sites and miscellaneous measurement sites.

Data type: POINT.

Source: Modified from:

County of Ventura Public Works Agency, 1990, Quadrennial report of hydrologic data. 1985-1988: County of Ventura Public Works Agency, variously paged.

Source scale: Not applicable.

Source projection: Geographic.

Method of entry: Data were obtained in latitude-longitude coordinates, converted to a coverage, and transformed to Universal Transverse Mercator coordinates.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: February 1, 1994

Description of variables: STREAM_GAGE point attribute table.

Variable	Type	Length	Definition
GAGEID	Integer	15	Station number.
VCFCD_ID	Integer	3	Ventura County identification number.
LAT	Integer	7	Latitude in degrees, minutes, and seconds.
LONG	Integer	8	Longitude in degrees, minutes, and seconds.
ALT	Numeric	8	Land-surface elevation, in feet above sea level.
DATA_TYP	Character	1	Data collection instrumentation.
DATA_PER	Character	15	Frequency of data collection.
DATE	Character	9	Installation date.
GAGE_TYPE	Character	3	Recording device or method.
DRAIN_AREA	Numeric	8	Drainage basin area upstream from the gaging station.
STATION_NAME	Character	50	Descriptive station name, including stream name.

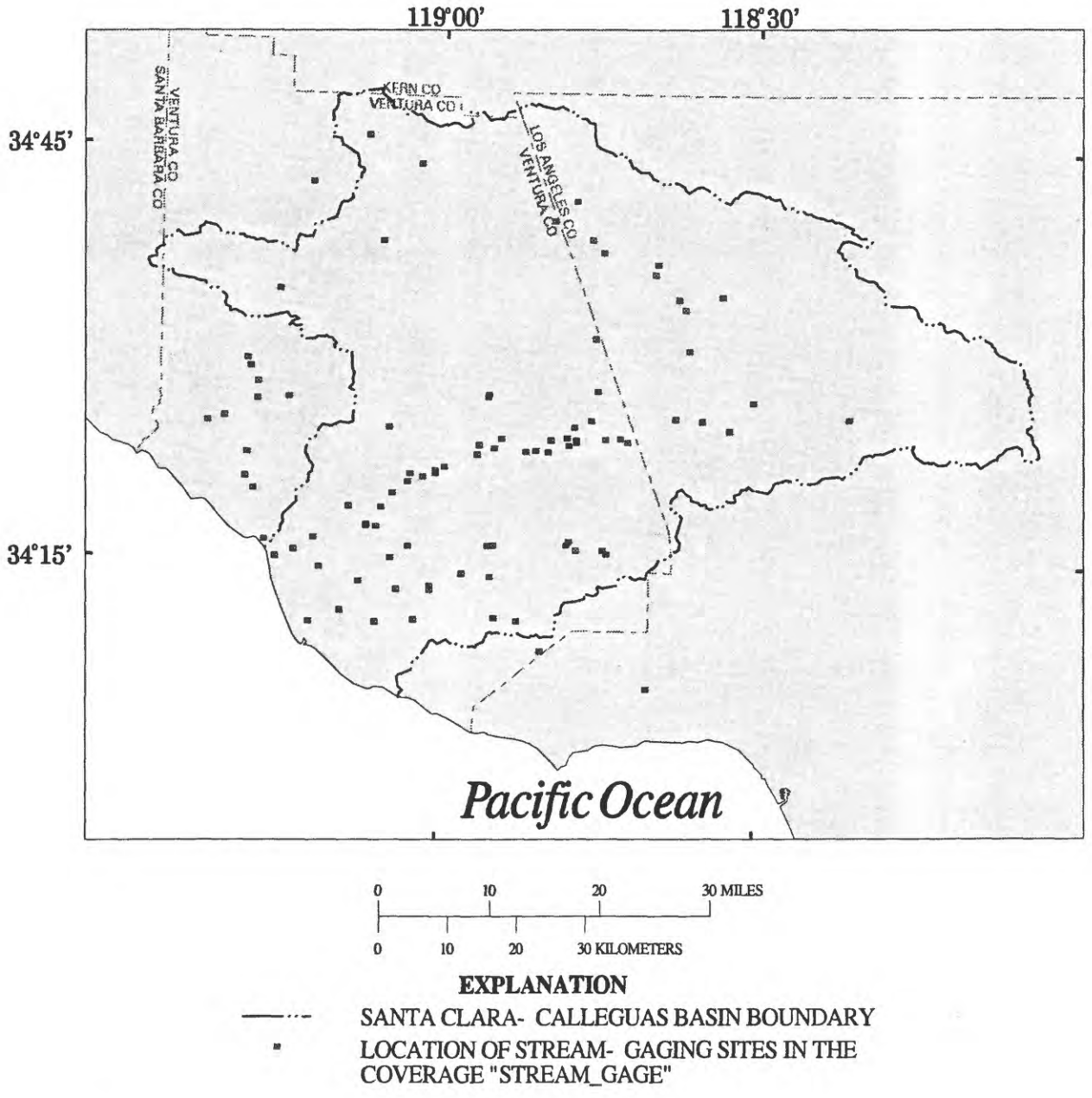

Figure 34. Location of selected Ventura County and U.S. Geological Survey stream-gaging sites and miscellaneous measurement sites.

LAGOONS

Description: Selected lagoons in 1904 and 1915.

Data type: POLYGON.

Source: Modified from:

Weber, F.H., Kiessling, E.W., Sprotte, E.C., Johnson, J.A., Sherburne, R.W., and Cleveland, G.B., 1976, Seismic hazards study of Ventura County, California: California Department of Conservation, California Division of Mines and Geology Open-File Report 76-5, 396 p., pl. 3A.

Source scale: 1:48,000

Source projection: Based on U.S. Geological Survey 7.5-minute topographic quadrangles.

Method of entry: Lagoon polygons were manually digitized from a mylar source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: April 2, 1992

Description of variables: No variables were added.

Variable	Type	Length	Definition
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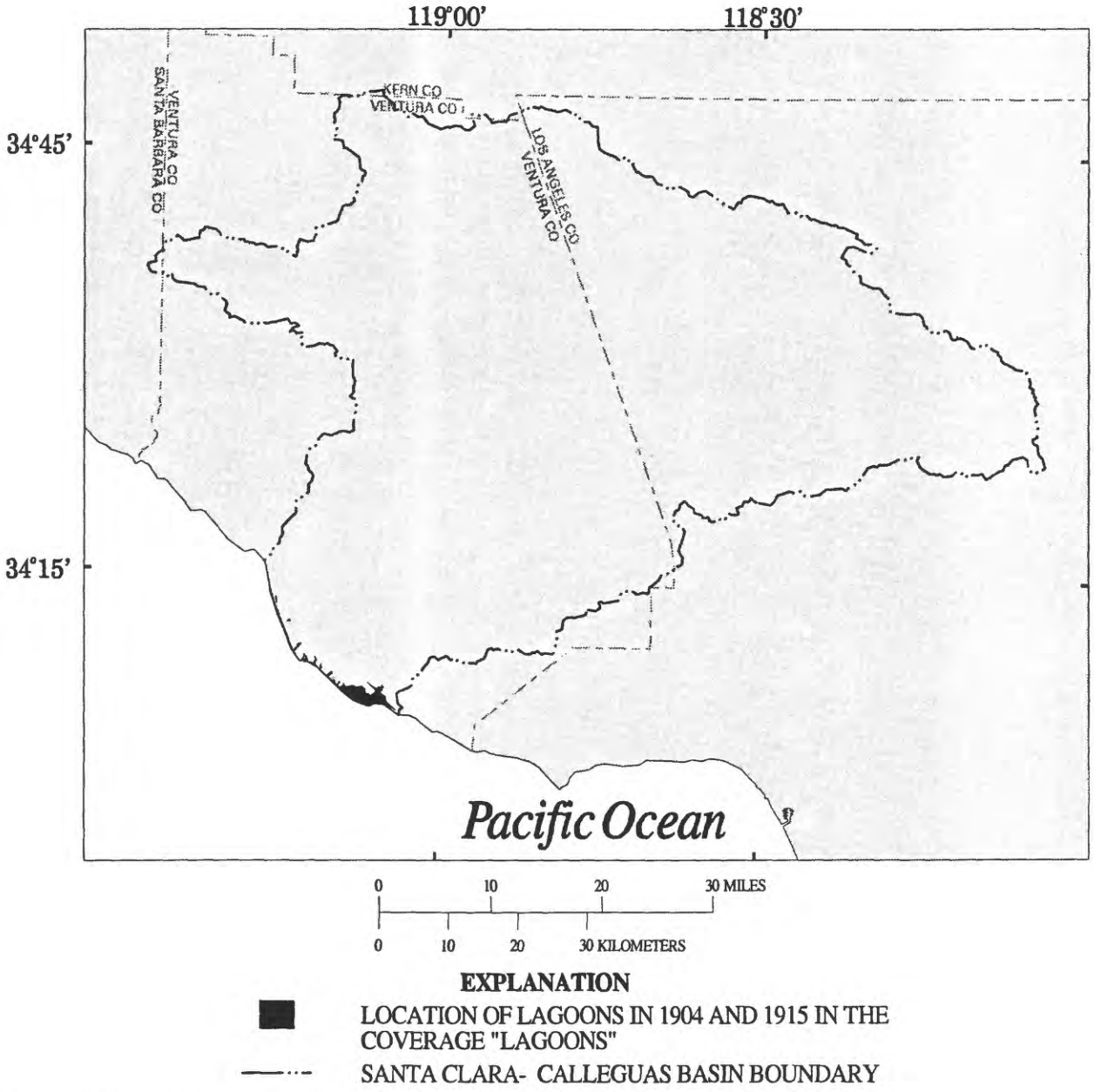

Figure 35. Selected lagoons in 1904 and 1915.

STREAMS

Description: Selected streams and lakes.

Data type: LINE.

Source: Modified from:

U.S. Environmental Protection Agency, 1994, EPA reach file version 3.0 Alpha Release (RF3-Alpha): U.S. Environmental Protection Agency (Computer tape available from the U.S. Environmental Protection Agency, 401 M Street SW (4503F), Washington, DC 20460).

Source scale: 1:100,000

Source projection: Geographic.

Method of entry: Data were obtained in ARC/INFO interchange-file format and imported into a coverage. Source digital data were provided in latitude and longitude coordinates in decimal degrees.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: October 6, 1992

Description of variables: STREAMS line attribute table.

Variable	Type	Length	Definition
NAME	Character	20	Stream name.

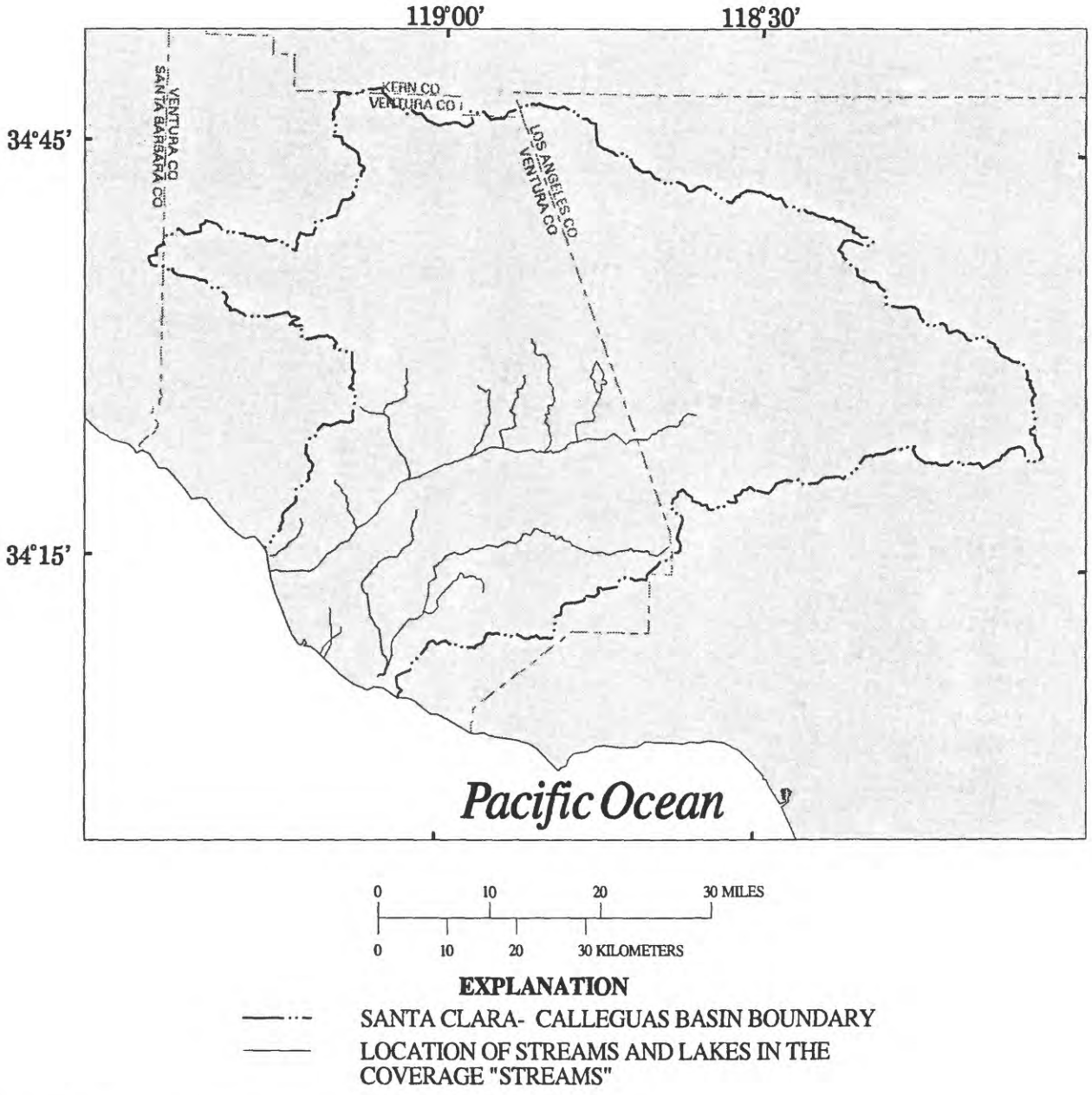

Figure 36. Selected streams and lakes.

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Well Information

This section contains well information, which includes information on construction, water quality, water level, pumpage, and location.

CONSTRUCTION

Description: Well-construction information.

Data type: DATA TABLE.

Source: Modified from:

(a) Ventura County, Department of Public Works, 1991a, Untitled: Digital data files of well construction information: Ventura County, Calif. (on file with the Department of Public works).

(b) U.S. Geological Survey, (ongoing), National Water Information System (Digital data available from the U.S. Geological Survey, 5735 Kearny Villa Road Suite O, San Diego, CA 92123).

(c) California Department of Public Works, 1933, Ventura County investigation: California Department of Public Works, Division of Water Resources Bulletin No. 46, 244 p., pl. B and XLIX.

Method of entry: Data were obtained as text files, formatted to meet the data-base input requirements, and imported into a data table.

Quality control: Information in the data table was verified with the original text files. Erroneous values were identified and corrected.

Final update: November 30, 1993

Description of variables: CONSTRUCTION data table.

Variable	Type	Length	Definition
WELLID	Character	12	Identification number.
BASIN	Character	5	California Department of Public Works subarea code.
QUAD	Character	4	Name of U.S. Geological Survey 7.5-minute topographic quadrangle in which the well is located.
PERMIT#	Character	4	Ventura County drilling permit number.
DRILLER	Character	20	Name of the drilling company.
DATE	Character	5	Month and year the well was drilled.
YEAR	Integer	2	The year the well was drilled.
LSE_ACCUR	Character	1	Identifies land-surface elevation as surveyed or taken from U.S. Geological Survey 7.5-minute topographic quadrangle maps.
LSE	Floating decimal	7	Land-surface elevation, in feet above sea level.
RP_ACCUR	Character	1	Measuring point accuracy.

Variable	Type	Length	Definition
RP	Floating decimal	7	Measuring point elevation, in feet above sea level.
DEPTH	Integer	5	Depth the well was drilled, in feet below sea level.
WELL_DIAM	Character	2	Diameter of hole, in inches.
CASING_DEPTH	Integer	4	Casing depth, in feet.
CASING_DIAM	Character	4	Casing diameter, in inches.
TOP	Integer	4	Depth to top of screen interval, in feet.
BOP	Integer	4	Depth to bottom of screen, in feet.
DRAWDOWN	Floating decimal	5	Drawdown from pump tests, in feet.
LOG	Character	8	Type of drilling log.
AQUIF_DESIG	Character	12	Aquifer where well is screened.
WELL_USE	Character	12	Use classification.
CONDITION	Character	12	Condition classification.
GPM	Floating decimal	6	Production rate, in gallons per minute.
SPEC_CAP	Floating decimal	7	Specific capacity, in gallons per minute per foot of draw down.

QW.MASTER

Description: Water-quality measurements for wells in the Santa Clara-Calleguas drainage basin,1923 to December 1995.

Data type: DATA TABLE.

Source: Modified from:

(a) Ventura County Department of Public Works, 1994c, Untitled: Digital data files of water-quality information for 1989 to 1994: Ventura County, Calif. (on file with the Department of Public works).

(b) U.S. Geological Survey, (ongoing), National Water Information System (Digital data available from the U.S. Geological Survey, 5735 Kearny Villa Road Suite O, San Diego, CA 92123).

Method of entry: Water-quality data were obtained as text files, formatted to meet the data-base input requirements, and imported into a data table.

Quality control: Information in the data table was verified with the original text files. Erroneous values were identified and corrected.

Final update: December 1995

Description of variables: QW.MASTER data table.

Variable	Type	Length	Definition
WELLID	Character	12	Identification number.
DATE	Date	8	Date sample collected.
TIME	Integer	4	Time collected.
TEMPERATURE	Numeric	5	Water temperature of sample, in degrees Fahrenheit.
BASIN	Character	5	California Department of Water Resources identification number of hydrologic subunits.
NAME	Character	30	Name of hydrologic subunit in which the well is located.
SO4	Numeric	7	Sulphate, in milligram per liter (mg/L).
CL	Numeric	7	Chloride, in mg/L.
DBASE	Integer	2	Identifies the original data source.

MASTER.WL

Description: Water-level records for wells in the Santa Clara-Calleguas drainage basin, 1912 to December 1995.

Data type: DATA TABLE.

Source: Modified from:

(a) Ventura County, Department of Public Works, 1994b, Untitled: Digital data files of water-level data for 1989 to 1994: Ventura County, Calif. (on file with the Department of Public works).

(b) U.S. Geological Survey, (ongoing), National Water Information System (Digital data available from the U.S. Geological Survey, 5735 Kearny Villa Road Suite O, San Diego, CA 92123).

Method of entry: Water-level data were obtained as text files, formatted to meet the database input requirements, and imported into a data table.

Quality control: Information in the data table was verified with the original text files. Erroneous values were identified and corrected.

Final update: December 1995

Description of variables: MASTER.WL data table.

Variable	Type	Length	Definition
WELLID	Character	12	Identification number.
DATE	Integer	8	Date of water-level measurement.
WSE	Numeric	6	Water-surface elevation, in feet above sea level.
DBS	Numeric	6	Depth of water level below land surface, in feet.
NAME_7.5	Character	30	Name of U.S. Geological Survey 7.5-minute topographic quadrangle in which the well is located.

PUMP.ALL

Description: Selected reported pumpage for wells in the Santa Clara-Calleguas drainage basin, 1979 to December 1995.

Data type: DATA TABLE.

Source: Modified from:

(a) United Water Conservation District, 1994, Untitled: Digital data files of pumpage data for 1989 to 1995. Ventura County, Calif., (on file with United Water Conservation District).

(b) Ventura County, Department of Public Works, 1989, Untitled: Digital data file of pumpage: Ventura County, Calif. (on file with the Department of Public works).

(c) Groundwater Management Agency, 1992, Untitled: Digital data files of pumpage data: Ventura, Calif. (on file with the Groundwater Management Agency).

Method of entry: Pumpage data were obtained as text files, formatted to meet the data base input requirements, and imported into a data table.

Quality control: Information in the data table was verified with the original text files. Erroneous values were identified and corrected.

Final update: December 1995

Description of variables: PUMP.ALL data table.

Variable	Type	Length	Definition
WELLID	Character	12	Identification number.
YEAR	Integer	2	Year.
REPT_PERIOD	Integer	1	Identifies reporting period as first half of year (1) or second half of year (2).
EXTRACT_AG	Floating decimal	10	Pumpage for agricultural use, in acre-feet.
EXTRACT_NON_AG	Floating decimal	10	Pumpage for nonagricultural use, in acre-feet.
EXTRACT	Floating decimal	10	Total pumpage, in acre-feet.
SOURCE	Character	8	Source.

BLANK

WELLS_ALL

Description: Wells used in Regional Aquifer-System Analysis study.

Data type: POINT.

Source: Modified from:

(a) California Department of Water Resources, (ongoing), Untitled: Maps of well locations (on file with California Department of Water Resources).

(b) U.S. Geological Survey, (ongoing), National Water Information System (Digital data available from the U.S. Geological Survey, 5735 Kearny Villa Road Suite O, San Diego, CA 92123).

Source scale: (a) 1:24,000 (b) Not applicable.

Source projection: (a) Based on U.S. Geological Survey 7.5-minute topographic quadrangles.

(b) Not applicable.

Method of entry: Well location data were obtained in latitude-longitude coordinates, converted to a coverage, and transformed to UTM coordinates.

Quality control: The coverage was verified with other information when possible but was generally assumed to be without error.

Projection of coverage: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: December 12, 1994

Description of variables: WELLS_ALL point attribute table.

Variable	Type	Length	Definition
WELLID	Character	12	Identification number.
LAT	Floating decimal	8	Latitude in degrees, minutes, and seconds.
LONG	Floating decimal	9	Longitude in degrees, minutes, and seconds.
LSE	Floating decimal	9	Land-surface elevation, in feet above sea level.
LSE_DEM	Floating decimal	12	Land-surface elevation, in feet above sea level, calculated from the digital elevation model.
NAME_7.5	Character	50	Name of U.S. Geological Survey 7.5-minute topographic quadrangle in which the well is located.
NAME_100K	Character	50	Name of the U.S. Geological Survey 30- x 60-minute topographic quadrangle in which the well is located.

Variable	Type	Length	Definition
BASIN	Character	4	California Department of Water Resources identification number.
NAME	Character	30	Name of hydrologic subunits.
BASIN_ NAME	Character	20	Abbreviated name.

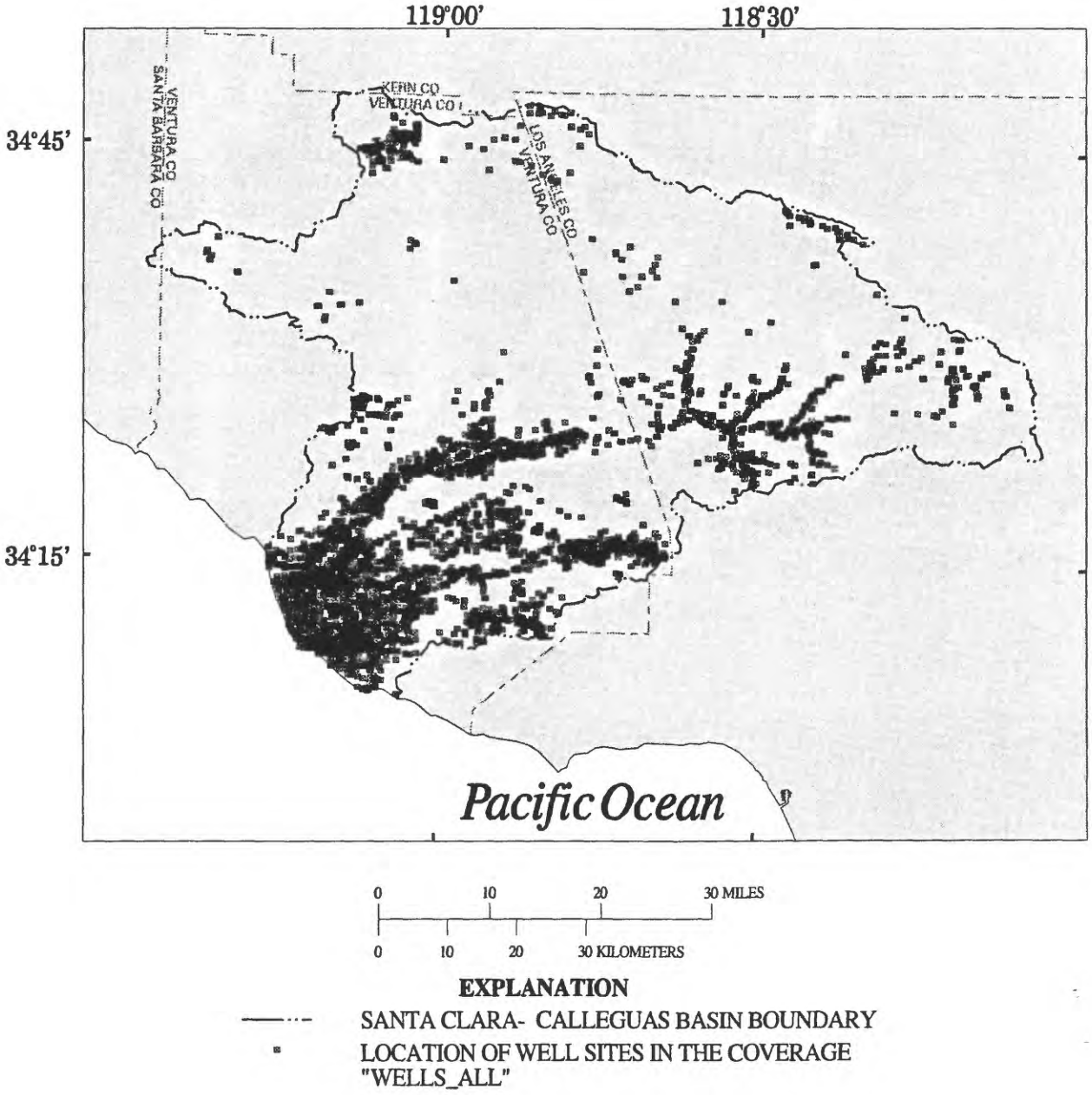

Figure 37. Wells used in Regional Aquifer-System Analysis study.

WL1931

Description: Selected ground-water levels for autumn 1931 from State of California Department of Public Works.

Data type: LINE.

Source: Modified from:

California Department of Public Works, 1933, Ventura County investigation: California Department of Public Works, Division of Water Resources Bulletin No. 46, 244 p., pl. XLIX.

Source scale: 1:108,600 (approximate)

Source projection: Unknown.

Method of entry: Water levels were manually digitized from a paper source map using an Altek Datatab AC40 digitizing tablet, which has a resolution of 0.002 inch. The geographic features and control points (points of known coordinate locations) were digitized and transformed into real-world coordinates.

Quality control: The coverage was plotted and compared with the source map.

Projection of data: Universal Transverse Mecator projection: Zone 11, Y-shift -3.5 million meters.

Final update: July 23, 1993

Description of variables: WL1931 line attribute table.

Variable	Type	Length	Definition
CONTOUR(FT)	Integer	6	Ground-water-level elevation above sea level, in feet.

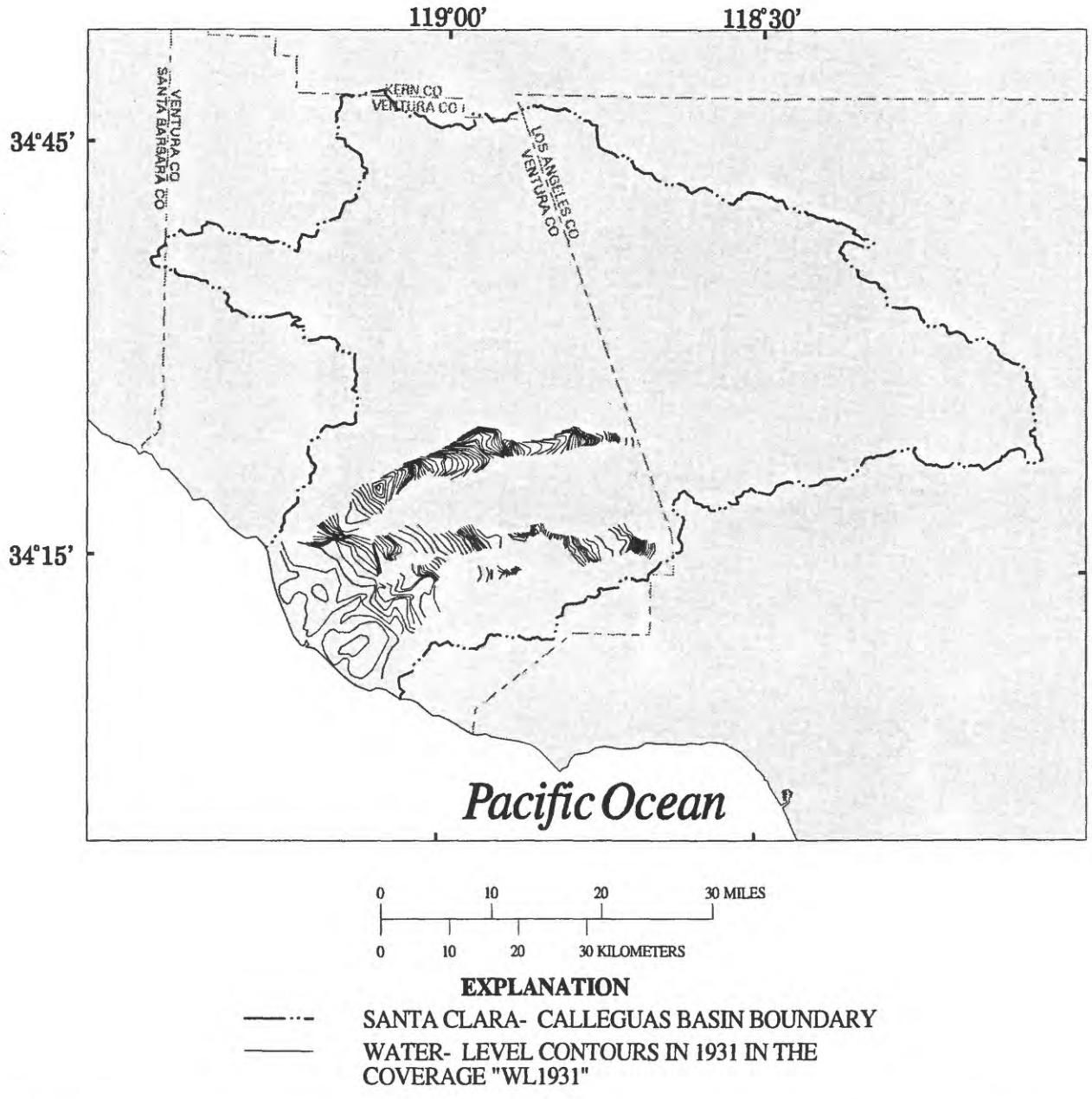

Figure 38. Selected ground-water levels for autumn 1931 from State of California Department of Public Works.

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