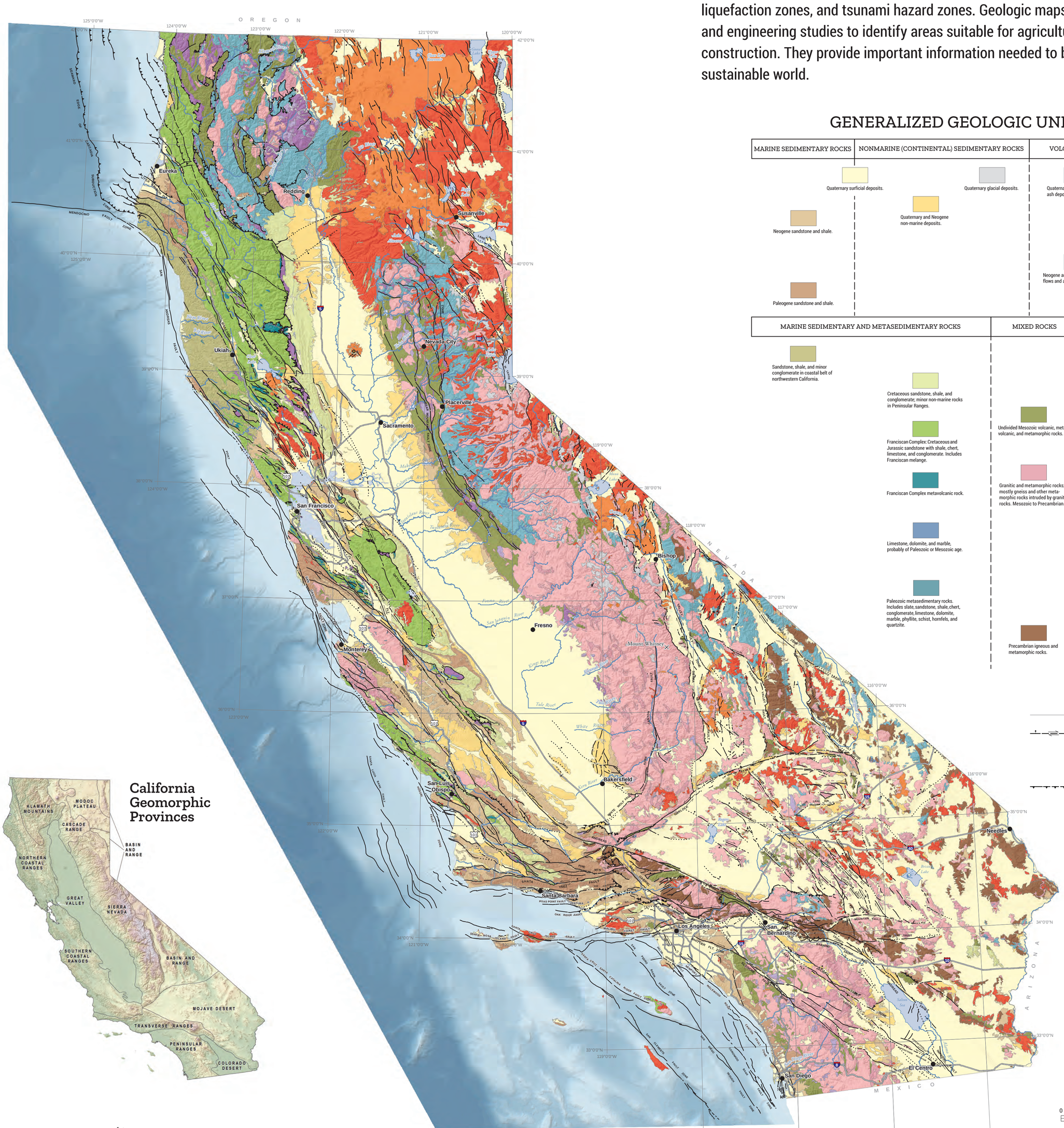
Geology of California

A geologic map shows the distribution, relationship, and composition of earth materials including rocks and surficial deposits—such as sediments and landslides—on the earth's surface. Each color on the map represents a different type or age of rock. Thick black lines represent the locations of faults.

Geologic maps help us understand the geologic history of an area, and to plan for the future. Geologists use the maps to interpret what resources might lie below the surface, such as oil and natural gas, groundwater, and mineral deposits. Geologic maps are also used to identify potential hazards such as landslides, volcanoes, earthquake faults, liquefaction zones, and tsunami hazard zones. Geologic maps are used in environmental and engineering studies to identify areas suitable for agriculture, urban development, and construction. They provide important information needed to build a safer and more sustainable world.



GENERALIZED GEOLOGIC UNITS

CENOZOIC

MARINE SEDIMENTARY ROCKS	NONMARINE (CONTINENTAL) SEDIMENTARY ROCKS	VOLCANIC ROCKS
	Quaternary surficial deposits.	Quaternary volcanic flows and ash deposits.
	Quaternary glacial deposits.	
	Quaternary and Neogene non-marine deposits.	
Neogene sandstone and shale.		
Paleogene sandstone and shale.		Neogene and Paleogene volcanic flows and ash deposits.

MESOZOIC, PALEOZOIC, PRECAMBRIAN

MARINE SEDIMENTARY AND METASEDIMENTARY ROCKS	MIXED ROCKS	PLUTONIC ROCKS
Sandstone, shale, and minor conglomerate in coastal belt of northwestern California.		
Cretaceous sandstone, shale, and conglomerate; minor non-marine rocks in Peninsular Ranges.		
Franciscan Complex: Cretaceous and Jurassic sandstone with shale, chert, limestone, and conglomerate. Includes Franciscan melange.	Undivided Mesozoic volcanic, meta-volcanic, and metamorphic rocks.	Granitic rocks; chiefly Mesozoic.
Franciscan Complex metavolcanic rock.	Granitic and metamorphic rocks; mostly gneiss and other meta-morphic rocks intruded by granitic rocks. Mesozoic to Precambrian.	Gabbro and dark dioritic rocks; chiefly Mesozoic.
Limestone, dolomite, and marble, probably of Paleozoic or Mesozoic age.		Ultramafic rocks; mostly serpentine. Minor peridotite, gabbro, and diabase; chiefly Mesozoic.
Paleozoic metasedimentary rocks. Includes slate, sandstone, shale, chert, conglomerate, limestone, dolomite, marble, phyllite, schist, hornfels, and quartzite.		
	Precambrian igneous and metamorphic rocks.	

Contact between geologic units

Fault – Solid where accurately located; dashed where approximately located; dotted where concealed; queried where uncertain. Arrows along fault indicate relative direction of lateral movement; ball and bar indicates downthrown side of normal fault.

Thrust fault – Solid where accurately located; dashed where approximately located; dotted where concealed; queried where uncertain. Teeth on upper plate.

California Geomorphic Provinces

N W E S

0 50 100 Miles
0 50 100 Kilometers
Map Scale: 1:2,000,000

Copyright © 2018 by the California Department of Conservation, California Geological Survey. All rights reserved. No part of this publication may be reproduced without written consent of the California Geological Survey.

"The California Department of Conservation makes no warranties as to the suitability of this product for any particular purpose."

www.consrv.ca.gov/cgs

Base Map Sources: U.S. Geological Survey, California Department of Fish and Wildlife, California Department of Transportation