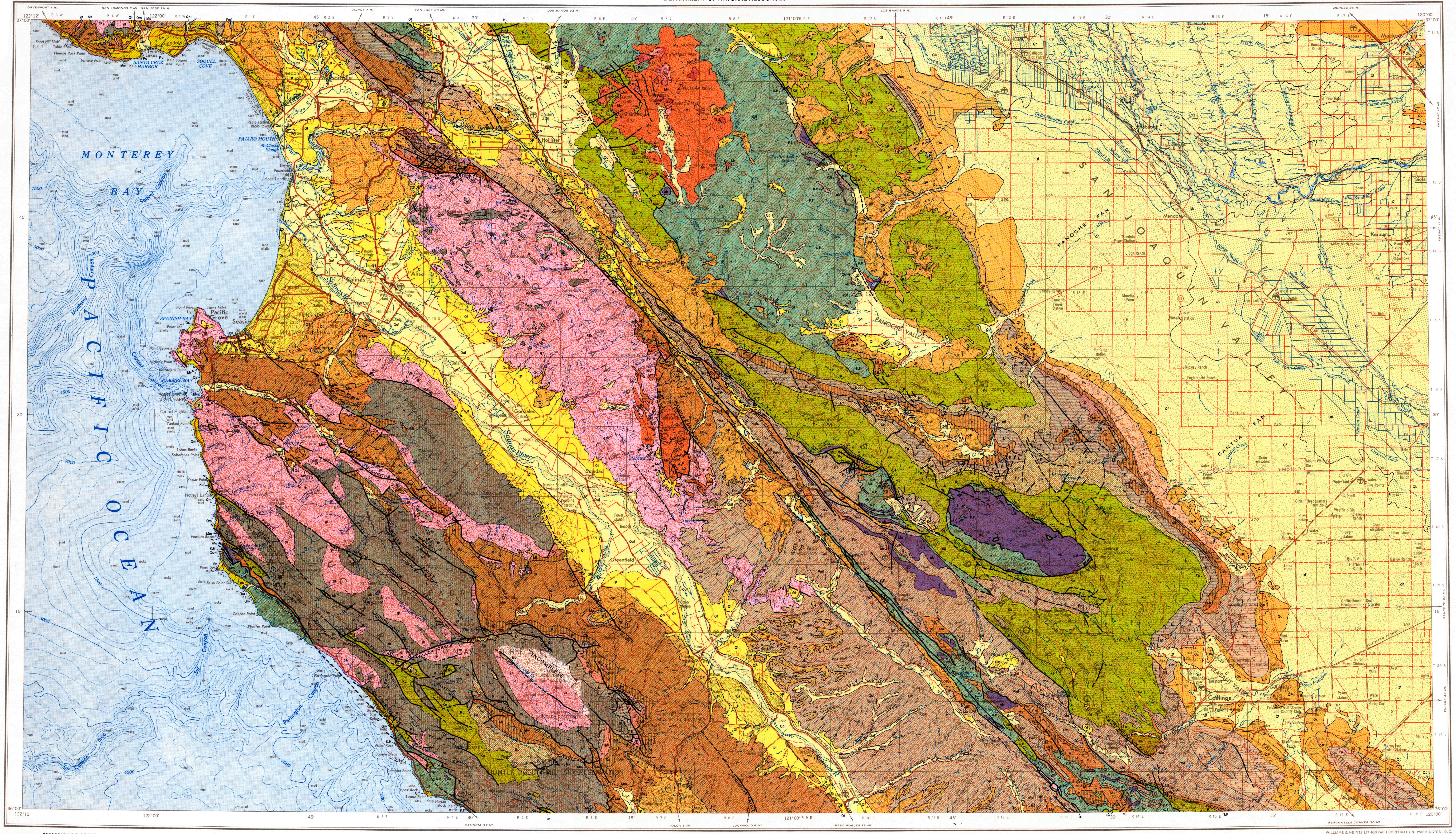
DIVISION OF MINES
IAN CAMPBELL, CHIEF
GORDON B. OAKESHOTT, DEPUTY CHIEF

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

GEOLOGIC MAP OF CALIFORNIA
SANTA CRUZ SHEET



WILLIAMS & HEINTZ LITHOGRAPH CORPORATION, WASHINGTON, D.C.

EXPLANATION

SEDIMENTARY AND METASEDIMENTARY ROCKS

CENOZOIC

QUATERNARY

Recent
- Qs — Sand dunes
- Qal — Alluvium
- Qsc — Stream channel deposits (GREAT VALLEY)
- Qf — Fan deposits (GREAT VALLEY)
- Qb — Basin deposits (GREAT VALLEY)
- Qst — Salt deposits
- Ql — Quaternary lake deposits
- Qg — Glacial deposits
- Qt — River terrace deposits

Pleistocene
- Qm — Pleistocene marine and marine terrace deposits
- Qc — Pleistocene nonmarine
- QP — Plio-Pleistocene nonmarine

TERTIARY

Pliocene
- Pc — Undivided Pliocene nonmarine
- Puc — Upper Pliocene nonmarine
- Pu — Upper Pliocene marine
- Pmlc — Middle and/or lower Pliocene nonmarine
- Pml — Middle and/or lower Pliocene marine

Miocene
- Mc — Undivided Miocene nonmarine
- Muc — Upper Miocene nonmarine
- Mu — Upper Miocene marine
- Mmc — Middle Miocene nonmarine
- Mm — Middle Miocene marine
- Ml — Lower Miocene marine

Oligocene
- Φc — Oligocene nonmarine
- Φ — Oligocene marine

Eocene
- Ec — Eocene nonmarine
- E — Eocene marine

Paleocene
- Epc — Paleocene nonmarine
- Ep — Paleocene marine

Undivided
- QTc — Cenozoic nonmarine
- Tc — Tertiary nonmarine
- Tl — Tertiary lake deposits
- Tg — Tertiary auriferous gravels

MESOZOIC

CRETACEOUS
- K — Undivided Cretaceous marine
- Ku — Upper Cretaceous marine
- Kl — Lower Cretaceous marine

JURASSIC
- Jk — Knoxville formation
- Ju — Upper Jurassic marine
- Jml — Middle and/or Lower Jurassic marine

KJf — Franciscan group

TRIASSIC
- Ꞧ — Triassic marine

UNDIVIDED
- m, ls — Pre-Cretaceous metamorphic rocks (ls = limestone)
- ms — Pre-Cretaceous metasedimentary rocks
- IP, ls — Paleozoic marine (ls = limestone)

PALEOZOIC

- PERMIAN: P — Permian marine
- CARBONIFEROUS: C — Undivided Carboniferous marine
- CP — Pennsylvanian marine
- CM — Mississippian marine
- DEVONIAN: D — Devonian marine
- SILURIAN: S — Silurian marine
- ORDOVICIAN: O — Ordovician marine
- CAMBRIAN: Є — Cambrian marine
- Є? — Cambrian – Precambrian marine

PRECAMBRIAN

- pЄ — Undivided Precambrian metamorphic rocks; pЄg = gneiss, pЄs = schist
- lpЄ — Later Precambrian sedimentary and metamorphic rocks
- epЄ — Earlier Precambrian metamorphic rocks

IGNEOUS AND META-IGNEOUS ROCKS

- Qrv — Recent volcanic: Qrv^r —rhyolite; Qrv^a —andesite; Qrv^b —basalt; Qrv^p —pyroclastic rocks
- Qpv — Pleistocene volcanic: Qpv^r —rhyolite; Qpv^a —andesite; Qpv^b —basalt; Qpv^p —pyroclastic rocks
- ✳ — Quaternary and Pliocene cinder cones
- Pv — Pliocene volcanic: Pv^r —rhyolite; Pv^a —andesite; Pv^b —basalt; Pv^p —pyroclastic rocks
- Mv — Miocene volcanic: Mv^r —rhyolite; Mv^a —andesite; Mv^b —basalt; Mv^p —pyroclastic rocks
- Φv — Oligocene volcanic rocks
- Ev — Eocene volcanic rocks
- QTv — Cenozoic volcanic: QTv^r —rhyolite; QTv^a —andesite; QTv^b —basalt; QTv^p —pyroclastic rocks
- Ti — Tertiary intrusive rocks
- Tv — Tertiary volcanic: Tv^r —rhyolite; Tv^a —andesite; Tv^b —basalt; Tv^p —pyroclastic rocks
- KJfv — Franciscan volcanic and metavolcanic rocks
- gr — Mesozoic granitic rocks
- bi — Mesozoic basic intrusive rocks
- ub — Mesozoic ultrabasic intrusive rocks
- JꞦv — Jura-Trias metavolcanic rocks
- mv — Pre-Cretaceous metavolcanic rocks
- gr-m — Pre-Cenozoic granitic and metamorphic rocks
- IPv — Paleozoic metavolcanic rocks
- Pmv — Permian metavolcanic rocks
- Cv — Carboniferous metavolcanic rocks
- Dv — Devonian metavolcanic rocks
- pDv — Undivided pre-Devonian metavolcanic rocks
- pЄgr — Undivided Precambrian granitic rocks

HEAVY BORDER ON BOX INDICATES UNIT THAT APPEARS ON THIS SHEET

TOPOGRAPHIC BASE MAP

Prepared by the Army Map Service (GUSX), Corps of Engineers, U. S. Army Washington, D. C. Compiled in 1955 from: United States Quadrangles, 1:24,000 and 1:31,680, USGS, 1922-50; California, 1:25,000, Army Map Service, 1948-53; California, 1:50,000, Army Map Service, 1947-53; United States Quadrangles, 1:62,500, USGS and CE, 1940-46; United States Quadrangle, 1:125,000, USGS, Sheet Panoche, 1913; USC&GS Charts 5302, 5402, 1941. Planimetric detail revised by photo-planimetric methods. Control by USGS and CE. Map field checked, 1956.

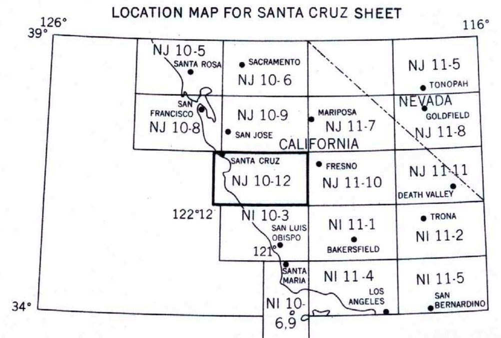
Land net prepared by U.S. Geological Survey, 1958

Submarine contours adapted from Shepard and Emery Special Paper No.31, Geol. Soc. America

SUBMARINE CONTOUR INTERVAL 300 FEET

Limit of danger; Reef
Rocks: Awash; Sunken
Foreshore flat
Intermittent or dry stream
Marsh or swamp

LOCATION MAP FOR SANTA CRUZ SHEET



Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

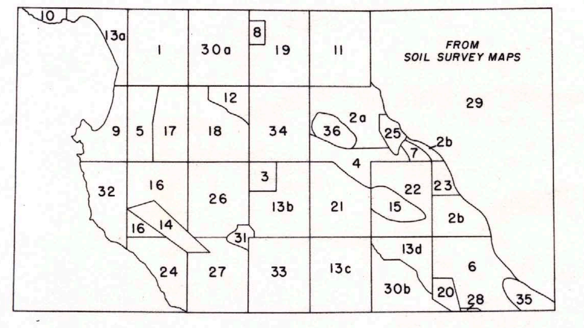
CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

GEOLOGIC MAP OF CALIFORNIA

OLAF P. JENKINS EDITION

SANTA CRUZ SHEET

COMPILATION BY CHARLES W. JENNINGS, AND RUDOLPH G. STRAND 1958



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*Modified by T.W. Dibblee, Jr.