

- EXPLANATION**
- Core or grab sample — Showing station number
 - △ Sample Site — No recovery
 - ▽ Dredge — Length of haul not indicated
 - 467 Deep Sea Drilling Project hole
 - Deep stratigraphic test well
 - OCS-CAL
 - skip— Pre-plotted stations — Not occupied
 - L2-76 Cruise designation
- Sedimentary rocks or sediments** — Containing age-diagnostic fossils. Slash (/) between symbols indicates discrepant age calls; combined symbols indicate age range of contained fossils; samples without age designations are barren of fossils, or paleontologic reports are unavailable
- Quaternary** — Chiefly glauconitic foraminiferal mud; includes coquinoid sand on shallow banks and tempehagic ooze on deep, outer ridges
- Pliocene**
M Miocene
O Oligocene — Chiefly claystone, mudstone, and very fine grained sandstone
E Eocene
Pa Paleocene
K Late Cretaceous
? Age and (or) composition uncertain — Chiefly unfossiliferous sandstone; locally includes mudstone and conglomerate
- Volcanogenic rocks**
v Flow or intrusive body — Includes hyaloclastite. Predominantly Miocene
vc Volcaniclastic deposits — Includes water-laid lapilli tuff. Probably Miocene
t Vitric tuff or bentonite — Generally forms laminae in sedimentary rocks
- Metamorphic rocks**
s Schistose rocks — Blueschist and (or) greenschist facies
g Saussuritized gabbroic rocks
w Arkosic wacke, lithic sandstone, or argillite — Zoelite facies
serp Serpentine
pyr Pyroxenite — Altered
amp Amphibolite — Altered
epid Epidote — Altered
mv Metavolcanic rocks — Albite-epidote
- Detrital material** — Locally derived. Where age designation accompanies these symbols, the material occurs as lithic fragments within the sample
- Volcanic detritus**
vx Schist, phyllite, metagraywacke, or argillite detritus
sx Serpentine detritus
- Authigenic rocks**
p Phosphorite — Generally nodular, locally pelletal or laminar. Miocene and younger
bar Barite
- EXAMPLE**
I • MP15x Station 1; Miocene and (or) Pliocene sedimentary rock containing schist, phyllite, metagraywacke, or argillite detritus

DISCUSSION

In support of regional framework and geologic-hazards investigations of the California Continental Borderland, bottom sampling was attempted at nearly 3,000 sites between March 1968 and May 1979. Of this number, 2,100 were tried during U.S. Geological Survey cruises with success at approximately 90 percent of the sites. Joint cruises involving U.S. Geological Survey and university personnel aboard other research vessels resulted in more than 800 supplementary samples. Scripps Institution of Oceanography provided information on 20 dredge hauls (see accompanying table).

Holes 467, 468, and 469 drilled during Leg 63 of the Deep Sea Drilling Project, are shown together with the two Outer Continental Shelf (OCS) Deep Stratigraphic Test wells that were drilled on the borderland.

The purpose of these maps is to show the location of selected sampling sites as well as to give an indication of the general composition and age of the material collected. Not only are the maps intended as a means of showing the distribution of different rock types but also as a guide for planning future sampling cruises. The samples include a variety of basement rocks, volcanic rocks, and sedimentary rocks that range in age from Cretaceous to Quaternary. In some cases, Quaternary designations are based upon degree of cohesiveness, composition, and color rather than on contained fossils.

Most of these samples originally were described in the U.S. Geological Survey Open-File Reports listed below, and these reports should be consulted for details on composition and age. Descriptions for the 1975 R/V VELERO cruise to Cortes Bank and Tanner Bank are incomplete; but judging from observations recorded in the shipboard log sheets for this cruise most of the unlogged samples are Quaternary.

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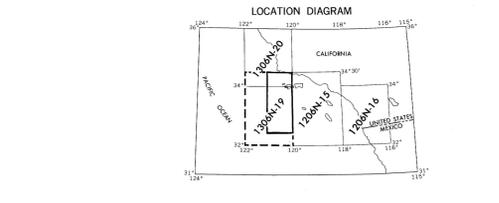
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CRUISE DESIGNATION AND SAMPLING DEVICES

Institution	Symbol	Ship	Year	Sampling device
U.S. Geological Survey	BART	R/V Bartlett	1972	Dredge
	KZ	R/V Kelez	1973	Dart, dredge
	KSB	R/V Kelez	1973	Dart, dredge
	LCH	R/V Lee	1974	Dart, dredge
	SCS	R/V Lee	1974	Dart, dredge, gravity, box, Van Veen
	L2-76	R/V Lee	1976	Dart, gravity, box, Van Veen, dredge
	L2-78	R/V Lee	1978	Dart
	S2-78	R/V Sea Sounder	1978	Dart, gravity
	S2-79	R/V Sea Sounder	1979	Dart, gravity, piston
	S3-79	R/V Sea Sounder	1979	Dart
USGS-university joint cruise	VO	R/V Veleiro	1968	Dredge, Shipek
	VO	R/V Veleiro	1970	Dart, dredge
	VA	R/V Vanuxem	1970	Dart, dredge
Scripps Institution of Oceanography	SCA	R/V Veleiro	1975	Dart, box, gravity, Van Veen, Campbell, Phleger
	EBS	R/V Scripps	1976	Dart
	AG	R/V Agassiz	1969	Dredge
CB	R/V Melville	1970	Dredge, gravity	



Base from Coast and Geodetic Survey hydrographic chart 1306N-19, 1306N-20, 1967.

Universal Transverse Mercator Grid, zone 10. Short-dashed ticks along neatline indicate 10,000 meter ticks.

This map not intended for navigation.

Scale 1:250,000
0 5 10 15 20 Statute Miles
0 5 10 15 20 Kilometers
0 5 10 15 Nautical Miles

BATHYMETRIC CONTOUR INTERVALS 10 METERS TO THE 200-METER DEPTH AND 50 METERS TO MAXIMUM DEPTH
DATUM: MEAN LOWER LOW WATER

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MAPS OF CALIFORNIA CONTINENTAL BORDERLAND SHOWING COMPOSITIONS AND AGES OF BOTTOM SAMPLES ACQUIRED BETWEEN 1968 AND 1979

Compiled by
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1990