

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 uncollected samples are Quaternary.

CRUISE DESIGNATION AND SAMPLING DEVICES

Institution	Symbol	Ship	Year	Sampling device
U.S. Geological Survey	BART	R/V <i>Bartlett</i>	1972	Dredge
	KZ	R/V <i>Kelley</i>	1973	Dredge
	KSB	R/V <i>Kelley</i>	1973	Dredge
	LCB	R/V <i>Lee</i>	1974	Dredge
	SCS	R/V <i>Lee</i>	1974	Dredge, gravity, box, Van Veen
	L2-76	R/V <i>Lee</i>	1976	Dredge, gravity, box, Van Veen, dredge
	L2-78	R/V <i>Lee</i>	1978	Dredge
USCS-university joint cruise	VO	R/V <i>Valero</i>	1968	Dredge, Shippek
	VO	R/V <i>Valero</i>	1970	Dredge, dredge
	VA	R/V <i>Vantuna</i>	1970	Dredge, dredge
	SCA	R/V <i>Valero</i>	1975	Dredge, box, gravity, Van Veen, Campbell, Philger
Scripps Institution of Oceanography	EBS	R/V <i>Scripps</i>	1976	Dredge
	AG	R/V <i>Agassiz</i>	1969	Dredge
	CB	R/V <i>Melville</i>	1970	Dredge, gravity

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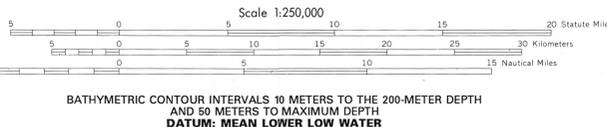
- EXPLANATION**
- Core or grab sample — Showing station number
 - △ Sample Site — No recovery
 - ▽ Dredge — Length of haul not indicated
 - 467 Deep Sea Drilling Project hole
 - Deep stratigraphic test well
 - OCS-CAL
 - skip — Pre-plotted stations — Not occupied
 - L2-76 Cruise designation
- Sedimentary 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.
- Q Quaternary — Chiefly glauconitic foraminiferal mud; includes coquina sand on shallow banks and hemipelagic ooze on deep, outer ridges
 - Pl Pliocene
 - M Miocene
 - O Oligocene — Chiefly claystone, mudstone, and very fine grained sandstone
 - E Eocene
 - P 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 hyaloclastic. 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 — Blue-schist and (or) greenschist facies
 - sg Saussuritized gabbroic rocks
 - w Arkosic wacke, lithic sandstone, argillite — Zeolite facies
 - serp Serpentine
 - pyr Pyroxenite — Altered
 - amp Amphibolite — Altered
 - epid Epidote — Altered
 - mv Metavolcanic rocks — Albitite-epidote
- Detrital material** — Locally derived. Where age designation accompanies these symbols, the material occurs as lithic fragments within the sample
- vx Volcanic detritus
 - sx Schist, phyllite, metargyrawacke, or argillite detritus
 - spx Serpentine detritus
- Authigenic rocks**
- p Phosphorite — Generally nodular, locally pelletal or laminar. Miocene and younger
 - bar Barite

EXAMPLE

1 • MPIx Station 1: Miocene and (or) Pliocene sedimentary rock containing schist, phyllite, metargyrawacke, or argillite detritus



Base from Coast and Geodetic Survey hydrographic chart 1206N-16, 1967.
Universal Transverse Mercator Grid, zone 11.
Short-dashed ticks along neatline indicate 10,000 meter ticks.



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

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1990