

# GRAIN SIZE ANALYSIS OF PALOS VERDES SEDIMENTS

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The Project collected samples for sediment grain size analysis during the August-September 1973 benthic survey conducted in the vicinity of the Los Angeles County municipal wastewater outfalls off the Palos Verdes Peninsula. The samples were taken from the top 7 cm of sediment at 40 stations in depths to 200 m. These samples were submitted for analysis to Dr. D. S. Gorsline's sediment laboratory, Department of Geological Sciences, University of Southern California.

In the cover letter accompanying the results of these analyses, Dr. Gorsline stated that the analysis was complicated by the fact that the samples contained excessive amounts of organic matter, which acts to flocculate the clay particles: He emphasized that the harsh treatment necessary to process sediments with high organic content destroys some unknown portion of the fine fraction and alters the usually tightly bound clay organic complexes.

In [Figures 1](#) and [2](#), the results of these analyses are graphed and compared to data collected during the late 1950s and reported by Uchupi and Gaal (1962) in their paper on the Palos Verdes shelf sediments.

The most significant difference between the 1950 and 1973 surveys is the large increase in the fine fraction (particles less than 62 microns) now present on this shelf. This is particularly so for the clay fraction (less than 4 microns), which made up more than 40 percent of several samples. In contrast, Uchupi and Gaal found a small area off the outfalls that exceeded 20 percent clay, and in plotting the data in Figure 1, they included clay with the silt percentages "because of the low volume of clay on the shelf."

One obvious source of clay is the Palos Verdes hills. The high concentrations of clays and silts around the outfalls may be explained to some degree by a quote from Dr. Gorsline: "The flocculated fine sediments enter the shelf and settle in the same fashion as silts, due to the floccule size. This is normally amplified by high organic content. Thus, much settling occurs quite rapidly near the input point."

## REFERENCES

Uchupi, E., and R. Gaal, 1962, Sediments of the Palos Verdes shelf, Hancock Foundation, Emery Commemorative Volume.

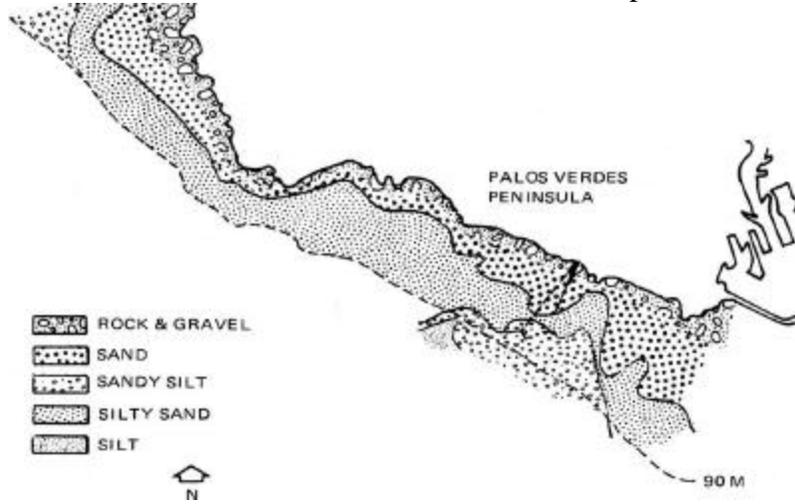
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## FIGURES

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**Figure 1.**

Sediments on the Palos Verdes shelf in the late 1950's. After Uchupi and Gaal 1962.



**Figure 2.**

Sediments from on the shelf in summer 1973.

