

Benthic Study of the Southern California
OCS Region

VOLUME III, REPORT 16.0

SUBTIDAL BENTHIC SEDIMENT ANALYSIS IN THE SOUTHERN CALIFORNIA
BIGHT - BIOTURBATION AND BIOGENIC SEDIMENTARY STRUCTURES

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MAY 1978

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*This study was sponsored by the Bureau of Land Management,
Department of the Interior-Contract AA550-CT6-40
to Science Applications, Inc.*

May 1978

TABLE OF CONTENTS

<u>Sect ion</u>	<u>Page</u>
16.0 X-RADIOGRAPHY OF SEDIMENT SAMPLES	1
16.1 SAMPLING	1
16.2 On Board Processing.	1
16.3 X-Radiography.	1

16.0 X-RADIOGRAPHY OF SEDIMENT SAMPLES

16.1 SAMPLING

Samples were taken at several sites predetermined by SAI/BLM. Eight drops were made at each station. The drop to be sampled at each station was predetermined before each cruise. The determination of which portion of the Soutar box core would be used for each tube or slab was based on a desire to obtain a sample most representative of the overall box.

16.2. On Board Processing

All samples were gathered from the R/V Thomas G. Thompson. At variously predetermined sites, a Soutar box corer was lowered to the ocean floor via a winch-driven cable. When the Soutar box corer contacted the ocean floor, it penetrated to a depth dependent upon the mass and particulate properties of the bottom sediment. When raised, the bottom of the box corer automatically sealed, resulting in the collection of an intact volume of bottom sediment. Once on board ship, the box corer was released from the cable. For tubes cores, a cylindrical plastic jacket was manually inserted into the sediment to the full depth of penetration, the corer was removed, and the excess adhering sediment scraped away. For slab cores, the box corer was removed first, followed by insertion into the side of the sediment of a plastic tray, and removal of excess sediment with a spatula. The site of insertion of both the tube and tray samplers was determined in an effort to avoid large stones and to give a more representative sample. The tubes were capped and stored in an upright position. The sediment slabs were stored flat and plastic dividers were put at the tops of these slabs whose length was less than that of the plastic tray to prevent flow and maintain three-dimensional integrity. The trays were wrapped in Saran Wrap and both tubes and trays were refrigerated.

16.3 X-Radiography

Initial preparation for X-raying sample slab cores consisted of carefully cutting away the plastic core wrapper. Those slabs which did not contain large stones or shells were trimmed with a fine wire, which was moved along the top edge of the plastic tray to remove disturbed surface sediment and level the slab to uniform thickness. To compensate for thickness differences the tube cores were X-rayed and packed in clean sieved (1 mm mesh) sand which was placed in a cardboard box. The sand level was the same depth as the thickest part of the core. A teflon piston was inserted into the tube to maintain the integrity of the sediment when the tube was X-rayed in a

horizontal position. Each sample was X-rayed in duplicate lengthwise using a Hewlett-Packard Faxitron radiographic X-ray unit and Kodak Type AA industrial film ready pack. X-ray kilovoltage varied from 45-100 kv and exposure intervals of 0.5 - 5.0 minutes were used. Milliamperage was fixed between 2.1 and 3.1.