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UNITED STATES DEPARTMENT OF THE INTERIOR
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GEOLOGICAL SURVEY

ACOUSTIC PROFILES OFFSHORE

HUMBOLDT BAY, CALIFORNIA

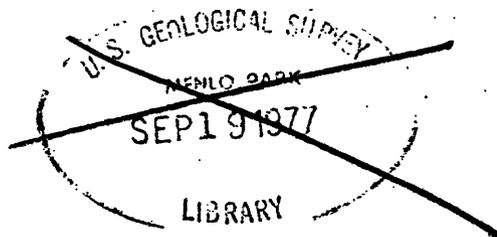
by

D. S. McCulloch, A. T. Long, and P. A. Utter

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1977

This report is preliminary and
has not been edited or reviewed
for conformity with Geological Survey
standards or nomenclature.



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This report contains: 1) a map showing tracklines of two multichannel common depth point (CDP) profiles and one high resolution acoustic profile off Eureka, California (Figure 1), 2) copies of the acoustic profiles (sheets 1-3), and 3) interpretations of the multichannel profiles (sheets 4,5).

Interpretations of the CDP data indicate a faulted anticline with some possible thrust component. Hoskins and Griffiths (1971) also mapped an anticline in this area. The faulting appears to reach the seafloor on profile B-B', and there is a seafloor offset on the simultaneously recorded high resolution profile b-b'. The faulting also approaches the seafloor on profile A-A'. A high resolution profile made on Line A-A' shows very little subbottom penetration, and no seafloor offset. It is possible that the redistribution of sediment is more rapid nearshore, and that if seafloor offsets had formed, they might be more rapidly removed or covered.

The acoustic profiles were made aboard the U.S. Geological Survey Research Vessel S. P. Lee in May, 1977. Navigation was a combination of doppler-sonar, satellite fixes, and rho-rho mode Loran C. The CDP data have the following specifications:

- 24 channel recording system
- Recording interval 2 ms, processed at 4 ms
- 50 meter shot intervals
- Airgun source (approx. 1,325 cu. in.
5 gun tuned array)
- Velocity analysis interval 2-3 km
- 24 fold stack
- Predictive deconvolution and band pass
filtering after stacking

The high resolution data have the following specifications:

- Source; four sea-chest mounted EGG
Boomer plates
- Fire rate 1 second
- Recording sweep 1 second
- Hydrophone signal amplified, filtered and
displayed on a Raytheon UGR dry
paper recorder

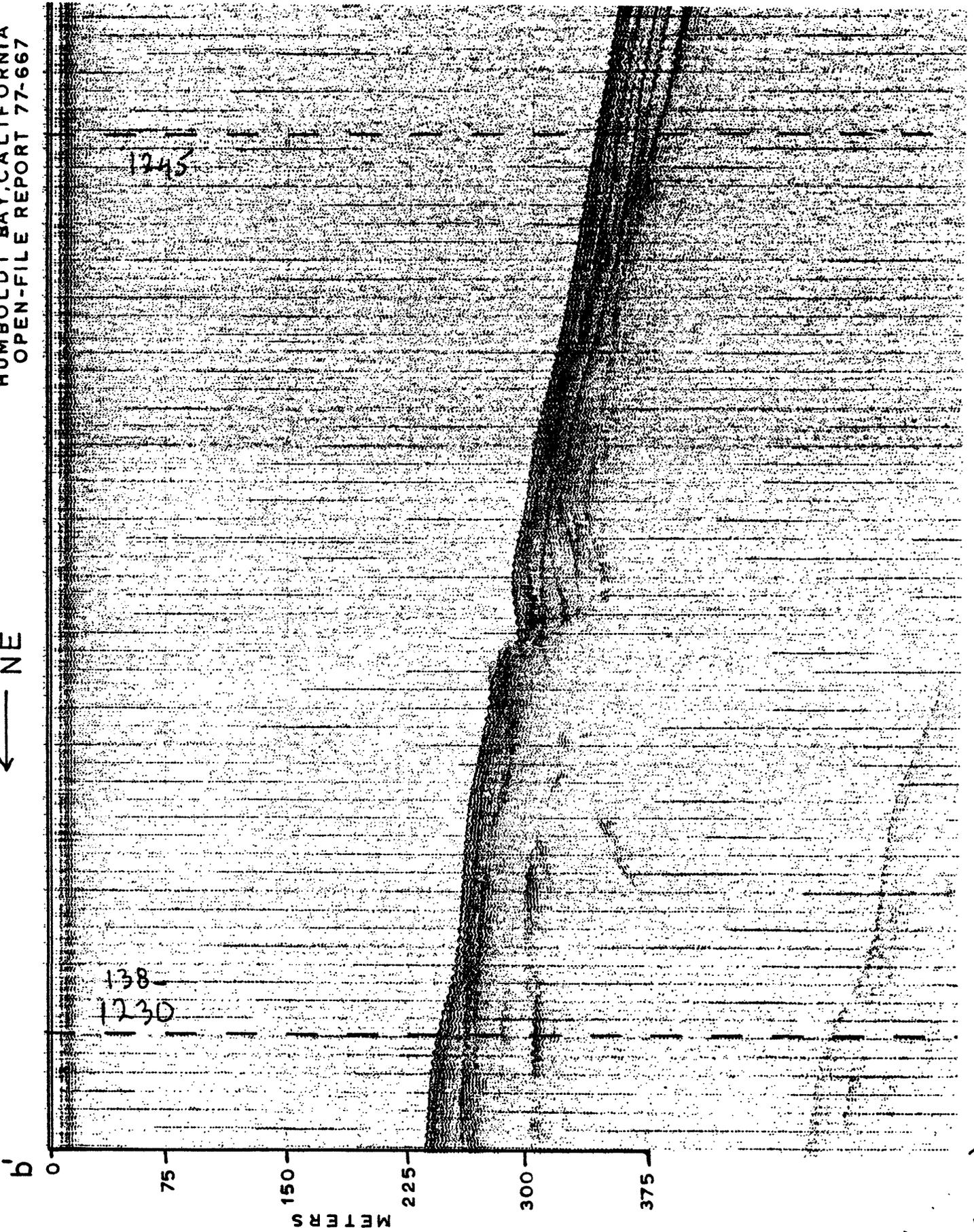
The vertical exaggeration of the CDP records is approximately 2.5:1 and the high resolution profile is approximately 4:1.

Reference

Hoskins, E. G., and Griffiths, J. R., 1971, Hydrocarbon potential of northern and central California offshore: Am. Assoc. Petroleum Geologists Mem. 15, v. 1, p. 212-228.

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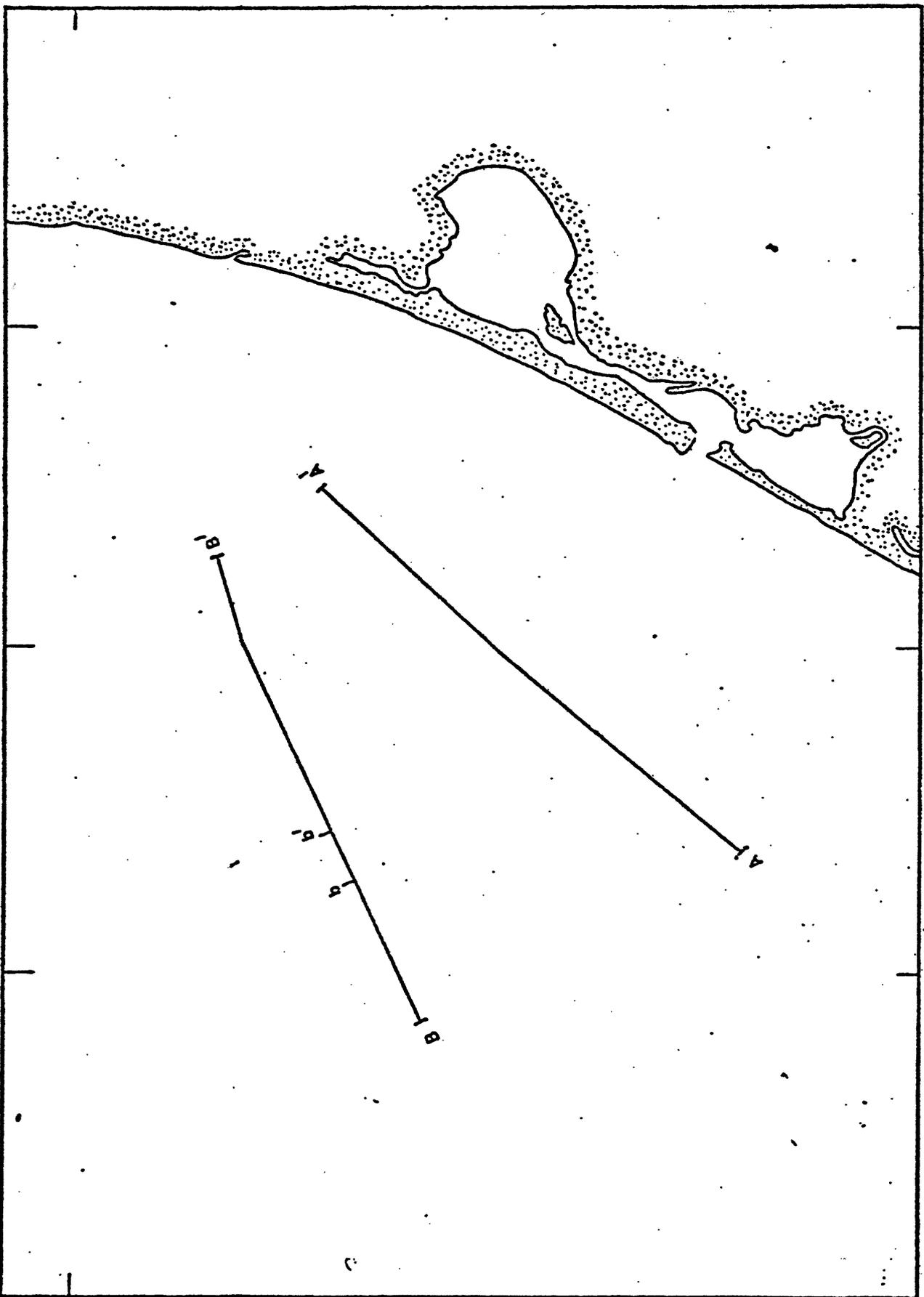
← NE



PROFILE b-b'

(200)

147 00



41°00'

41°00'

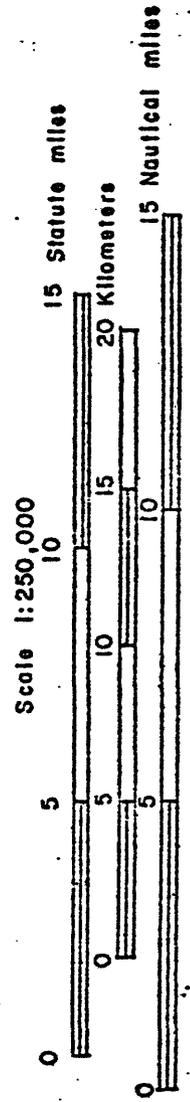
40°40'

40°40'

124°30'

124°30'

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