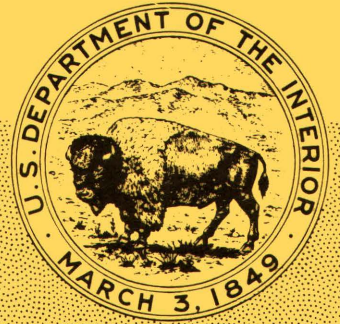


GEOLOGICAL SURVEY CIRCULAR 587



**Gold Distribution in  
Surface Sediments on  
the Continental Shelf  
off Southern Oregon:  
A Preliminary Report**

# Gold Distribution in Surface Sediments on the Continental Shelf off Southern Oregon: A Preliminary Report

By H. Edward Clifton

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Free on application to the U.S. Geological Survey, Washington, D.C. 20242

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# GOLD DISTRIBUTION IN SURFACE SEDIMENTS ON THE CONTINENTAL SHELF OFF SOUTHERN OREGON: A PRELIMINARY REPORT

By H. EDWARD CLIFTON

## Abstract

Local concentrations of gold have been identified in surface sediments on the continental shelf off southern Oregon between Cape Arago and Cape Sebastian, a distance of about 40 miles. Concentrations of gold range from the lower limit of detection, 5 parts per billion, to almost 150 parts per billion. The largest gold anomaly is an area of 15 to 20 square miles off Cape Blanco. Gold is associated with black sands believed to be relict beach placers formed during a previous low stand of the sea. Although the gold content is low, it may indicate higher grade material at depth; drilling will be necessary to determine the economic potential of the placers.

## INTRODUCTION

The Heavy Metals program of the U.S. Geological Survey was initiated in 1966 to stimulate domestic production of a small group of critical metals (U.S. Geological Survey, 1968). As part of this program, study of the black sands of southern Oregon was begun, the goal being to establish the economic potential, particularly as regards gold and platinum, for black sands on the continental shelf. To implement this study, a joint research contract was entered into with the Department of Oceanography, Oregon State University, for examination of the continental shelf. Concurrent with this examination, a study of the black sands in emergent terrace and modern beach deposits has been carried on by personnel of the Geological Survey, as well as a study of the sources for potential heavy metals deposits under a joint research contract with the University of Oregon.

Although this investigation is not yet complete, several preliminary conclusions can be drawn concerning the heavy metals potential of the southern Oregon continental shelf. Kulm, Heinrichs, Buehrig, and Chambers

(1968) described and interpreted the distribution of heavy minerals and associated magnetic anomalies on the shelf. The present report describes the distribution of gold in surface sediment on the continental shelf and its relation to the associated black sands.

Many persons have contributed to this study. R. L. Phillips has assisted throughout the project. The following individuals participated in sample preparation: F. J. Swanson, D. A. D'Armond, John Harding, J. M. Kelly, R. R. Payne and V. G. Wood. Most analyses were made by Arthur Hubert.

## METHODS

To date 120 surface-sediment samples collected from the continental shelf (fig. 1) have been analyzed for gold. Seventy-eight of these samples were collected by the U.S. Geological Survey RV *Polaris* (under the direction of G. A. Rusnak) during the first year of the study; knowledge of the gold and heavy mineral content of these samples was instrumental in planning subsequent sampling on the shelf. The remaining samples were collected by Oregon State University personnel as described by Kulm, Heinrichs, Buehrig, and Chambers (1968). Analysis for gold in other samples, including many from areas previously unsampled, will soon be completed. It is anticipated, however, that these analyses will not significantly change the conclusions drawn in this report.

In order to achieve accurate reproducible analytical data, all the samples were concentrated prior to analysis, according to the procedures outlined by Clifton, Hubert, and Phillips (1967). Gold content was determined by

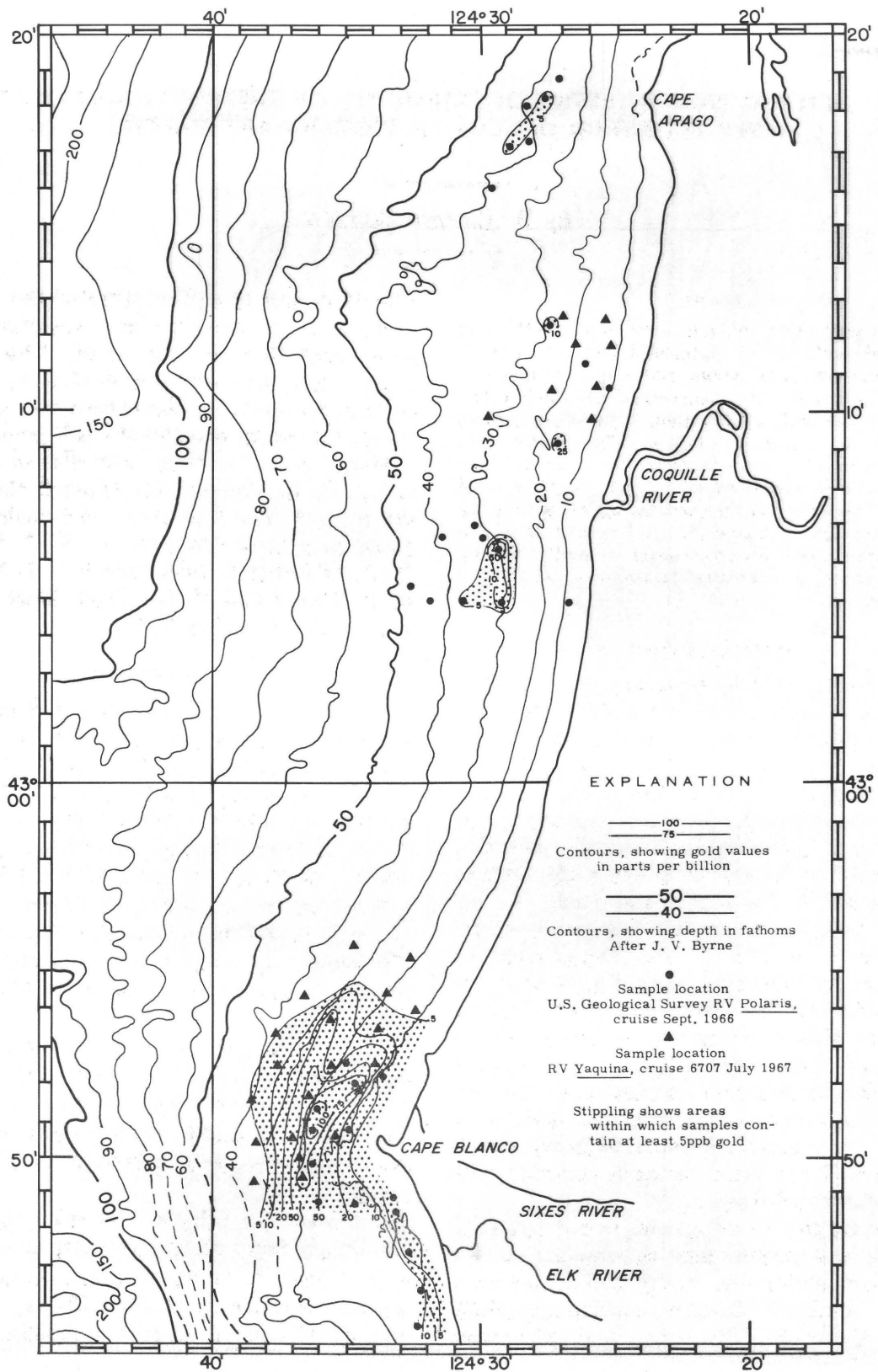


FIGURE 1.—Locations of surface grab samples that have been analyzed for gold. Northern area.

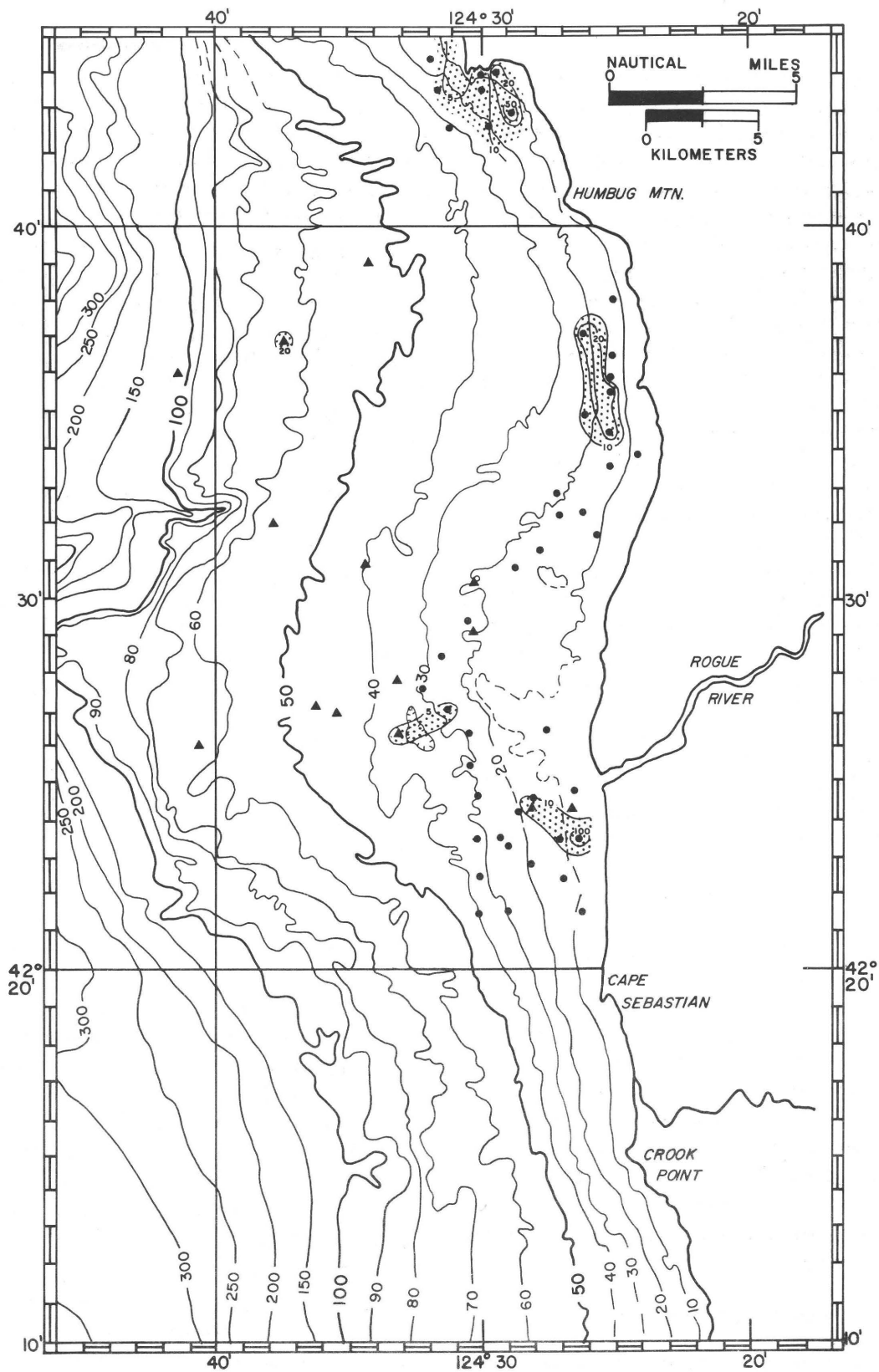


FIGURE 1.—Locations of surface grab samples that have been analyzed for gold. Southern area.

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p. C168-C171.

Pardee, J. T., 1934. Beach placers of the Oregon coast:

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