



EXPLANATION

Note: The distribution of saline minerals is drawn from generalized compilations, the accuracy of which is limited by the availability of information as well as the small scale of the map, and may be incorrectly shown in many areas. The manganese-oxide deposits are shown only at stations where they have been sampled or photographed. They may extend over large areas, but available information is not sufficient to infer either their continuity between stations where reported or their absence in areas where they have not yet been found. The offshore phosphorite deposits are shown in the general areas in which they have been reported or which are favorable for their occurrence, rather than at individual stations where sampled, and their distribution may be more or less extensive than shown.

No commercial value should be attributed to any mineral deposits or areas on the basis of their occurrences shown here.

Known sulfur deposit
Frasch type only. Sour natural gas (hydrogen-sulfide rich) and asphalt-base crude oil may be an important offshore source of sulfur in some areas



Phosphorite
Offshore areas in which deposits are known or which are favorable for their occurrence

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Manganese-oxide pavements, crusts, or nodules on the sea floor

Location of nodules recovered by sampling shown by circle with cross; photograph showing more than 25 percent of bottom covered by nodules indicated by plain circle; photograph showing 25 percent or less of bottom covered by nodules indicated by half circle; photograph showing no nodules indicated by dot

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Area where offshore exploration is in progress

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Metal-bearing mud

Reported thus far only from the Red Sea, a submarine volcano off Indonesia, and, in less concentrated deposits, on the crest of the East Pacific Rise. Possibly present also in other rift or fracture zones, in parts of the deep trenches, in volcanic craters, or in other environments in which rising hydrothermal solutions may have been trapped

— 200 —

200-meter isobaths

Approximates in many places the edge of the continental shelf

— 2500 —

2500-meter isobaths

Approximates in many places the toe of the continental slope

Location of saline deposits drawn mainly from Meyerhoff, 1970; Kozary, Dunlap, and Humphrey, 1968; Lefond, 1968; Pendery, 1969; Riös, 1968; Liechti, 1968; Tortochaux, 1968; Stöcklin, 1968; McHilton and others, 1968; Ivanov and Levitzky, 1960; Benavides, 1968; Gorrell and Alderman, 1968; Ford, Smith, and Pratt, 1965; Murray, 1968; Gould and de Mille, 1968; Sanneman, 1968; Meyerhoff, 1968; Hatten, 1965; Kent, 1965; Belmonte, Hirtz, and Wenger, 1965; Aymé, 1965; Demaison, 1965; Gill, 1965; Pearson, 1963; Withington, 1962; Douglas and others, 1963; Burk and others, 1969; and personal communications from C. L. Jones, Robert J. Hite, and Ray G. Martin, Jr., of the U.S. Geological Survey, and A.A. Meyerhoff, American Association of Petroleum Geologists. Distribution of manganese-oxide deposits from unpublished compilations kindly furnished by Gustaf Arrhenius of the Scripps Institution of Oceanography and Maurice Ewing of the Lamont-Doherty Geological Observatory, and Mero, 1965; Ford, 1964; Cronan, 1967; Strakov and others, 1968; Manheim, 1965; Meylan, 1968. Distribution of iron-bearing mud from Miller and others, 1966; Bostrom and Peterson, 1966; and Zelenov, 1964. Location of deposits of guano and phosphatized rock mainly from Hutchinson, 1950; subsea deposits of phosphorite from McKelvey, 1963.

Base after National Geographic Society's Map of the World, 1968, with modifications by the U.S. Geological Survey
Political boundaries are approximate and should not be regarded as having official significance
Second printing, slightly revised

VAN DER Grinten PROJECTION
SCALE 1:39, 283, 200 AT THE EQUATOR
(SCALE ELSEWHERE CHANGES WITH BOTH LATITUDE AND LONGITUDE)

The scale bar is a horizontal line with three sets of markings. The top set is labeled '500', '0', '500', '1000', '1500', '2000', '2500', and '3000 NAUTICAL MILES'. The middle set is labeled '500', '0', '500', '1000', '1500', '2000', '2500', and '3000 STATUTE MILES'. The bottom set is labeled '500', '0', '500', '1000', '1500', '2000', '2500', and '3000 KILOMETERS'. Each set of markings consists of a short horizontal line with a vertical tick mark at the midpoint and a longer horizontal line with tick marks at 500-unit intervals.

Compiled by

R. H. Wang,
1970

V. E. McKelvey, Frank F. H. Wang,
1970

R. H. Wang,
1970