



Sources
The soundings on this map were principally assembled from compilations made since 1949 by the following organizations:
Columbia University: Department of Geological Sciences—Lamont-Doherty Geological Observatory (initiated in 1949 with the support of the Office of Naval Research). Includes principally precision depth soundings by research vessels.
Department of Defense, Defense Mapping Agency Hydrographic Center-US Naval Oceanographic Office (organized on 4°-12" Longitude format in 1949). Includes precision and nonprecision soundings of naval and other vessels and all pre-1950 echo soundings.
University of California: Scripps Institution of Oceanography. (Initiated in 1950 with the support of the Office of Naval Research). Includes principally precision soundings from research vessels.

Contours
Soundings from listed sources were contoured at publication scale using a plate tectonics working hypothesis and bathymetric trends derived from both magnetic anomalies and fracture-zone lineations. Vessel tracks are indicated by numerical values in box units and the vessel and voyage number are shown at an extremity of each track. Approximate depths of contours in meters can be determined from the conversion table.

Conversion Table	
Echo soundings given in total travel time (surface to seabed, to surface) and expressed in tau units (two seconds). Contour interval 100 f or 1 second.	
Tau	Meters
200	375
400	746
600	1119
800	1490
1000	1862
1200	2233
1400	2608
1600	2983
1800	3351
2000	3740
2200	4122
2400	4508
2600	4890
2800	5272
3000	5652
3200	6050

BATHYMETRIC AND NODULE ASSESSMENT MAP, 1404N, NORTHEAST EQUATORIAL PACIFIC OCEAN

Contour data assembled, evaluated, and interpreted by Bruce C. Heezen and Marie Tharp assisted by S. Blythe, R. Bodnar, R. Brunk, D. Jicha, H. Jicha, T. Kaul, M. McClellan, and F. Rossello, Lamont-Doherty Geological Observatory, Department of Geological Sciences, Columbia University, Palisades, NY 10964
Nodule data from the Scripps Institution of Oceanography Sediment Data Bank, compiled by Jane Z. Frazer and Mary B. Fisk, Scripps Institution of Oceanography, University of California, La Jolla, CA 92093

- 1-180(2) + Nodules present and averaged combined copper and nickel content in weight percent. Total number of analyses averaged shown in parentheses.
1-C13 + Nodules present but no reported analyses.
+ Site of photograph showing bottom coverage by ferromanganese nodules, research vessel, and cruise number. Photograph available from Lamont-Doherty Geological Observatory.
Coverage: 1, 30-25%; 2, 26-50%; 3, 51-75%; and 4, 76-100%.
Research vessels:
M. R/V Morris West, University of Hawaii
O. R/V Oceanographer, National Oceanographic and Atmospheric Administration
C. R/V Robert Conrad, Lamont-Doherty Geological Observatory
V. R/V Verna, Lamont-Doherty Geological Observatory
No nodules reported in samples or in photographs.

	1-1094 A 1604 N	1-1094 D 1504 N	1-1094 G 1404 N	1-1094 J 1304 N	1-1094 M 1204 N
12"	1-1094 B 1603 N	1-1094 E 1503 N	1-1094 H 1403 N	1-1094 K 1303 N	1-1094 N 1203 N
10"	1-1094 C 1602 N	1-1094 F 1502 N	1-1094 I 1402 N	1-1094 L 1302 N	1-1094 O 1202 N
75"					

INDEX TO 1:1,000,000 SCALE BASE MAPS FOR
MINERAL ASSESSMENT

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