
Distribution of Manganese Nodules in Pacific Ocean

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The distribution of deep-ocean manganese nodules within the Pacific Ocean has been ascertained from bottom photographs and sediment cores. In the northeast quadrant of the Pacific Ocean, three areas exhibit a sea-floor coverage that commonly exceeds 50%. One area lies between the Clarion and Clipperton fracture zones, a second is in the Central Pacific basin, and a third is in the vicinity of the Musician Seamounts. Correlation of hiatuses in sedimentation during the Neogene, with these area of high nodule coverage, suggests

that a low rate of sediment accumulation is of primary importance. Although the nodule distribution in the other three quadrants of the Pacific is less well documented, that of the central part of the South Pacific may be comparable in extent and consistently high coverage to those areas in the northeast Pacific. Bottom photographic stations, which show a high nodule coverage elsewhere in the South Pacific, are located in areas of active bottom currents.

The distribution of four, generally non-overlapping, groups of nodules has been examined in conjunction with the regional variation in nodule coverage. These four groups, distinguished by their composition, are those containing the following: (1) greater than 1.8% nickel plus copper, (2) between 1 and 1.8% nickel plus copper, (3) greater than 1% cobalt, and (4) greater than 35% Mn. No simple relation between the distribution of these groups and the degree of coverage is apparent. It is noteworthy, however, that nodules in the last two groups occur only in areas in which the nodule coverage is less than 10%. Nodules in the first two groups are found in all coverage categories, but those containing greater than 1.8% nickel plus copper have their highest frequency of occurrence in the area of high coverage between the Clarion and Clipperton fracture zones.
