

Surface Geology and Biology at the Head of Kaoping Canyon off Southwestern Taiwan

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ABSTRACT

A preliminary geological and biological survey of Kaoping Canyon off southwestern Taiwan was conducted with a remotely operated vehicle (ROV). Twenty-one dives (25-160 m depth) were conducted at 12 stations on the canyon walls and adjacent continental shelf. Total bottom time from this series of dives was 17.0 hours. Surface sediments, microtopography, and faunal assemblages were generally similar along the series of stations across the canyon although local variability was apparent. However, features observed on canyon stations differed significantly from those of the adjacent shelf. Surface sediments on the canyon-shelf break were dominated by fine sands, silts and clays. Outcrop sediments along the canyon walls appeared to be composed of clay and were laminated and burrowed. Mass-wasting processes probably eroded the canyon walls and resulted in the deposition of gravel and shell fragments at the foot of the outcrops. Erosional features, typically in the form of stepped terraces, were most pronounced at the lower parts of the canyon walls. Shelf areas adjacent to the canyon were relatively flat and covered by fine-grained sediments. A small number of taxa including soft corals, crabs, shrimps, crinoids and fishes were observed in the canyon. The diversity of macro-faunal organisms appeared to be greater at the shelf break than in the canyon. No systematic changes in sediment types with associated faunal assemblages could be grouped into distinct canyon habitats.

1. INTRODUCTION

Kaoping Canyon, located at about 22°27'N, 120°21'E, is a major physiographic feature on the continental margin off southwestern Taiwan (Figure 1). The canyon was thought to end about 40 km from coastline due to limited deep-water soundings and was described as a glacially eroded submerged marine valley (Ma, 1947, 1948, 1963). Studies related

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