Early Cenozoic Recovery Of Caribbean Reef Coral Communities

Thomas STEMANN*[1]

[1]Department of Geography and Geology, The University of the West indies, Kingston, Jamaica

There is some controversy over the extent to which the K-T extinctions affected coral reef communities at global and regional scales. Recent collections from latest Maastrichtian successions indicate that diverse Caribbean reef coral communities persisted up until the very end of the Cretaceous. The fate of this reef fauna is unclear, however, because early Cenozoic Caribbean reef corals are so poorly known.

The present study examines new collections of early Cenozoic corals from Jamaica that provide insight into Caribbean reef communities immediately following the K-T boundary. Extensive sampling from sites in three units in the Paleocene of eastern Jamaica yields an average of <5 coral species from each sample site and total sampled richness that is lower than at any time in the Cenozoic or late Cretaceous. Less than 5% of the Jamaican Cretaceous corals range into the Cenozoic. Coral abundance and richness rises slightly in the early - middle Eocene but remains low compared to typical levels found in later Cenozoic units. Endemism is high in the early Cenozoic but ecologic diversity is low with communities composed only of thin branching colonies or small solitary corals. Dense accumulations of reef corals including large massive, branched and plate shaped colonies do not become common until the late middle Eocene.

The results here are similar to reports from throughout the Caribbean and suggest significant coral species turnover regionally at the K-T boundary followed by a protracted recovery time. This contrasts markedly with the rich faunas recorded from Europe, Africa and Asia in the Paleocene –middle Eocene. After significant extinctions at the end of the Cretaceous, coral community recovery is slow in the Caribbean and faunas in this region remain species poor and ecologically simple considerably longer than elsewhere in the world.