ABSTRACT

The coral reefs of the Port Royal Cays, Jamaica:
Drunkenman's Cay, Gun Cay, Maiden Cay
and East Middle Ground Shoal

Malden Warren Miller

In the face of a planned sewage diversion scheme in a bid to clean up Kingston Harbour, this study was designed to document the present status of the coral reefs of the Port Royal Cays and provide baseline information for future monitoring. Qualitative descriptions of Drunkenman's, Cay, Gun Cay, Maiden Cay, East Middle Ground Shoal, Lime Cay Shoal, South-east Cay, South Cay, and "The Barrier" were documented.

Quantitative data were collected at six locations, two at Drunkenman's Cay, two at Gun Cay, Maiden Cay and East Middle Ground Shoal. The benthic survey method used was the linear point intercept method supplemented with oblique photographs and depth sounding.

Direct gradient analysis, cluster analysis and principal coordinate analysis were used to compare zones within study sites. Cluster analysis was further utilized to

compare study sites using the relative proportions of major space occupants. Species diversity indices, evenness and abundance were also calculated. Spearman rank correlation was utilized to determine depth related trends.

The zonation patterns showed distinct separation of shallow and deep zones into back reef, reef crest and fore reef. There was close association between similar zones from different sites.

Coral species diversity at different locations on the Port Royal Cays ranged from 0.37-2.45. At Drunkenman's Cay ($r=1$, $P<0.00001$, SRC) and Gun Cay ($r=0.8024$, $P<0.05$, SRC) coral species diversity (Shannon) increased with increasing depth.

The reefs of the Port Royal Cays displayed a high macroalgae cover at all the study sites. Macroalgal cover decreased with increasing depth at Gun Cay ($r=-0.8024$, $P<0.05$, SRC). The reefs of East Middle Ground Shoal which were anticipated to be in pristine condition were in fact blanketed by macroalgae, mainly species of Halimeda and Mesophyllum.