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LEVEL SEA BOTT0M COMMUNITIES

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INTRODUCTION

The purpose of this research is to obtain detailed information about tropical level bottom communities in the Miami area so that a comparison may be made with the much better known communities of temperate waters. It was intended, also, that this study should form a nucleus to which other, independent studies, should contribute. Although considerable exploratory work has been called for, the study is mainly concentrated on certain selected communities, chosen as a result of the general survey.

PERSONNEL

Drs. H. B. Moore and G. L. Voss are working part time directing the study, helping to develop the necessary techniques, and making some of the identifications, gonad examinations, etc. H. E. Kumpf and. A. G. Lewis worked part time during the summer, when the project started, carrying out initial exploration. K. McNulty and R. C. Work are now employed full time, the former mainly concerned with the assaying of the fauna and bottom deposits, and the latter with taxonomy.

EXPLORATORY WORK

This is not yet completed, but to date 138 exploratory stations have been worked. 74 in Biscayne Bay and 64 offshore. The deepest of these was 50 meters, but we hope to extend at least one transect much deeper.

COMMUNITIES

So far, two communities have been selected for more intensive study, we characterized by brittle stars and the other by heart urchins and brittle stars. We have not yet located a good lamellibranch community (see below). These two communities have been studied by detailed transects and are being resampled at intervals, with special attention to body weight and gonad changes in the more important animals.

MEASUREMENTS

In addition to counts of the fauna, size frequency is being determined for any species which are sufficiently abundant. Weights in relation to size are being determined as wet weight (whole), wet tissue weight (without shell), a dry weight (whole), and dry tissue weight (without shell). Special problems are involved in such forms as amphiurans which shed their arms and discs. Sediment samples are being collected and graded for particle size.

The epifauna, is also being collected and recorded, although we are mainly concerned with the infauna.

Gonad smears are being examined from sufficiently abundant species, and in the case of heart-urchins, gonad volumes are recorded.

IDENTIFICATION

This is proceeding steadily, but is complicated by incomplete knowledge of the local fauna, particularly in some groups. Temporary names have been attached to some of the forms and it is clear that a number of them are at present undescribed species.

PARALLEL WORK IN OTHER PROJECTS

The pollution study in Biscayne Bay is continuing. Although the Van Vien grabs were not used here, valuable comparative studies of communities living under polluted conditions will be available for comparison.

The Florida State Board of Conservation has inaugurated a bottom survey in the Coot Bay - Whitewater Bay area of the Everglades. This is being carried out by members of the laboratory. The region is generally brackish, although the survey will extend into saline conditions. Some extremely rich lamellibranch communities (Anomalocardia) have been found. The two studies are being interlocked so that we will be able to report at least one good Mollusc community if we do not locate one on Biscayne Bay.

RESULTS

It is too early to report significant results; but it may be noted that we have found standing crops ranging from 2.6 to 8.3 gm/m^2 on a dry tissue weight basis. Sanders, in Long Island Sound, recorded values 4.7 - 10.2 in soft bottoms and Holme, in the English Channel, 9.0 - 12.8.