MACROINFAUNAL COMMUNITY FROM A DEGRADED *CYMODOCEA NODOSA* MEADOW BY THE CONSTRUCTION OF A COMMERCIAL HARBOUR IN ARINAGA (GRAN CANARIA, CANARY ISLANDS)

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INTRODUCTION

The ecological importance of the *Cymodocea nodosa* meadows is well-known in the canarian archipelago, being the most abundant marine angiosperm in this area occupying extenses areas between 10 and 30 m deep. This species can be considered as an indicator of anthropogenic perturbations (commercial harbours, pipelines, thermal pollution, brine discharges, etc.). This study was conducted in Arinaga Bay (East Gran Canaria) were a well-preserved and dense *Cymodocea nodosa* meadow was present until the building of the commercial harbour. Currently, the *C. nodosa* meadow is limited to small and dense patches in the inner bay and extense and disperse mixed meadows, conformed by the angiosperm *C. nodosa* and the green algae *Caulerpa* spp. (mainly *C. prolifera* and *C. racemosa*).
A total of eight soft-bottom stations were selected in Arinaga Bay.
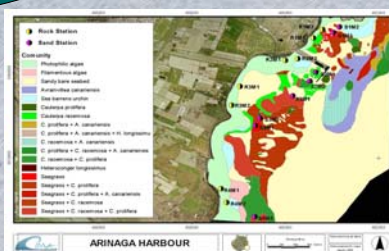
Map of sampling stations

Aerial photograph of the study area

MATERIAL AND METHODS

Sediment samples were collected manually by SCUBA divers at a range of 5–15 m depth in January 2005. Sediment cores (20 cm inner diameter) were pushed into the sediment to a depth of 20 cm. Three replicates per station were collected for faunistic analysis and an adjacent sample was taken for sediment analysis (granulometry and organic matter content).

Analysis of Macrofauna

Samples were preserved in 10% seawater formaldehyde solution and decanted through a 0.5 mm mesh sieve. The fraction remaining on the mesh sieve was separated into different taxonomic groups under a binocular microscope and preserved in 70% ethanol. Posteriorly in the laboratory, macrofaunal specimens were determined to species level, whenever possible, by means of a binocular microscope or even in a LEICA DMLB microscope equipped with Nomarski interference contrast.

Statistical analysis

Biological descriptors of the community (abundance, Shannon´s diversity and Pielou´s evenness) were calculated. The affinities among communities based on species composition were established using a dendrogram and a MDS (non-metric multidimensional scaling), being the abundance data square root transformed and the Bray–Curtis similarity index used. The ANOSIM routine (Clarke, 1993) was used to analyse differences between stations and soft-bottom communities, being identified the macrobenthic species responsible for the observed trends by means of SIMPER routine. Multivariate analyses were carried out using the PRIMER 5.2. Package (Clarke & Warwick, 1994).
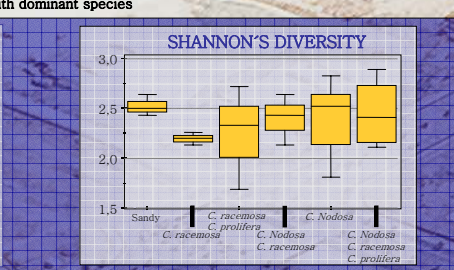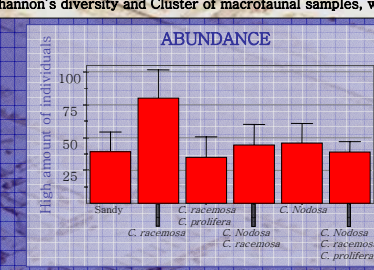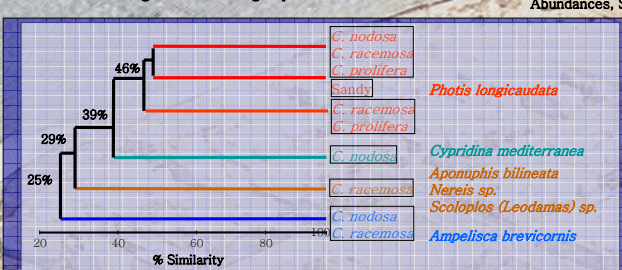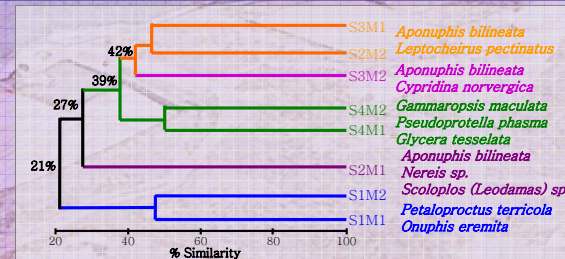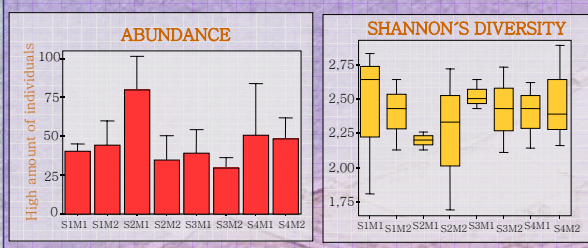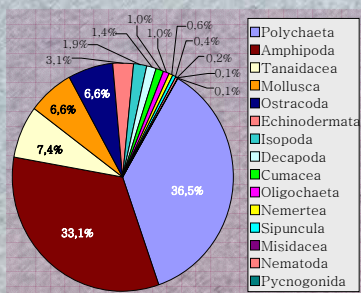
RESULTS

A total of 1.104 specimens, belonging to 129 species and 15 taxonomic groups were collected in the eigth sandy seabed stations (S1M1, S1M2, S2M1, S2M2, S3M1, S3M2, S4M1 y S4M2).

Sampling stations were grouped according to the seabed:
Cymodocea meadows, stations S1M1 and S4M1
Sandy bare bottoms, station S3M1
Caulerpa racemosa meadows, station S2M1
C. racemosa and *C. prolifera* meadows, station S2M2
Cymodocea and *C. racemosa* meadows, station S1M2
Cymodocea, *C. racemosa* and *C. prolifera* meadows, stations S3M2 and S4M2.

Percentage of taxonomic groups

Abundances, Shannon's diversity and Cluster of macrofaunal samples, with dominant species

Abundances, Shannon's diversity and Cluster of macrofaunal samples, with dominant species in stations grouped by habitat

CONCLUSIONS

The control station (S4M2) was characterized by the high abundances of the amphipod *Leptocheirus pectinatus* and the polychaete *Aponuphis bilineata*. The influence stations (S1M1, S1M2, S3M2 and S4M1) obtained high densities of *A. bilineata* and the ostracods *Cypridina mediterranea* and *C. norvergica*. The impact stations (S2M1, S2M2 and S3M1) presented high abundances of the polychaete *Scoloplos* (*Leodamas*) sp. and *Nereis* sp. In short; clear differences were found between macroinfauna from the patches and disperse meadows.

European EMBS
43 Marine Biology Symposium

8 - 12 September, 2008
Ponta Delgada (São Miguel, Açores)

Organized by the Marine Biology Section
Biology Department
University of the Azores .