

EUROPEAN
EMBS
MARINE BIOLOGY
SYMPOSIUM
43

2008
08 | 12 September

UNIVERSITY OF THE AZORES
Marine Biology Section - Biology Department
Ponta Delgada - São Miguel Island



($p < 0.0001$). 88 *M. galloprovincialis* showed no sign of predation. No preference for prey size was observed. Our results suggest that, in its natural habitat, large *H. trunculus* can handle all sizes of *M. galloprovincialis*. In the lab, *H. trunculus* can feed without interruption or exposure to its own predators, and may choose a slower but safer mode of attack (drilling). In situ, however, *H. trunculus* prefers a faster, albeit more dangerous mode of attack (chipping), perhaps as a behavioural defence against susceptibility to its own predators.

P3.37

Impact of temperature and salinity on *Mnemiopsis leidyi* respiration and excretion rates

Sommer F

Following its first record in autumn 2006, the invasive combjelly *Mnemiopsis leidyi* has spread throughout the entire Baltic Sea. One reason for this rapid range expansion may be its physiological tolerance to environmental variations in salinity and temperature which are characteristic of both its indigenous habitat along the Atlantic West coasts and the Baltic Sea. I determined the respiration and excretion rates of field-collected, laboratory-acclimated individuals under a wide range of experimental conditions (T: 5 to 20°C; S: 10 to 30 psu). I found a strong positive effect of temperature with Q10 values similar to prior findings of *M. leidyi* populations in their indigenous Atlantic West coast habitats. This allows this species to reduce metabolic demand during winter and proliferate in warm summer conditions. However, I found no impact of salinity which demonstrates that, at least after an initial acclimation phase, *M. leidyi* suffers no salinity stress within the tested salinity range.

P3.38

The algal flora of the Azores - a historical and biogeographical approach

Terra MR, Wallenstein FM, Nogueira EM, Neto AI, Tittley I

Studies on macroalgal communities of the Azores have only started in the beginning of the 20th century and were sparse until the creation of a marine phycology group within the University of the Azores ca. 15 years ago. Since then, ecological studies have focused on macroalgal communities of the Azores, and gradually improved knowledge on this subject. After the first phycological qualitative studies, prior to 1931 the algal flora of the Azores started off with a record of a total of 138 species and has reached now a total of 478 species, of which 11 are cyanobacteria, 78 greens, 83 browns and 306 reds. Geographically the Azores present a great affinity with the floras of the other Macaronesian archipelagos (Madeira, Canary Islands and Cape Verde). Nevertheless, there is also some geographical affinity with northern temperate floras and southern tropical ones, and also with remote places such as Australia. In the latter case introduced and invasive species play a major role. The present study reports the evolution in the flora over the years, and its affinity with other floras.

P3.39

Effect of exposure time on the bioaccumulation of Cd, Mg, Mn and Zn in *Cystoseira abies-marina* samples subject to shallow water hydrothermal activity in São Miguel (Azores)

Torrão DF, Wallenstein FM, Neto AI, Wilkinson M, Rodrigues AR

Shallow water hydrothermal vents can be compared to polluted places due to high concentrations of heavy metals, and are thus good models for bioaccumulation studies. The present study intended to estimate the time of exposure required for the accumulation of certain elements to stabilize in specimens of *Cystoseira abies-marina*, to be used as reference in future work. *Cystoseira abies-marina* intertidal specimens were transplanted from Mosteiros (a non-hydrothermal and pristine site) to Ferraria (with hydrothermal activity) and left there. Transplanted samples were collected after 1, 2, 4 and 8 weeks and the concentration of Cd, Mg, Mn and Zn were measured through Flame Atomic Absorption Spectrophotometry. Although further studies with increased periods of exposure are needed because the concentration of these elements never stabilized in the collected samples, there is strong evidence that increased time of exposure lead to increased concentration of Cd, Mg, Mn, but not for Zn. These results are consistent with the assumption that *Cystoseira abies-marina* is bioaccumulating some of the heavy metals and can thus be a good indicator for polluted waters.

P3.40

Macroalgal turfs in the Azores

Wallenstein FM, Terra MR, Pombo JT, Neto AI

Plenty of studies on macroalgae communities from the Azores report algal turfs as one of the most conspicuous ecological entities occurring on the rocky shores of these islands. Turfs are generally described as mats of algae covering rocky surfaces. However, their composition and structure are highly variable and reflect the height on the shore at which they occur and the type of substratum that they cover. The present study was implemented to analyse the influence of shore height and substratum on turf composition. Macroalgal turf samples were collected on three islands (Santa Maria, São Miguel and Graciosa). Sites were selected to cover the three main substratum categories that occur on these islands (cobbles, boulders and bedrock). At each site samples of different types of turf were collected at high, mid and low shore. Samples were brought to the laboratory for species identification, and a semi-quantitative scale (DAFOR) used to define the abundances of the constituent species. Differences between turfs collected at different shore height and/or substratum categories were tested with the software PRIMER.

P3.41

Floristic composition of Azorean littoral rock-pools

Xavier ED, Neto AI

The islands of the Azorean archipelago are of volcanic origin (mainly basalt) usually presenting a very irregular profile, thus the coastal region rarely presents gentle slopes

with the presence of rock pools. Rock pools have long been recognized as constituting a specialized habitat within the intertidal zone, but as they are not aerially exposed they are usually excluded from zonation studies. As a result few attempts have been made to describe their floristic composition. The present study was developed on the islands of São Miguel and Santa Maria during the year of 2005. A total of 36 pools located at different levels on the rocky intertidal of both islands were studied. Pools were categorized as upper, medium and lower intertidal according to the dominant surrounding communities. Maximum depth and surface width and length were used to reflect pool morphology. Qualitative samples were performed to evaluate algal diversity. PRIMER software was used to evaluate the similarity of algae composition across islands, sites and shore height categories. Rhodophyta was the dominant group in a total of 121 species identified. Major differences were found between the algal flora of pools and adjacent shore. A great variability was observed among the different rock pools and differences recorded across islands, sites and shore height.

P3.42

Multidisciplinary study of the Cape Peloro brackish area (Messina, Italy)

Zaccone R, Azzaro M, Azzaro F, Caruso G, Mancuso M, Monticelli LS, Maimone G, Leonardi M, La Ferla R, Raffa F

The Cape Peloro (Messina) transitional area is constituted by two brackish basins (Faro and Ganzirri), comprised between the Tyrrhenian and Ionian Seas. The Faro lake is a meromictic environment and hosts a mussel culture. The Ganzirri lake is colonised by macroalgae and frequently suffers dystrophic crises. Sometimes the blooms spreads over the lake causing marked reductions of the dissolved oxygen. In order to analyze the functioning of ecosystem, we are monitoring several biological features during a three year project. In particular we are studying the dynamics of the microbiological (heterotrophic and autotrophic picoplankton, microbial activities and pathogenic vibrios), physical and chemical parameters (T, salinity, dissolved oxygen, nutrients) and organic matter content, in relation to seasonal changes. The experimental study concerns six stations (one located in Faro lake and the other five in Ganzirri lake), which have been seasonally sampled since September 2006. Temperature values vary from 28.79 and 29.62 °C in July to 14.23 and 13.30 °C in January, in Faro and Ganzirri respectively. The highest suspended matter content in September 2006 in Ganzirri lake (90,20 mg l⁻¹) has been found, with a progressive decrease in the winter samplings. The obtained results show that the examined area is characterised by high seasonal variability in microbiological parameters. In fact, during warm periods there are increasing trend both in microbial metabolism and bacterial abundance. In Ganzirri lake, heterotrophic bacterial production (HBP) varied from 0.645 in December 2006 to 21.304 µgC l⁻¹ h⁻¹ in July 2007, resulting the last one, higher than values usually reported for coastal lagoons. In the Faro lake HBP is lower about one order of magnitude, showing seasonal trend similar to values found in Ganzirri lake. The bacterial production results significantly correlated with temperature values. Enzyme activity levels show spatial and seasonal variability; enzyme values are higher in Ganzirri than in Faro, in particular the alkaline phosphatase activity. High leucine aminopeptidase activity rates are measured during autumn-winter, whereas alkaline phosphatase and beta-glucosidase prevailed during summer-autumn, in association with a summer peak of bacteria. The presence of potential pathogenic vibrios together with strong fluctuations of abiotic and biotic parameters, need careful analysis in order to predict future scenarios.