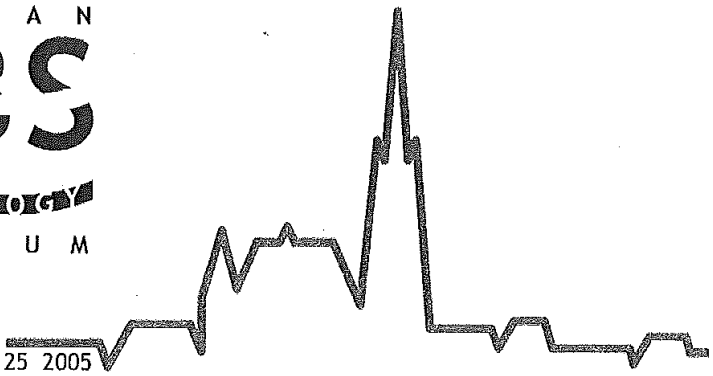
EUROPEAN EMBS MARINE BIOLOGY SYMPOSIUM 40

vienna | august 21 - 25 2005



40th EMBS

European Marine Biology Symposium

vienna - austria 21-25 august

Programme & Abstracts

Blood runs deep – Seasonal variation in the blood chemistry of deep-sea decapod crustaceans from the North Atlantic Ocean

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Abstract

In summer 2001 (August) and spring 2002 (March), seven genera of deep-sea decapod crustaceans (*Plesiopenaeus, Nephropsis, Glyphocrangon, Neolithodes, Polycheles, Parapagurus* and *Munidopsis*) were sampled from depths of 800 – 4300 m in the Porcupine Seabight area of the Northeast Atlantic. Haemolymph samples were obtained immediately and frozen for ionic and protein analysis. There were significant seasonal differences in magnesium, copper and protein content of the haemolymph of the seven decapod genera, with a large decline in all three parameters in spring 2002. The calcium concentration in the haemolymph was much more closely regulated by the decapods, but three genera (*Nephropsis, Glyphocrangon* and *Parapagurus)* did show significant decreases in calcium content in spring 2002 compared with summer 2001. Limited food availability in spring 2002 (before the annual fallout of organic matter from the surface waters) apparently caused a stress response, as seen in the variations in ionic and protein content. Decreased copper and protein contents are further indicators of nutritional stress because the haemocyanin is used as an emergency energy source during times of starvation. Previous work on shallow-water decapods has shown that decreased magnesium content is correlated with higher levels of activity for foraging, and video evidence strongly suggests a similar link in deep-sea decapods. The present study is the first to report the occurrence of seasonal fluctuations in the physiological response of any deep-sea animal group.

Observations on the biology and ecology of the deep-sea shark *Centrophorus granulosus* from the Eastern Mediterranean Sea

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Abstract

The gulper shark, *Centrophorus granulosus*, is a deep-sea shark that reproduces through aplacental viviparity. Forty-three specimens caught occasionally by longlines or bottom trawling gear around the island of Crete at depths from 200-500 m were examined. Out these, 16 were females and 27 males ranging from 585 to 840 mm in total length and from 2000 to 4650 g in total weight. Significant length-weight and other morphometric relationships were recorded. Most of the samples were mature with high Gonadosomatic and Hepatosomatic indices. Gravid females had only one large egg in their uteri (candled uteri). Female bearing small ova and thread-like uteri were classified as immature. Sexual maturity in males was determined by the amount of sperm stored in the testes/ epididymis/

sperm sac, and by clasper length and clasper rigidity. Stomach contents revealed that this is a voracious species that feeds mainly on teleosts and cephalopods.
This study was funded by the ΥΠΕΠΘ and BE.

Echinoderms from an anchialine cave in Cozumel Island, Mexico

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Abstract

Several surveys were conducted in an anchialine cave at Cozumel Island in order to determine the diversity of invertebrates, specially of the phylum Equinodermata. The Aerolito sinkhole (cenote), with an open coastal water connection, was explored and the organisms were sampled. We identified three main classes of Echinodermata from this cave. The first, Echinoidea, was located at 256 m from the entrance in brackish water. The second one, Ophiuroidea, was located at 40 and 336 m from the entrance in salt water, and the third one, Asteroidea, was located at 45 m from the entrance in salt water. Only organisms from the class Echinoidea showed a body de-pigmentation; this group was unique in that was not present outside the cave. Until now, only certain species of Holothuridae have been reported from caves. We discuss the colonization and adaptations that these animals show to cave life.

Characterization of the zooplankton of the submarine cave "Ciolo" (Cape of Leuca, SE Italy)

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Abstract

Zooplankton samples were collected at 60-90 m, at 10-40 m from the entrance, and outside of the submerged cave Ciolo (Cape of Leuca, SE Italy) by horizontally towing two different mesh sized nets (200 and 50 μm). On 4 dates, night collections were also carried out. A total of 229 categories were recognised in the whole plankton collection (132 samples). Copepoda (101 categories) were the most highly represented taxon, and they were used to taxonomically characterize the grotto plankton. Data were grouped according to season, and a statistical treatment was performed to determine differences in the plankton composition among areas and periods. The grotto plankton, in comparison with the outside area, was characterised by Mysidacea (2 categories), Copepoda Harpacticoida (37 categories), and asexual propagules of clonal organisms. On average, only the 16.9% of the total collected propagules were of sexual origin. The remaining 83.1% were composed by asexual forms produced by clonal animals and algae, represented by a wide array of both simple (93.3%) and specialised (6.7%) forms. The strong presence of asexual propagules (fragments of clonal species) differed significantly from the outside. Larvae of individual animals (e.g., Bivalvia and Gastropoda veligers, Polychaeta larvae, Cirripedia nauplii) were homogeneously distributed in the three sampled sections. Larvae of clonal organisms (Hydrozoa planulae, Bryozoa