



News from above and below the waves

CIIMAR's monthly NEWS LETTER



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All Aboard

An interdisciplinary trip into the Iberian sea and soul

by Allan Souza and Rodrigo Ozório

The educational project entitled "Universidade Itinerante do Mar" (UIM), is a Iberian cooperation platform for interdisciplinary education, diffusion and research on topics regarding the sea, which takes advantage of its navigation to teach students about the nature of the project. The UIM began in 2006, with the aim of promoting the European cooperation. Focusing on college students, the project seeks to bring the sea closer to the participants from various backgrounds, reinforcing the value of teamwork. The UIM looks for the knowledge on topics of the sea and its surrounding lands, to better manage in an efficient and sustainable process of change through the elaboration of development projects. The UIM is an adventure, as well as the sailing through the sea, being related to the exploration of the unknown, the uncertain feelings related to an environment that can manifest itself in a hostile manner. This year, 41 students, 13 tutors (both from Portugal and Spain) from the UIM boarded on August 8th at the training ship "Creoula" from the Portuguese navy. Among the Portuguese tutors, were Rodrigo Ozório (CIIMAR investigator), Manuel Teves (TAP human resources), Rui Cabral e Silva (UAlg professor), Allan Souza (PhD student) and Ildefonso Simões (Master student). On land, Marina Silva (CIIMAR) and Emília Afonso (CIIMAR) gave an excellent secretarial support. The Creoula sailed for 1.595 nautical miles from Lisbon to Mahón (Menorca), passing through Cartagena until the final stop in Cadiz. The journey last for 18 days and presented an average speed of 4.8 knots traveled both with the help of the wind and by the motor. In almost 3 weeks, students and tutors have experienced unknown sensations and feelings, they have made academic and personal discoveries about the sea and the life on the ocean, and all have printed in their memories the emotions and feelings of this incredible experience. In Cadiz, the final stop, people were tired of being on the sea, with very limited comfort and privacy, but instead of feel happy about the end of a journey,



they are all touched and already missing the companion of each other, the sailing tasks aboard, the constant movement of the ship, and mainly they are all missing the spirit of adventure and freedom that they have experienced.

As the Commander Nuno Cornélio Silva said in his final speech to the crew (students, tutors and sailors), "Nobody leaves the Creoula the same way as they enter. The experience lived here will follow you for your whole life". The enriching experience of being on a historical cod fishing vessel, with the Portuguese navy, which has an incredible history of discoveries and achievements, navigating through the a sea full of historical references as the Mediterranean will not be forgotten..

We invite all students to stay tune for more information about the registration for the UIM 2012, which will be available most likely from February 2012 onwards. See you there!

(IN)FORMATION BOGA

The Aquatic Organisms Bioterium (BOGA) goes online! Communication between science institutions and society is very important for everybody to understand what we are working on. Nowadays, one of the most important mean of communication is the internet. Considering this, BOGA's team, together with Centro de Informática (CI-CIIMAR), designed a web site that will be available in 10th October 2011.



BOGA's website will have information regarding animal facilities and laboratory animal's legislation; the species used in BOGA; courses, workshops, projects and exhibitions; information about recirculating aquatic systems"; and the main research lines that each laboratory is following in the 18 experimental rooms. The website will also allow BOGA users to login to a reserved area where they can access several forms, some specific bibliography and intern workshops information. The website will be available in three languages: Portuguese, English and Spanish. Visit us at www.ciimar.up.pt/BOGA. Together we will have more and better research in BOGA-CIIMAR! **BOGA Team**



Open Calls Funding Opportunities

BIODIVERSITY FUND

The EDP Foundation launches the 4th edition of EDP Fund for Biodiversity, an initiative that aims to contribute to scientific knowledge and stimulate the creation of programs for nature conservation in Portugal.

Deadline: 14 October 2011. Information: <http://www.edp.pt/pt/sustentabilidade/fundacoes/fundacaoedp/programas/Pages/FundoEDPparaaBiodiversidade.aspx>

ACCESS TO TAXONOMIC FACILITIES (TAFS)

SYNTHESIS funding is available to provide scientists based in European Member, Associate and Candidate States to undertake short visits to utilize the infrastructure (comprising the collections, staff expertise and analytical facilities) at one of the 16 partner institutions. It funds short-term visits (15 days average), including research costs, international travel and accommodation and a per diem contribution towards living costs. Deadline: 14 October 2011. Information at: www.synthesis.info (Access; Apply for access TAFs). *Susana Moreira*

At my desk..



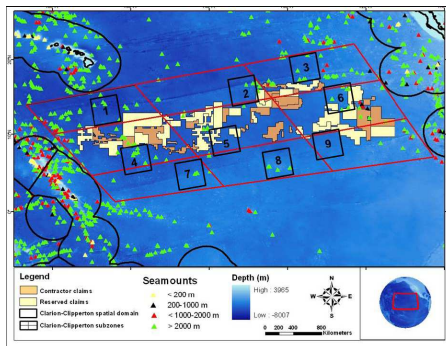
Bar-Yosef et al. (2010) **Enslavement in the Water Body by Toxic *Aphanizomenon ovalisporum*, Inducing Alkaline Phosphatase in Phytoplanktons.** *Current Biology* 20(17):1557-1561

Experimentally establishing the ecological (i.e. natural) role of a secondary metabolite is one of the most complex tasks faced by chemical ecologists. In this paper, Bar-Yosef et al., at the Kinneret Limnological

Laboratory (Israel), report an elegant ecological interaction mediated by the cyanobacterial alkaloid cylindrospermopsin (CYN). They have found that, when under phosphate deprivation, the cyanobacterium *Aphanizomenon ovalisporum* increases the production and release of CYN to the surrounding medium. This metabolite acts at target cells, such as those of *Chlamydomonas reinhardtii* and other phytoplankters, causing them to upregulate their extracellular alkaline phosphatase activity, increasing the available pool of extracellular phosphate. At the same time, *A. ovalisporum* upregulates its high-affinity phosphate uptake system, hastening its phosphate uptake. It is as if the susceptible phytoplanktonic organisms are "enslaved" by *A. ovalisporum*, hence the title of this paper. Since this cyanobacterium does not exhibit extracellular alkaline phosphatase activity of its own under such phosphate deprivation conditions, the authors argue that this kind of allelopathic interaction is, in all probability, energetically more economical. Who would have thought it? *Pedro Leão*

Expedition...by Kim Larsen

I will on the joint Ifremer-Senckenberg Museum Nodibio deep-sea cruise in the Clarion-Clipperton Zone, North Pacific with the French research vessel 'Atalante'. On the cruise are participants from a multitude of European institutions (Ifremer; Museum



NHN, Paris; NHM, London; University of Genève; NOC, Southampton; P.P. Shirshov, Moscow; and of course CIIMAR, Porto). Also joining the cruise will be observers from the International Space Agency.

The overarching goal of this cruise is to assess the relevance of a proposed "Area of Particular Environmental Interest" (APEI) located at

equal distance from two mining claim areas.

We are aiming at a taxonomically comprehensive description of meio-, macro- and megabenthic communities in the studied areas, focusing on: Isopoda, Tanaidacea, Copepoda: Holothuroidea, Cnidaria, Porifera, Polychaeta, Mollusca; Nematoda, Foraminifera and Bacteria.

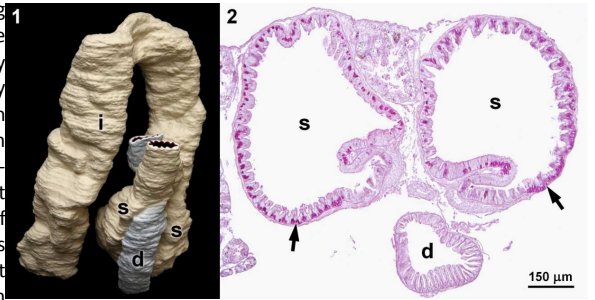
Paper of the month CIIMAR publishes

Histological and ultrastructural characterisation of the stomach and intestine of the opisthobranch *Bulla striata* (Heterobranchia: Cephalaspidea)

Alexandre Lobo-da-Cunha, Ana Rita Malheiro, Ângela Alves, Elsa Oliveira, Rita Coelho & Gonçalo Calado, 2011.

Thalassas, 27(2): 61-75. <http://webs.uvigo.es/thalassas/>

In order to obtain more data for a comparative analysis of the digestive system in opisthobranchs, the stomach and intestine of *Bulla striata* were studied with light and electron microscopy. A 3D-model of the stomach and its connections with the posterior oesophagus, digestive gland ducts and intestine was created from a series of histological sections. The U-shaped stomach is just a segment of the digestive tube without any external distinction from the intestine. Internally, the stomach is characterized by the presence of a typhlosole and many mucus-secreting cells that are strongly stained by PAS reaction and alcian blue. Significant amounts of proteins were not detected in



the mucus-secreting cells of the stomach, but protein-rich secretory material was found in the apical region of another type of secretory cells present in both stomach and intestine. The end of the typhlosole can be considered the transition point between the stomach and intestine. Mucus-secreting cells are also abundant in the intestine and all of them stain with alcian blue. However, most mucus-secreting cells of the intestine are not significantly stained by PAS reaction, but contain more proteins than the mucus-secreting cells of the stomach. The granular cells with a large number of small electron-dense secretory vesicles containing proteins and neutral polysaccharides were found only in the intestine. The available data show that despite some anatomical and histological differences several cell types are identical in the digestive systems of *Aplysia depilans* and *B. striata*.

This month at...

- ▶1 to 7 Exhibition at CMIA Vila do Conde: "Erosão Costeira – a conquista do mar sobre a terra?".
- ▶1 to 31 Exhibition: "O CIIMAR olha para dentro"- exposição de posters de trabalhos de investigadores do CIIMAR". CIIMAR hall.
- ▶1 to 31 Exhibition at CMIA Matosinhos: "MATOSINHOS CONSERVA-SE".
- ▶13 to 31 Exhibition at CMIA Vila do Conde: "Tecnologias Verdes – de que cor é o teu futuro?".
- ▶8 Workshop: Flora dunar, CMIA Vila do Conde.
- ▶8 Workshop: Multiplicação de plantas – sementeira e estacaria, CMIA Vila do Conde.
- ▶13 Inauguration seminar of the exhibition "Tecnologias Verdes – de que cor é o teu futuro?": "Da tecnologia ao ambiente ou das ferramentas aos comportamentos" – Professor Eduardo de Oliveira Fernandes (FEUP).
- ▶18 Workshop: Sinais de contaminação na água, CMIA Matosinhos.
- ▶20 Workshop: Apicultura – produzir com as abelhas, CMIA Vila do Conde.
- ▶24 Oceanus Seminar Angeliki Lyssimachou , "An investigation on different mechanisms of endocrine disruption in fish and molluscs ", 2:30pm.
- ▶25 CICLO CAFÉ CIÊNCIA CMIA Matosinhos: "Breve caracterização da Pesca do Cerco em Matosinhos" and "A pesca do ouriço-do-mar, *Paracentrotus lividus*, no Norte de Portugal" Diana Feijó and Inês Machado, 9pm.
- ▶31 Oceanus Seminar Rodrigo Ozório, TBA, 2:30pm

Have your say in *waves*

Contributions welcome. Contact Vitor Vasconcelos, Filipe Castro or Jonathan Wilson @ waves.ciimar@gmail.com