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(phenolics) and N-compounds was compared. The results show that phlorotannin and N-concentrations were higher in reproductive blade tissues for both investigated algae. However, preferences by amphipod grazers (*Parhyalella ruffoi*) for either tissue type differed between the two algae species. Fresh reproductive tissue of *L. nigrescens* was more consumed than vegetative tissue, while the reverse was found in *M. integrifolia*, thus confirming the original hypothesis. This suggests that future fitness function might indeed be a useful predictor of anti-herbivore defense in large, perennial kelps. Results from feeding assays with artificial pellets that were made with air-dried material and extract-treated *Ulva* powder indicated that defenses in live algae are probably not based on chemicals that can be extracted or remain intact after air-drying and grinding up algal tissues. Instead, anti-herbivore defense against mesograzers (*P. ruffoi*) seems to depend on structural traits of living algae.

P3.10

Some element concentrations of *Corallina elongata* from São Miguel (Azores) under different environmental conditions.

Couto RP, Neto AI, Rodrigues AS

Water quality is known to affect marine organisms in different ways. Benthic organisms like macroalgae are considered good indicators if they react in some way to changes in water quality. Based on the idea that the physiology of macroalgae may be affected in stressed environments, mineral content of calcified marine algae is expected to differ when these are subject to different environmental conditions. Algal samples were collected nearby shallow water hydrothermal vents, urban and non-urban areas to examine how different environmental conditions affect some element concentrations in *Corallina elongata* (Rhodophyta, Corallinaceae). Calcium, Magnesium, Rubidium and Zinc concentrations in *Corallina elongata* from São Miguel Island (Azores) were determined by high resolution inductively coupled plasma mass spectrometry (HR-ICP-MS) at "Activation Laboratories Ltd." (Ancaster, Canada), and results expressed in $\mu\text{g g}^{-1}$. Although results are still under analysis, it is hypothesised that the concentration of some elements in *Corallina elongata* will vary due to stressful environmental conditions. The present study will examine the potential use of *Corallina elongata* as a bioindicator of water quality.

P3.11

Damage recovery and growth of soft coral fragments under aquarium conditions

Cunha L, LeVay L

In contrast to freshwater species, most commercialized marine ornamentals come directly from natural systems, principally from coral reefs. Due to their biology, soft corals are known to be hardy, fast-growing and easily propagated species under aquarium conditions, however, there is a lack of scientific studies on their culture, and, in fact, very few species are artificially cultured. The aim of this study was to assess the effectiveness of a common propagation technique (fragmentation) using a method known as culture in suspension. By optimizing healing under normal water conditions without

the use of disinfectants or antibiotics can be a way to optimize and reduce costs as well as animal loss in soft coral aquaculture. Colonies of the soft coral *Sinularia flexibilis* were propagated by fragmentation under aquarium conditions using the suspension culture method. Colonies recovered significantly faster in suspended culture than those on the bottom. Growth was not significantly different between treatments, however, the culture in suspension showed to be advantageous in the healing process. Survival was 100% in all experiments.

P3.12

Mortality from parasitosis in eggs of *Engraulis encrasicolus* and *Sardinella aurita* in the Sicilian channel's continental shelf and in the waters offshore the island of Malta

Cuttitta A, Basilone G, Bonanno A, Patti B, Caruana L, Masullo T, Tutino L, Genovese S

The two pelagic species of *Engraulis encrasicolus* and *Sardinella aurita* show the same reproductive trend, (Whitehead, 1994, 1985), they fill the same trophic niche (Armstrong, et al., 1991, Bowman, et al. 2000), they have similar areale of distribution and an overlapping area of reproduction (Cuttitta et al., 2003, 2007). However, their commercial value is different. The main areas of spawning of the two species are found either in the Sicilian shelf, in front of the Egadi Islands and along the Southern Sicilian coast, with a higher density of eggs near Capo Passero (SR), or in the Maltese continental shelf along the South-Eastern coast of Malta. The aim of this work is to assess the incidence of mortality in both species, within the two different areas of study, namely the Maltese continental shelf and the waters offshore the Island of Malta. This mortality is the result of endo-parasites, in particular *Ichthyodinium chabelardi*, which is responsible for the death of eggs before hatching. From a hydrographic point of view, in the period of sampling (June/July), the AIS skims along the Sicilian coasts only in the neighbourhoods of Egadi Islands and at Capo Passero, while there is a shift of the tide in the central part of the South-Western coast. The study also aims at assessing the relation between the AIS's distribution, the areas of spawning and the presence of parasitosis.

P3.13

Modelling the seasonal dynamics of the Particulate Organic Carbon in the southern Baltic Sea

Dzierzbicka-Głowacka LA, Kulinski K, Pempkowiak J

This paper presents a one-dimensional Particulate Organic Carbon Dynamic Model 1D-POCD. The particulate organic carbon concentration is determined as the sum of phytoplankton, zooplankton and dead organic matter (detritus) concentrations. Mathematically, the pelagic variables of 1D-POCD model are described by a second-order partial differential equation of the diffusion type with biogeochemical sources and sinks. The temporal changes in the phytoplankton biomass are caused by primary production, respiration, mortality, excretion and grazing by zooplankton. The zooplankton biomass is affected by ingestion, excretion, respiration, fecal production, mortality, carnivorous grazing. The changes in the pelagic detritus concentration are determined by input of: dead phytoplankton and zooplankton, fecal pellets, and sinks: sedimentation, zooplankton grazing and decomposition. One of the most important factors, which has