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related to ecosystemic functioning (meiofaunal biomass and degradation rates of organic matter), as well as those related to ecosystem efficiency (nematode to microbial biomass, microbial biomass to C decomposition rate, and meiofaunal biomass to predators' biomass ratios) showed lower values in barrens than in the *Cystoseira sp.* meadows, in all the study areas. The biodiversity of these systems was significantly and positively linked to their functioning. These results were consistent in all of the investigated areas, irrespectively of the barren extent and characteristics, suggesting that the degradation of biodiversity due to the loss of habitats provided by macroalgae meadows can cause a significant reduction of the ecosystem functioning. Since barren grounds are expanding rapidly along the Mediterranean Sea and meiofauna are a key trophic component in marine ecosystems, we suggest that the extension and persistence of barrens could also affect higher trophic levels.

[P004] Molecular tools for the quantitative evaluation of *Tychonema bourrellyi* (Cyanobacteria) in large lakes

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Cyanobacteria are of great interest in freshwater ecosystems, because they are able to produce toxins with potential negative impacts on public health, environment, and tourism economy. The cyanobacterium *Tychonema bourrellyi* has been recently identified in the large lakes south of the Alps (Garda, Iseo, Como and Maggiore) with populations able to produce neurotoxins, namely anatoxin-a (ATX) and homoanatoxin-a (HTX). A positive trend of ATX in Lake Garda was observed from 2009, and the increasing presence of this species in deep subalpine lakes raises serious concerns due to the possible impacts on the tourism economy and for the potential toxic effects, requiring therefore suitable methods of surveillance. Molecular tools offer the possibility to monitor toxigenic microorganisms reducing the assay time, improving the detection sensitivity and providing near-real time information for water quality management. In our study, a species specific method to quantify *T. bourrellyi* was developed with the SYBR Green I real time polymerase chain reaction technique (qPCR), designing new specific primers based on the analysis of highly specific region within the *rbcX* genes. The quantification of *T. bourrellyi* in unknown samples was achieved after calibration of the *rbcX* gene copy numbers with cell numbers estimated from microscopic analysis in a monoclonal culture of *T. bourrellyi* used as a standard. The method was validated by using *T. bourrellyi* densities estimated from microscopic analysis of environmental fresh water samples from Lake Garda. The cell concentrations determined by real time PCR showed a linear correlation with the cell concentrations determined from direct microscopic counts. The developed protocol represents, therefore, an accurate, economic and highly reproducible method to rapidly detect and quantify the toxic cyanobacterium *T. bourrellyi* enabling a long term monitoring population dynamics.

[P005] Preserving and sharing data of deposits sand along the Western Sardinian Shelf

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A critical component of Maritime Spatial Planning is the establishment of well-curated, federated Spatial Data Infrastructures (SDI) to provide a means to preserve and share geospatial data while promoting attribution and acknowledgement of its use. Objective of the work is to create a geospatial database of geomorphology, seismic and sedimentology data of Western Sardinian (Italy) marine sector, to share them and to promote planning actions in relation to the management of submerged sand deposits situated in the continental shelf, which can be used for beach nourishment. The work was realized through the integration of data and information collected during several projects. The available data consist of morphobathymetric data (multibeam) associated with the morphoacoustic data between -50 and -700 m and singlebeam surveys in low-depth coastal areas. Extensive coverage of high-resolution seismic profiles (Chirp 3.5 kHz) and hundreds of kilometres of sparker profiles were acquired along the continental shelf. Surface sediment sampling (Van Veen grab and box corer) and vibrocorer survey were performed. These data allowed the mapping, determination of the thickness and volumes of the submerged sand deposits and their sedimentological characterization. All data were organized by means of the software suite Geoinformation Enabling Toolkit StarterKit[®] (GET-IT), developed by researchers of the National Research Council for RITMARE project. GET-IT facilitates the creation of distributed nodes of an interoperable SDI and enables unskilled researchers from various scientific domains to create their own Open Geospatial Consortium (OGC) standard services for distributing geospatial data, observations and metadata of sensors and datasets. The products of the work are the creation of an information system of the sand reservoir along the Western Sardinian continental shelf through interoperable tools allowing the data storage in several levels of information, their sharing, and integrated management and analysis.