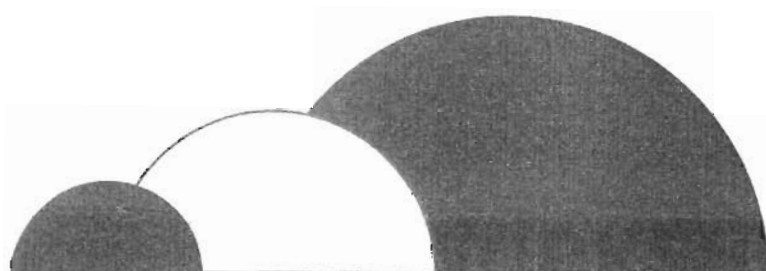


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In this work, preliminary results are presented and discussed. The results made possible to assess the vertical distributions (2m - 3400 m) and the seasonal variations of the considered parameters and to describe the inorganic carbonate system.

W10-144 Poster Rubino, Fernando

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STRATIGRAPHIC DISTRIBUTION OF PLANKTON RESTING STAGES IN THE MAR PICCOLO OF TARANTO (IONIAN SEA, MEDITERRANEAN)

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Key terms: Plankton; cyst bank; stratigraphic record; environmental variations; Taranto, Ionian Sea

Sea bottoms in coastal areas, specially in confined basins, host high densities of resting stages (cysts) produced by plankton. These letargic forms accumulate in sediments over time producing cyst banks analogous to the seed banks of terrestrial plants, with millions of cysts/m² of bottom.

The presence of resting stages in the life cycles of planktonic species ensure their persistence in a marine area, even when environmental conditions become hard, concerning both abiotic and biotic factors, such as predation pressure and resources availability.

The recruitment of the excysted individuals in the water column occurs when favourable conditions are reestablished, according to the seasons' cycle. Not all the potential, in terms of viable propagules, is recruited each time, so that cysts accumulate in muddy sediments and are buried as new material settles to the bottom. As a result, sediments of confined marine areas, act as a continuous recorder of the planktonic community structure, for resting stage producers at least.

The analysis of deep layers in a sediment core produces a series of instant pictures that match definite temporal periods. The power of resolution of this method relies entirely on the basin features, in terms of reworking possibilities of surface sediment layers, due to bioturbation and/or water column turbulence near the bottom.

The Mar Piccolo of Taranto is a confined sea characterized by low hydrodynamism, mainly due to minimal tidal currents. Mean depth is 10 m, with a maximum of 13 m in the centre of the 1st Inlet. The muddy bottom has an oxygenated layer 2-3 cm deep, the rest being strongly anoxic.

Nine sediment cores were collected in November 2006 in 3 stations located in the 1st Inlet of the Mar Piccolo, in order to study the plankton cyst bank at sediment depths of 5, 10 and 20 cm.

Resting stages were found at all the investigated layers, with number of taxa and densities decreasing from 5^m to 20^m cm. At the 5^m cm, 18 different cyst morphotypes were identified. This value decreased to 8 at the 20^m cm. A great variability was observed among replicates. Practically all the cyst found were produced by dinoflagellates. Only few morphotypes and very low abundance of resting stages produced by ciliates, rotifers and copepods were registered.

W10-145 Poster Rubino, Fernando

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THE CYST BANK OF PLANKTON IN TARANTO SEAS (IONIAN SEA, MEDITERRANEAN): A STUDY AT DIFFERENT SPATIAL AND TEMPORAL SCALES

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Key terms: plankton; cyst bank; surface sediments; environmental variations; Taranto, Ionian Sea

Resting stage production by planktonic organisms represents an adaptation to seasonal fluctuations of the environment on an annual scale and to its variations on a pluriannual scale. In the muddy bottoms of confined marine areas, high densities of plankton resting stages (usually named cysts) exist, analogous to the seed banks of terrestrial plants. These large amounts of cysts constitute an insurance against unforeseen events. In fact, their accumulation in sediments brings to a storage of biodiversity that planktonic communities can exploit at the onset of favourable conditions.

The study of cyst bank structure of an area can provide more complete information, compared to classical plankton surveys and, if the study is replicated on a temporal scale (e.g. annually), it is possible to gain data on the variation of the planktonic communities structure as well.

A sampling plan of surface sediments was carried out in November 2006 in the four basins that constitute the Taranto sea system, namely the Gulf, the Mar Grande and the two Inlets of the Mar Piccolo, in order to characterize the cyst bank produced by the plankton of the area. The four basins show a high confinement gradient, moving from the Gulf to the inner part of the 2nd Inlet of the Mar Piccolo, indicated also by a change of the plankton structure.

In the framework of the VECTOR Project (Line 4 DIVCOST, Activity 5.3), our goal was to evaluate this trend of confinement also for the cysts' population in the sediments and to integrate the study of the plankton dynamics in the water column, carried out with classical methods from November 2004 to date. The sediment sampling will be replicated in November 2007 to evaluate mid term variations of the plankton communities in the sediments, eventually correlated with the fluctuations and variations of abiotic variables.

A total of 106 different cyst morphotypes were identified: 71 were produced by dinoflagellates, 11 by ciliates, 4 by rotifers and 11 by copepods. Most of the morphotypes (72.4%) were identified at least at the genus level, while 9 of them remained unidentified. Total densities showed higher values moving from the Gulf to Mar Piccolo, according to the confinement gradient. The highest values (1289±551 cysts/ml) were recorded in the 1st Inlet of Mar Piccolo and the lowest (145±42 cysts/ml) in the Gulf. Number of taxa together with the ecological indexes (H', J') reached higher values in the more confined basins with a slight decrease in the 2nd Inlet of Mar Piccolo, confirming the confinement gradient already observed in a previous study in the water column for zooplankton. The most abundant cyst morphotype was produced by the

dinoflagellate *Scrippsiella trochoidea*, that reached 15.3% of the entire resting stage bank abundance in the study area. This study is the first regarding the entire cyst bank produced by plankton at the considered spatial scale, in a complex marine system with a different typology of basins characterized by a high confinement gradient.

W10-146 Orale Russo, Aniello

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COLLECTION OF OCEANOGRAPHIC DATA SETS IN THE NORTHERN ADRIATIC SEA AND EFFECTS OF CLIMATE CHANGE: PRELIMINARY RESULTS

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Key terms: Adriatic Sea; climate change; climatology

In the framework of the Italian research program VECTOR (Vulnerabilità delle Coste e degli ecosistemi marini italiani ai cambiamenti climatici e loro ruolo nei cicli del carbonio mediterraneo), a widespread collection of historical and recent data is being carried out, aiming to define recent climatic anomalies, to individuate changes in the marine systems and to obtain a robust data set for model simulations. The northern Adriatic Sea is a relevant area of the Mediterranean Sea under several aspects, in particular it receives the highest river runoff and related nutrient loading, and dense waters eventually forming here in winter are important contributors to the Eastern Mediterranean Deep Water. So the northern Adriatic Sea plays an important role in the carbon cycle, and climate change could have major effects on this area (this is the northernmost area of the Mediterranean Sea, and climate studies evidence that most changes happen in poleward areas). Being also the most sampled area of the Mediterranean Sea, the northern Adriatic Sea would represent an optimal area where to assess effects of climate change on water masses properties; such aspect is made challenging by the relevant higher frequency variability of this sub-basin (due to its peculiar characteristics: shallow continental basin with huge river runoff).

Oceanographic stations collected in the Adriatic Sea have been extracted from the MEDATLAS 2002 data base, and again quality checked, so removing hundreds of stations (in particular many duplicate stations still present in the data base). Data collected from 1951 to 1990 (over 4000 casts in the northern Adriatic Sea) have been used to define spatial climatologic normal for the four seasons. Recent data (collected mostly by ISMAR-CNR) have been used to define the seasonal climatologies for the period 1991-2006 (over 7000 casts). Preliminary analysis on the already available data has been performed, computing departure of the recent period thermohaline properties from the climatologic normal for the northern Adriatic area. First results will be showed, while the work of data assemblage is still in progress.

W10-147 Orale Santinelli, Chiara

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DISSOLVED ORGANIC CARBON DISTRIBUTION AND DOM STOICHIOMETRY IN THE ADRIATIC SEA

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Key terms: Dissolved organic carbon; Dissolved organic nitrogen; Dissolved organic phosphorous; Adriatic Sea

Dissolved organic matter (DOM) is the largest reservoir of reduced carbon in the Sea and represents the source of food for heterotrophic bacteria. Notwithstanding its importance in the global carbon cycle, at today DOM remains the most complex and the less understood pool of carbon in the Ocean. Due to the very low concentrations of DOC, dissolved organic nitrogen (DON) and dissolved organic phosphorous (DOP), occurring in the sea, and to the difficulty to concentrate seawater samples, without loss of significant fractions of DOM, information on its molecular characteristics, its lability, and its dynamics are very scarce. DOC export is directly linked with DON and DOP export, but the C:N:P stoichiometry of DOM dynamics is poorly understood. Here DOC, DON and DOP distribution in seawater samples collected, during VECTOR cruises, in the Adriatic Sea, are reported, to get some information on the mechanisms regulating production, export and mineralization of DOM. DOC showed different concentrations in November 2006 and in February 2007. The main difference was observed in the surface layer with DOC values of 75±9 µM in November and 53 ±6 µM in February. A significant difference can be observed also in the deep layer (below 1000 m) where an increase until 69 µM was observed in November, against concentration of about 50 µM in February. An input of DOC in November and a consumption or transport in other areas in February can be hypothesized. Moreover, a different DOM stoichiometry, both in surface and deep layer, can occur in the two periods. A comparison with data referring to the same station collected in the framework of SINAPSI project (1999-2002) will also be performed

W10-148 Orale Santinelli, Chiara

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DISSOLVED ORGANIC CARBON, DISSOLVED OXYGEN AND NUTRIENT TRENDS IN THE SOUTHERN TYRRHENIAN SEA

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