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Recent infralittoral Foraminiferida and Ostracoda from the Porto Cesareo Lagoon (Ionian Sea, Mediterranean)

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KEY WORDS - Benthic Foraminiferida, Ostracoda, Recent, Gulf of Taranto, Infralittoral assemblages.

ABSTRACT - Recent benthic Foraminiferida (111 species, 45 genera) and Ostracoda (150 species, 43 genera) assemblages were studied. Samples were collected in the southern part of the Porto Cesareo Lagoon, on the south-western coast of Apulia, Ionian Sea. Thirty-two bottom samples were collected by hand at a water depth of 0.12 to 4.78 m. Assemblages are characteristic of marine infralittoral warm waters, in agreement with the previous records of benthic organisms with tropical affinity. Dominant taxa are either phytophilous or typical of sandy bottom. Abundance and diversity are controlled by environmental factors such as the type of substrate, hydrodynamic conditions and distance from the open sea. Anthropic pollution negatively influences microfaunal assemblages only for a few dozens of meters away from the urbanized area.

RIASSUNTO - [Foraminiferi ed ostracodi di ambiente infralittorale della Laguna di Porto Cesareo (Mar Ionio, Mediterraneo)] - *Sono state studiate le associazioni a foraminiferi bentonici e ad ostracodi provenienti da 32 campioni di fondo raccolti manualmente tra 0,12 e 4,78 metri di profondità nell'insenatura della Strea, parte della Laguna di Porto Cesareo, situata sulle coste ioniche della Puglia. Le faune sono composte da 111 specie di foraminiferi bentonici appartenenti a 45 generi, e 150 specie di ostracodi, ripartite in 43 generi. Le associazioni sono caratteristiche di acque marine infralittorali temperato-calde, in accordo con la già nota presenza di organismi ad affinità tropicale e rappresentate da specie tipiche di substrati sabbiosi e specie fitofile. La distribuzione delle microfaune si è dimostrata sensibile principalmente a fattori quali il tipo di substrato e l'idrodinamismo, la distanza dall'imboccatura della laguna. Inoltre gli apporti antropici inquinanti esercitano un'evidente influenza sui microorganismi ma limitatamente alle acque immediatamente prospicienti l'area più intensamente urbanizzata.*

INTRODUCTION

This study was undertaken to define the foraminiferal and ostracod assemblages in a sheltered inlet, connected to the Ionian Sea (Fig. 1). The environment of this small bay, part of the Porto Cesareo Lagoon, is characterized by very shallow, well oxygenated, and low polluted marine waters. The calm water conditions allowed the good preservation of the thanatocoenosis, including delicate shells which are generally not preserved in high energy upper infralittoral environments.

The study area is located on the Ionian coast of the Salentine peninsula (Apulia), about 60 km east of Taranto town and 24 km south-west of Lecce (lat. 40° 15' N, long. 17° 54' E). The La Strea Bay ("Laguna di Porto Cesareo" in Passeri, 1974; "Insenatura della Strea" in Belmonte & Rubino, 1988; "Baia della Strea" in Castelli et al., 1988) is an approximately elliptical inlet 2500 m long with a maximum width of about 1000 m. It has been formed behind an ancient barrier island system which is currently represented by the peninsula of La Strea, which bounds the bay on the south-west, and some islets on the north-west. It was connected to the Ionian Sea in the last phase of the Holocene transgression, which turned the ancient marsh into an euhaline shallow inlet (Passeri, 1974; Mastronuzzi et al. 1989). The channel system, which connect the bay with the open sea, is situated in the north-western part. It is about 700 metres wide. Supratidal marshes, described by Passeri (1974), are now reclaimed.

The bottom consists mainly of unconsolidated coarse- to fine-grained sands, with a carbonate content ranging from 53 to 90% (Passeri, 1974; Ricchetti & Nuovo, 1988).

The waters are very shallow, the average depth being about one meter. Maximum water depth, in the north-western portion of the bay, is about 4.8 m. The

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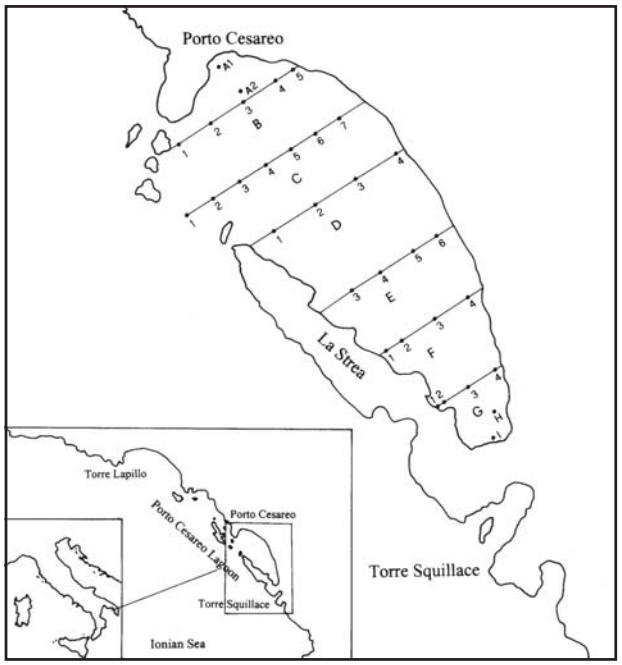

Fig. 1 - Location map of the study area, showing transects and sampling stations.

maximum depth of the channels connecting the bay to the sea is 2.5 m (Passeri, 1974). Tidal range is about 20-30 cm.

The water temperature varies from a low of 9.2°C in February to a high of 28.2°C in August (Belmonte & Rubino, 1988; Mercurio et al., 2000), showing a sharp increase during summer (Gherardi et al., 2001).

The salinity of the La Strea Bay is slightly lower (about 1‰) than the open sea waters, due to karstic freshwater supplies along the coast. Nonetheless, the bay water is euhaline (33.5 to 37.8 ‰). Dissolved oxygen content and pH range from 6.2 to 10.9 ppm and 7.7 to 8.7, respectively.

The waters in the vicinity of the township of Porto Cesareo show a relatively high concentration of nitrites and nitrates, indicating organic pollution due to human activities. The annual mean values of nitrites and nitrates measured by Belmonte & Rubino (1988) are noticeably higher in the northernmost stations (nitrites, 0.567 μg-atN/l; nitrates 19.79 μg-atN/l) than in both the central part of the bay (nitrites = 0.251 μg-atN/l, nitrates = 31.99 μg-atN/l) and in open sea (nitrites = 0.193 μg-atN/l, nitrates = 15.61 μg-atN/l).

The aquatic vegetation is dominantly a mixed meadow of *Cymodocea-Caulerpa*. On the northern edge of the bay, i.e. close to the town, nitrophile taxa such as *Ulva* and *Enteromorpha* are present. Thermophilic, photophilous assemblages, including the chlorophyte *Anadyomene stellata*, a species with tropical affinity, live in the very shallow, calm waters of the southwestern part of the bay, on rocky bottoms (Pardi et al., 1988).

Parenzan (1983) emphasized the meaning of the subtropical biocoenosis defined by the co-occurrence of *A. stellata*, the demosponge *Geodia cydonium* and the echinoderm *Holothuria impatiens*. Noteworthy is the presence of the warm water sabellid *Fabricia filamentosa* and the gastropod *Pirenella conica* (Castelli et al., 1988).

MATERIALS AND METHODS

A total of 32 sediment samples was collected in the La Strea Bay. Twenty-eight along six parallel transects plus four "isolated" samples. The maximum water depth from which samples were collected was 4.78 m; the minimum was 0.12 m. Core samples were obtained by direct insertion of a short core tubes (h = 12 cm; Ø = 8 cm) into the sediment. After core recovery, subsamples of the surface sediments were collected from the central (undisturbed) part of core, to analyze recent (subrecent) assemblages. Bathymetry, grain size, number, location, and dimension of samples are reported in Fig. 1 and Tab. 1.

The samples were wet-sieved through 170-mesh (90 μm) screens and oven-dried. Residue granulometry was determined by using a stereo microscope fitted with an ocular micrometer. Sediment classification was based on Wentworth grain-size scale.

Biogenic components consist mainly of foraminifers and subordinately of bryozoans fragments, sponge spicules, bivalves and gastropods (both shells and fragments), ostracods, echinoid spines, annelids.

A microsplitter was used to obtain a split of approximately 300 specimens; due to the paucity of

Samples	Longitude E	Latitude N	Depth (m)	Thickness (cm)	Dry weight (gr)	Residue weight (> 90 µm)	Grain size
A1	17°53,67'	40°15,92'	0,43	4	30,9	27,9	FS
A2	17°53,76'	40°15,83'	1,30	3,5	23	16,7	MS-FS
B1	17°53,57'	40°15,64'	3,21	3	40,1	19	CS-FS
B2	17°53,64'	40°15,71'	2,43	4	39,9	31,2	CS-MS
B3	17°53,73'	40°15,78'	2,40	4	36,1	22,8	CS
B4	17°53,87'	40°15,88'	1,40	3	24,1	21,5	CS
B5	17°53,93'	40°15,91'	0,90	3	31,2	23,1	CS-MS
C1	17°53,52'	40°15,34'	4,40	2,5	34	27,2	CS
C2	17°53,61'	40°15,40'	4,78	3,5	23,9	20,5	CS
C3	17°53,72'	40°15,46'	4,50	5	32	21,6	CS-FS
C4	17°53,83'	40°15,53'	3,40	3	26	18,8	CS
C5	17°53,92'	40°15,61'	2,58	3,5	33	23,2	CS-FS
C6	17°54,02'	40°15,66'	1,73	4,5	29	24,2	CS
C7	17°54,10'	40°15,72'	-	3,5	42,1	34	CS
D1	17°53,85'	40°15,33'	1,52	4	32	22,5	MS-FS
D2	17°54,01'	40°15,38'	2,30	7	36,2	25,9	CS-MS
D3	17°54,17'	40°15,49'	1,51	4	25,9	18,2	CS-FS
D4	17°54,32'	40°15,59'	1,11	3	26,9	18,5	CS-FS
E3	17°54,01'	40°15,07'	1,42	3,5	35,2	19,8	MS-FS
E4	17°54,25'	40°15,16'	1,50	4	31,8	21	CS-MS
E5	17°54,26'	40°15,23'	1,49	3	34,1	21,2	FS
E6	17°54,45'	40°15,28'	1,30	3,5	34,2	23,8	MS-FS
F1	17°54,28'	40°14,84'	0,50	2,5	36,8	25,1	CS-FS
F2	17°54,34'	40°14,88'	0,94	4	30	23,1	MS-FS
F3	17°54,45'	40°14,97'	1,12	5,5	32,5	14	FS
F4	17°54,60'	40°15,04'	1,50	3	30,9	22	MS-FS
G1	17°54,47'	40°15,63'	0,20	2,5	33	24	MS-VFS
G2	17°54,52'	40°14,67'	0,70	3	38,4	29	MS
G3	17°54,57'	40°14,71'	0,80	2,7	31,7	22	MS-VFS
G4	17°54,66'	40°14,77'	0,65	3,5	35,1	26,9	MS-VFS
H	17°54,69'	40°14,61'	0,26	3,5	31	22,8	VFS
I	17°54,69'	40°14,51'	0,12	4,5	30,2	25,7	FS

Tab. 1 - Coordinates, depth, thickness, weight and granulometry of the studied samples.

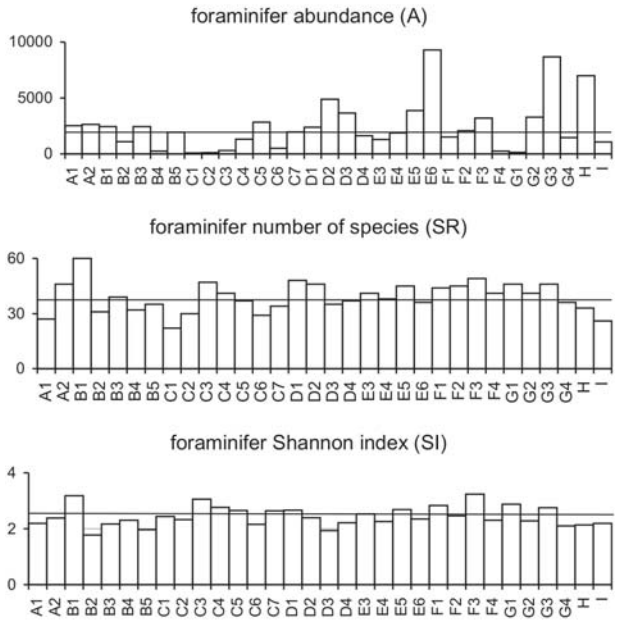

Fig. 2 - Foraminifer abundance (A = number of specimens per gram of dry sediment) and diversity (SR = number of species, SI = Shannon index). Horizontal line indicates medium value.

ostracod shells, a total picking was carried out for 16 samples. The species were identified and the adult specimens counted.

RESULTS AND DISCUSSION

Foraminiferida (M.G. Coppa, A. Valente & F. Zeni)

One-hundred twelve foraminiferal species, 111 benthic and one planktic, have been recorded (Tab. 2). The systematics follows the scheme proposed by Loeblich & Tappan (1964, 1987).

The assemblages consist mainly of well-preserved benthic foraminifers: *Peneroplis pertusus* (26.87% - 61.10%) and, subordinately, *Siphonaperta agglutinans* (0.23% - 16.37%), *Peneroplis planatus* (0.26% - 12.37%), *Ammonia beccarii* (0.49% - 11.11%), *Sardammina cherchiae* (0.29% - 10.27%), *Elphidium macellum* (0.28% - 9.09%), *E. advena* (0.29% - 9.31%), *Spirolina acicularis* (0.25% - 8.09%), *Quinqueloculina parvula* (0.33% - 4.60%), *Q. seminulum* (0.26% - 3.83%). In the southern, sheltered part of the lagoon, beside the above mentioned species *Haynesina depressula* (0.20% - 5.77%), *Glabratella patelliformis* (0.21% - 5.42%), *Ammonia tepida* (0.24% - 3.24%) also occur. Rare planktic foraminifer specimens, all referable to *Neogloboquadrina pachyderma*, are poorly preserved.

Near the opening of the lagoon to the sea, on coarse sediments, in deeper, high energy waters, benthic foraminifers are mainly large, thick and abraded. In the northern and southern sheltered areas, on fine sediment substrate, in very shallow, low energy waters, foraminifers are smaller, delicate and generally well-preserved. Part of the assemblages, ranging from 1.97 to 25.56%, are indeterminable due to the poor state of preservation.

Foraminifer abundance variability is higher than the diversity variability (Fig. 2). Abundance ranges from 72 (sample C1) to 9297 (sample E6). The lowest diversity is recorded in the samples C1 (SR = 22) and B2 (SI = 1.78) , the highest in the samples B1 (SR = 60) and F3 (SI = 3.24),

Assemblage interpretation

Present data have been compared with the ones previously reported for the Mediterranean waters by Le Calvez & Le Calvez (1958), Blanc-Vernet (1969, 1974, 1988), Blanc-Vernet et al. (1979), Cita & Premoli-Silva (1967), Sgarrella & Barra (1985), Sgarrella et al. (1985), Coppa (1987, 1991), Langer (1988), Scorziello (1990), Vènec-Peyrè & Le Calvez (1988), Murray (1991), Sgarrella & Moncharmont Zei (1993), Coppa et al. (1994) and Coppa & Di Tuoro (1995), with the aim to confirm the ecological meaning of the assemblages and to indicate new distribution data.

Taxa whose ecological characteristics are known could be ascribed to the groups epiphyte, euryhaline, sandy bottom dwellers and warm-temperate species (Fig. 3).

- Epiphyte species: *Nubecularia lucifuga*, *Peneroplis pertusus*, *P. planatus*, *Spirolina acicularis*, *Discorbis mira*, *Neoconorbina terquemi*, *Rosalina bradyi*, *R.*

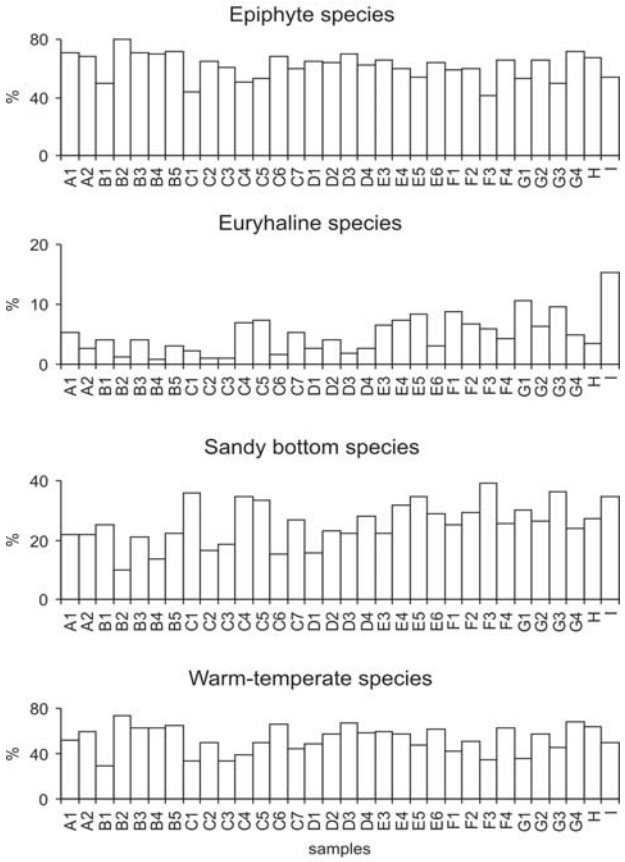

Fig. 3 - Percent values of foraminifer ecological groups.

Tab. 2 - Percent values of foraminifer species.

SPECIES / SAMPLES	A1	A2	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	E3	E4	E5	E6	F1	F2	F3	F4	G1	G2	G3	G4	H	I
depth (m)	0,43	1,30	3,21	2,43	2,40	1,41	0,90	4,38	4,78	4,46	3,40	2,58	1,73	n.p.	1,52	2,30	1,51	1,11	1,42	1,54	1,49	1,30	0,49	0,94	1,12	1,50	0,20	0,70	0,80	0,65	0,26	0,12
TEXTULARIIDAE																																
Textularia agglutinans d'Orbigny								0,29	0,62	0,63																						
Textularia bocki Hoglund				0,29				1,17	0,62	2,19														0,20				0,40				
Textularia sp.								0,29	0,31																							
SQUAMULINIDAE																																
Sardammina cherchiae Coppa		2,70	0,52	0,29	1,44	1,89	4,60	2,34	0,62	0,31		4,09	1,01	1,76			10,27	6,43	3,01	3,11	0,97	3,82	1,62	5,08	1,47	2,16	5,29	4,25	2,61	3,72	4,96	0,77
NUBECULARIIDAE																																
Nubecularia lucifuga Defrance	3,16		1,03	0,86	2,01	1,08	0,63		0,62	0,31	0,74			2,35	0,66	0,57	0,27	0,58			0,19		0,23		0,74	0,17	0,79	0,40		0,25	0,24	0,77
Wiesnerella auricolata Egger	0,32									0,31								0,29					0,23		0,98							
Spiroloculina angulosa Terquem		0,21		0,29		0,27	0,21														0,19	0,16										0,38
Spiroloculina communis (Cushman)																		0,29														
Spiroloculina depressa d'Orbigny											0,37	0,54																				
Spiroloculina excavata d'Orbigny														0,59																		
Spiroloculina ornata d'Orbigny					0,29					2,19			0,20	1,76	0,99	1,70				0,41	0,19	0,16					1,59		0,19		0,71	
Spiroloculina tricarinata (d'Orbigny)		0,62	0,78		0,57						1,11						1,08	0,58	1,10	0,62	0,58	0,64		0,81	0,98	0,33	0,53		0,37	0,50	0,24	
Spiroloculina sp.						0,27			0,31		0,37	0,82			0,33							0,16						0,20			0,24	0,38
Vertebralina striata d'Orbigny		0,62	0,26			0,81	0,42			0,63	0,37				0,33	0,28		0,29	0,27	0,41		0,16		0,41	1,47	0,17		0,61	0,37	0,25		1,15
MILIOLIDAE																																
Quinqueloculina annectens (Schlumberger)									0,31																							
Quinqueloculina berthelotiana d'Orbigny	1,27	0,42	0,52	1,44	2,59	1,62	0,84	5,26	1,86	3,13	2,59	0,82	1,62	1,47	2,33		0,81	0,29	0,27	0,21				0,81			0,26	1,21	0,37		0,24	
Quinqueloculina aff. *berthelotiana* d'Orbigny	0,32																															
Quinqueloculina bicornis Walker & Jacob															0,33									0,20						0,50	0,47	
Quinqueloculina bosciana d'Orbigny		0,21	4,13	0,29	0,29		0,21			0,94	1,11	0,54			1,00	0,85		0,58	1,37	1,66	3,29	1,27	1,16	0,81	5,41	1,33	1,59		2,23	0,74	0,95	1,53
Quinqueloculina bradyana Cushman	1,27	3,12	1,55	0,58	2,30	0,54	0,84				2,59		0,61	3,52	2,66	1,14	0,27	2,05	0,82	3,11			1,85	0,61	0,98		0,53	1,21	0,19		1,65	
Quinqueloculina cliarensis Heron-Allen	0,32		0,52	1,44	0,57		0,84	1,17	1,24		0,37	1,09									0,19											
Quinqueloculina elegans (Williamson)		0,42									0,37																					
Quinqueloculina juleana d'Orbigny		0,42																														
Quinqueloculina jugosa Cushman					0,29		0,21		0,31		0,74	2,45				0,57		0,58	0,55					0,41		0,17				0,25		
Quinqueloculina laevigata d'Orbigny		0,62	0,52		0,57		0,42			0,63			0,61	0,88	0,33		0,27		0,27	0,62			0,23	0,20	0,98		1,06		0,74	0,25	0,47	1,53
Quinqueloculina aff. *laevigata* d'Orbigny								0,29																								
Quinqueloculina lamarkiana d'Orbigny			0,78					0,88		0,94					0,33	0,28								0,81								
Quinqueloculina aff. *lamarkiana* d'Orbigny								0,29																								
Quinqueloculina mediterranensis (Le Calvez)												0,27					0,27					0,16			0,25							
Quinqueloculina aff. *mediterranensis* (Le Calvez)																								0,20								
Quinqueloculina partschi d'Orbigny																				0,41			0,23			0,17						
Quinqueloculina parvula Schlumberger	1,27	2,70	1,03	0,58	3,45	1,08	2,72	4,39	2,79		2,96	1,63	0,81	3,52	0,33	2,28	0,54	1,75	2,19	1,24	1,74	2,55	1,39	2,85	1,23	2,16	1,32	3,04	3,35	2,48	2,13	4,60
Quinqueloculina aff. *parvula* Schlumberger												0,54	0,41				0,27								0,25	0,17						
Quinqueloculina rugosa d'Orbigny		0,83	0,52		1,15						0,37	0,27					0,54							0,20			0,53					
Quinqueloculina seminulum Linneo	3,80	0,62	0,26	0,87	0,86	1,08	0,84	3,51		0,63	1,48	1,91	0,81	1,76	0,33	0,57	1,89	1,17	1,10		2,71	3,02	0,69	3,26	2,46	1,99	3,44	2,83	3,35	2,48	3,55	3,83
Quinqueloculina aff. *seminulum* Linneo																				0,83		0,16							0,00	0,50		
Quinqueloculina stalkeri Loeblich & Tappan			3,10	0,29	0,29					0,94					0,66	0,85		0,87	0,55				0,93		0,98	0,50	0,26	0,40	0,56			
Quinqueloculina aff. *stalkeri* Loeblich & Tappan			0,26								0,37																					
Quinqueloculina stelligera Schlumberger	0,95	1,04	5,17							5,63		1,09	1,22	0,88		1,71	1,08	2,92	1,92	1,45	1,74	1,27	2,55	1,42	6,39	2,99	1,32			0,50	0,47	0,38
Quinqueloculina aff. *stelligera* Schlumberger																	0,27															
Quinqueloculina striata d'Orbigny	0,32		1,03			0,81				0,31		0,27	1,42	2,05		0,28	0,27	2,92	1,64	0,62	3,29	1,27	2,78	1,22	3,69	0,83	1,06	1,01	2,61	0,74	0,95	
Quinqueloculina tenuicollis (Wiesner)			1,81		0,29		0,21			0,62	0,37	1,09	0,41	1,17	1,00	0,57	0,27	0,58	0,27	0,21	0,58		0,46		0,74		1,85	0,40	0,19			
Quinqueloculina aff. *tenuicollis* (Wiesner)																								0,20					0,19			
Quinqueloculina variolata d'Orbigny					0,29															0,21	0,39			0,20	0,25			0,20		0,25		
Quinqueloculina vulgaris d'Orbigny	0,63		0,26	0,29	0,29		0,42		0,93		0,74	0,27						0,58									0,53		0,19			
Quinqueloculina wiesneri (d'Orbigny)		0,62									0,37																			0,25		
Quinqueloculina spp.	1,27		1,29	1,73	0,29	1,62	0,42					1,63		1,76	0,33	0,57	0,27		1,37				0,69		1,23		0,53	0,20				0,77
Massilina secans d'Orbigny		0,21				0,27	0,21			0,31				0,59				1,16	0,27		0,39	0,16					0,53				0,24	
Sigmoilina costata Schlumberger			2,07							1,56				0,29	0,66	0,28						0,32				0,17						
Sigmoilina grata (Terquem)																															0,47	
Sigmoilina sp.			0,52							0,31	0,37	0,27		0,29	1,00		0,27										0,79		0,19			
Siphonaperta agglutinans (d'Orbigny)		5,41	1,29	3,75	2,87	2,43	1,88	16,37	9,01	1,87	15,55	8,45	5,88	3,23	1,00	3,42	2,16	2,92	4,38	2,90	2,13	5,72	0,23		1,47	1,66	0,53	1,62	4,10	2,48	5,44	
Siphonaperta aff.*agglutinans* (d'Orbigny)				0,58																						1,33		0,20				
Siphonaperta asinclinata (Le Calvez & Le Calvez)			0,26	0,58																												
Siphonaperta aspera (d'Orbigny)	0,95	1,46			1,44	3,24	7,11	1,75	0,31			1,91			0,33	4,27		3,51		4,14	4,64	1,43	1,85	2,23	1,47	1,99	2,91	3,24	1,12	1,99	2,13	5,74
Siphonaperta aff. *aspera* (d'Orbigny)					0,86				1,86				3,45				1,08					0,79		1,22	0,25	0,33		0,40				1,15
Siphonaperta dilatata (d'Orbigny)		0,21				0,81																										
Siphonaperta irregularis (d'Orbigny)		1,66		1,15											1,00		0,27											1,21		0,25		
Triloculina labiosa d'Orbigny			0,78						0,62	1,25	0,74	1,09	0,61		0,66	0,28			0,55	0,41	3,09	0,64	0,23	0,41	1,97	0,66	0,53	0,20	1,12	0,25		
Triloculina marionii Schlumberger			0,26			0,27	0,42	0,88		0,31																						
Pseudotriloculina oblonga (Montagu)		0,21	0,26	0,29					0,31		0,37				0,66		0,27			1,04	0,58	0,64			2,70	1,00		0,20	1,49	0,25		
Triloculina rotunda d'Orbigny													0,20	0,29		0,57			0,82		0,19								0,56	0,50		
Triloculina schreiberiana d'Orbigny			1,03	0,29	0,29	0,27													0,55		0,58								0,19			
Triloculina tricarinata d'Orbigny					0,29	0,27		0,29		0,31	0,37																		0,19			
Triloculina sp.			0,52						0,93	0,31	0,74	0,54	0,20		0,33			0,58		0,21	0,19								0,19			0,38
Miliolinella circularis (Bornemann)			0,52				0,21			1,56					0,66	0,57	0,54		0,82	0,41	0,39					0,83	0,53	0,20	0,37			0,38
Miliolinella dilatata (d'Orbigny)																											0,26					
Miliolinella elongata (Kruit)				0,58								0,27															0,53		0,19			
Miliolinella grata (Terquem)																											0,26					
Miliolinella semicostata (Wiesner)															0,33																	
Miliolinella subrotunda (Montagu)		0,42	0,26			0,27				0,31		0,27			0,66		0,54						0,69	0,41	0,74	0,66						

Tab. 2 *(continue)*

SPECIES / SAMPLES	A1	A2	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	E3	E4	E5	E6	F1	F2	F3	F4	G1	G2	G3	G4	H	I
depth (m)	0,43	1,30	3,21	2,43	2,40	1,41	0,90	4,38	4,78	4,46	3,40	2,58	1,73	n.p.	1,52	2,30	1,51	1,11	1,42	1,54	1,49	1,30	0,49	0,94	1,12	1,50	0,20	0,70	0,80	0,65	0,26	0,12
Articulina carinata Wiesner			0,26																0,27			0,16										
Weilmanellinella striata (Sidebottom)			0,26																													
SORITIDAE																																
Spirolina acicularis (Batsch)		1,87	0,26	4,03	2,30	8,09	3,14	2,04	4,97		3,70	4,90	6,70		0,66	2,28	2,16	1,17	3,56	1,45	0,77	4,29		1,02	0,25	3,49	0,79	1,01	1,86	3,72	3,07	
Peneroplis pertusus (Forskal)	49,37	51,15	26,87	61,10	55,75	42,59	58,16	27,19	39,44	29,69	33,70	36,51	46,66	40,47	45,51	49,86	57,03	50,30	43,56	49,58	39,26	46,42	40,04	47,76	28,51	51,00	32,54	53,64	38,18	52,11	53,66	45,59
Peneroplis planatus (Fichtel & Moll)	1,58	6,03	1,30	8,35	4,60	12,13	2,93	4,68	5,28	3,12		5,99	12,37	2,34	1,99	4,27	6,76	7,02	9,04	5,60	1,74	8,74	1,15	1,22	1,23	7,14	0,26	2,43	2,98	11,91	6,86	2,30
NODOSARIIDAE																																
Ortomorphina sp.														0,29							0,19					0,17						
POLYMORPHINIDAE																																
Polymorphina gibba (d'Orbigny)				0,58									0,41																			
Polymorphina sp.					0,57			0,29	0,31			0,54													0,25							
BOLIVINITIDAE																																
Bolivina punctata d'Orbigny																					0,19	0,16	0,23		0,74	0,17		0,20				
Bolivina spatulata (Williamson)		0,21	0,52										0,81	0,29		0,85			0,27		0,19	0,16	0,23		0,49							
BULIMINIDAE																																
Buliminella basicostata Parr																					0,39								0,19			
Bulimina pupoides d'Orbigny																									0,74							
Bulimina sp.																	0,27															
UVIGERINIDAE																																
Uvigerina mediterranea Hofker																												0,20				
Uvigerina sp.																										0,17						
DISCORBIDAE																																
Buccella granulata (Di Napoli)			0,52		0,29		0,42					0,54		1,17	1,00	0,28		0,29		0,62	0,19	1,11	1,39	0,41	0,49		0,26	0,40				
Buccella sp.		0,21																0,29									0,26					
Discorbinella bertheloti (d'Orbigny)			0,52							0,31					0,33			0,29					0,46						0,19			
Discorbis mira Cushman	3,38	0,62	2,33		1,15	0,27	1,05			4,69		0,27		1,18	1,00	0,28		0,29	0,27	0,62	0,19	0,32	4,63	2,85	0,74		2,38	0,81			0,47	1,15
Discorbis aff. *mira* Cushman																							0,46									
Neoconorbina terquemi (Rzehak)		0,21	0,52		0,29		0,21			2,81	0,37	0,54			0,33	0,85	0,27		0,27	0,21	0,19		0,46	0,20	0,74	0,17	0,26			0,25	0,47	
Neoconorbina posidonicola (Colom)															0,66	0,57					0,39											
Rosalina bradyi Cushman	2,53		1,55		0,57		0,42		0,31	2,19	2,96	1,36	0,41	0,59	1,99	2,56	0,54		1,37	0,83	0,58	0,32	2,77	1,22	1,47	0,50	0,79	0,61	0,93			
Rosalina concinna (Brady)			0,52			0,27				0,63				0,29		0,28		0,58		0,62			0,46	0,61	0,98	0,33						0,38
Rosalina floridana (Cushman)		0,21	3,36			1,62			0,62	9,06	0,37		1,42	1,47	0,33	0,28	0,54		2,47	0,62	2,32		0,46		1,23	0,66	0,79		0,56	0,50	0,24	
Rosalina globularis d'Orbigny		0,21								4,06																						
Rosalina obtusa d'Orbigny		0,21								0,63	1,11		0,81																			
Rosalina cf. *vilardeboana* d'Orbigny																1,14																
Rosalina spp.	0,32							0,88	0,31	1,25	0,37			0,88					0,27			0,79	0,46					0,20				
Valvulineria minuta Parker		0,62	0,52		0,57					3,13		1,09		0,88	2,66	1,14		0,29	0,55	0,21	1,16		2,31	0,41	2,21	0,83	1,06	0,20	1,12			
GLABRATELLIDAE																																
Glabratella erecta (Sidebottom)			0,26								0,37												1,39						0,37	0,25		0,38
Glabratella hexacamerata (Seiglie & Bermudez)			0,26						0,31						0,33	0,28				0,41			0,69		1,23	0,17			0,19		0,24	
Glabratella imperatoria (d'Orbigny)	0,32		0,52		0,57		0,21								0,33	0,57			0,55					0,20				0,61				
Glabratella patelliformis (Brady)	0,63	0,83	0,52				0,21			0,63	1,85	2,45		1,47	1,00	0,57	1,08		3,01	0,62	5,42	2,07	1,39	0,61	4,18	1,00	2,38	0,40	2,23	0,74	0,24	1,53
Glabratella torrei (Bermudez)	0,32		0,26							0,31											0,19									0,25		0,38
ASTERIGERINIDAE																																
Asterigerinata cf. *mamilla* (Williamson)	1,58	0,42	1,29	0,29					0,31	0,31	0,74	0,27		0,59	1,66	1,14	0,27				0,97		1,39	0,81		0,17		0,20				0,38
ROTALIIDAE																																
Ammonia beccarii (Linneo)	4,43	2,08	0,78	1,15	4,02		3,14	2,34	0,93		6,67	6,54		4,40	1,33	3,13	1,89	1,75	2,74	6,22	3,48	1,91	3,00	5,69	0,49	1,50	5,29	4,66	2,79	4,22	2,13	11,11
Ammonia gaimardi (d'Orbigny)			0,52	2,02	0,57	7,82		12,57	9,32		1,85		6,29			0,28	0,27	0,58				0,32					0,26	0,40				
Ammonia tepida Cushman			0,26												1,33	0,57			1,10				3,24	0,81	1,72	0,83	1,32	1,01	1,12		0,24	0,38
Ammonia sp.						0,27																										
ELPHIDIIDAE																																
Elphidium aculeatum (d'Orbigny)	1,27	0,42	2,33		0,29	0,54	0,63	0,88	0,31		0,74		0,20		0,66		1,35			0,41				1,22								
Elphidium advenum (Cushman)	7,60	1,25	4,39	0,29	0,86	1,08				0,31	0,74	3,81	1,22	3,52	1,66	3,13	2,70	0,58	1,10	5,60	5,80	5,25	4,40	4,67	6,14	6,15	4,76	2,43	9,31	3,97	2,60	6,51
Elphidium crispum (Linneo)		2,91	1,55	4,90	1,44	2,97	2,30	9,65	11,80	1,25	1,11	0,27	1,02		1,00									1,83		0,33	0,79	1,62	0,19			
Elphidium cuvilleri (Levy)		0,42	0,26								0,37	0,54				0,28		0,58	0,27	0,21		0,48			0,25		0,53		1,12	0,25		
Elphidium macellum (Fichtel & Moll)	6,64	2,49	7,75	0,29	0,29	0,54	1,67		0,31	0,31	2,22	0,82		9,09	5,64	0,28	1,08	3,22	0,82	0,62	1,74	0,95	3,01	1,02	1,47	1,16	5,82	1,42	0,93	1,24	1,42	1,53
Elphidium sp.																							0,23									
EPONIDIDAE																																
Eponides sp.																			0,27			0,32										
CIBICIDIDAE																																
Cibicidella variabilis (d'Orbigny)		0,42		0,29			0,63	0,29		2,19	0,37	0,27		0,29	1,99								0,23		0,74	0,33	0,53		0,56		0,24	
Cibicides lobatulus (Walker & Jacob)	0,95	0,42	1,55	0,29	1,44	0,54	0,84		0,62	1,25	3,70				1,99	0,57			0,55		0,58		1,62	0,81			1,06	0,40	0,56	0,25	0,47	
Cibicides refulgens Montfort	2,22	1,04	1,03		0,57	0,27			0,62	1,25				1,17	2,99	1,71			0,55		0,58	0,48	3,01	1,63	0,49		4,23	2,83	1,30	0,25	0,47	0,77
Cibicides sp			0,78							0,31																	0,26					
PLANORBULINIDAE																																
Planorbulina mediterraneensis d'Orbigny		0,42				1,35					0,74		0,20	0,29	2,33	0,57		0,58	0,27		0,19		0,23		0,25							
CYMBALOPORIDAE																																
Cymbaloporetta bradyi (Cushman)									0,62	0,94								0,29														
NONIONIDAE																																
Nonion depressulum (Walker & Jacob)	0,95	0,62	3,10			0,81				0,94	0,37	0,82	1,62	0,88		0,28		0,88	2,74	1,04	4,84	1,11	2,55	0,20	3,69	1,99	3,97	0,61	5,77	0,74	1,18	3,83
Nonion sp.			0,26		0,29		0,42					0,27	0,41	0,29										0,41					0,37		0,47	
Nonionella opima Cushman																					0,19				0,25							
GLOBOROTALIIDAE																																
Neogloboquadrina pachyderma (Ehrenberg)		x	x				x			x					x		x	x					x	x	x		x					

globularis, *R. floridana*, *Glabratella patelliformis*, *Elphidium crispum*, *E. macellum*, *Lobatula lobatula*, *Cibicides refulgens*.

- Euryhaline species: *Ammonia beccarii*, *A. tepida*, *Haynesina depressula*.

- Sandy bottom species: *Sardammina cherchiae*, *Quinqueloculina berthelotiana*, *Q. bosciana*, *Q. bradyana*, *Q. parvula*, *Q. seminulum*, *Q. stalkeri*, *Q. stelligera*, *Q. striata*, *Siphonaperta agglutinans*, *S. aspera*, *Pseudotriloculina oblonga*, *Triloculina labiosa*, *Valvulineria minuta*, *Ammonia beccarii*, *A. gaimardi*, *A. tepida*, *Elphidium advena*, *E. crispum*, *E. macellum*, *Haynesina depressula*.

- Warm-temperate species: *Peneroplis pertusus*, *P. planatus*, *Spirolina acicularis*, *Glabratella patelliformis*.

Overall, the foraminiferal samples of the Porto Cesareo lagoon are characterized, mainly in the southern (samples F4 and G1) and northern (samples B4, C1, C2) part of the bay, by the dominance of some taxa. These are eurythermal and euryhaline taxa (peneroplids, miliolids, nonionids, *Ammonia*) tolerating the environmental variability of the lagoon (Peres & Picard, 1964; Carrada & Fresi, 1988).

In the southern part of the lagoon it has been noted that euryhaline species are relatively more abundant (0.81% - 15.32%). The distribution pattern of these taxa could be due to the freshwater supply mentioned by Passeri (1974).

Abundance in peneroplids and glabratellids (28.95% - 73.48%) confirms their preference for warm waters (Phleger, 1960; Seiglie & Bermúdez, 1965) and lagoonal environments (Cita & Premoli-Silva, 1967; Murray, 1991). The abundance of *Peneroplis pertusus*, a species commonly living on firm sandy bottoms and on seagrasses, in shallow, warm waters (Blanc-Vernet, 1969; Colom, 1971; Scorziello, 1990; Murray, 1991) confirms the above mentioned subtropical affinity.

The common occurrence of epiphyte species, ranging from 43.50 to 79.82%, reflects the presence of rich and well diversified vegetation (Pardi et al., 1988).

Sandy bottom species show percent values from 0.80 to 39.07%, generally less abundant than epiphyte species.

The frequency of species typical of deeper waters such as *Sardammina cherchiae*, *Quinqueloculina stalkeri*, *Pseudotriloculina oblonga*, *Valvulineria minuta*, suggests an enlargement of their habitat (Coppa, 1991; Sgarrella & Moncharmont-Zei, 1993).

Poorly preserved, abraded specimens, reaching very high values (45.32%) in the sample D4, seem to be indicative of high-energy environment there. It cannot be excluded they are partially transported.

The presence of *Ammonia gaimardi* at the mouth of the lagoon (samples C1, C2), on coarse grained sediments, and near the urbanized area (sample B4), confirms its preference for coarse sandy bottom conditions (Blanc-Vernet, 1969) and its tolerance of organic-rich (Sgarrella & Moncharmont Zei, 1993) and polluted environments (Sgarrella & Barra, 1985).

Species distribution, shape and dimension of the foraminifers are different between the sheltered and open areas, probably because of different hydrodynamic regimes. Three groups of species have been defined accordingly (Fig. 4):

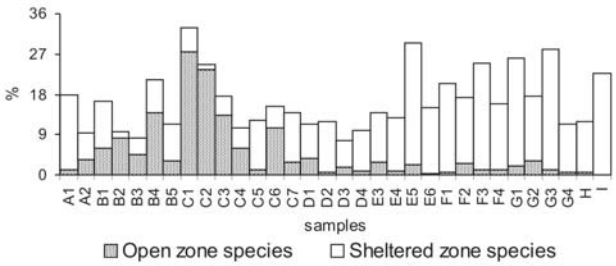

Fig. 4 - Percent values of foraminifers characteristic of sheltered and open zone.

- Open zone species (0.46% - 27.48%): *Quinqueloculina berthelotiana*, *Rosalina floridana*, *Ammonia gaimardi*, *Elphidium crispum*.

- Sheltered zone species (0.93% - 27.27%): *Quinqueloculina seminulum*, *Q. striata*, *Siphonaperta aspera*, *Glabratella patelliformis*, *Ammonia tepida*, *Elphidium advena*, *Cibicides refulgens*, *Haynesina depressula*.

- Ubiquitous species (40.93% - 83.24%): *Sardammina cherchiae*, *Quinqueloculina bradyana*, *Q. parvula*, *Q. stelligera*, *Siphonaperta agglutinans*, *Peneroplis pertusus*, *P. planatus*, *Spirolina acicularis*, *Ammonia beccarii*, *Elphidium macellum*.

Ostracoda (G. Aiello & D. Barra)

The ostracod fauna consists of 150 species, belonging to 43 genera. Forty-two species have been tentatively identified or left in open nomenclature because of sparse, poorly preserved material or due to the absence of adult specimens. Identification of species is based on classical and modern literature on recent ostracods of the Mediterranean (*i.a.* Müller, 1894; Barbeito-Gonzalez, 1971; Uffenorde, 1972; Bonaduce et al., 1976; Breman, 1976; Yassini, 1979; Barra, 1997).

The species list and their quantitative distribution are given in Tab. 3.

In general, the ostracods are well preserved; both adult and young instars shells (carapaces or valves) are present.

The ostracod assemblages are dominated by the genera *Semicytherura* Wagner, 1957 (26 species), *Paradoxostoma* Fischer, 1855 (13 species), *Callistocythere* Ruggieri, 1953 e *Cytherois* G.W. Müller, 1894 (11 species), *Loxoconcha* G.O. Sars, 1866 (10 species), *Neonesidea* Maddocks, 1969 (7 species), *Leptocythere* G.O. Sars, 1925, and *Microcythere* G.W. Müller, 1894 (6 species). The most abundant species are *Xestoleberis dispar* (1130 specimens), *X. communis* (857), *Cistacythereis (H.) turbida* (830), *Loxoconcha gibberosa* (626), *Urocythereis distinguenda* (585), and *Loxoconcha stellifera* (482). Further common species

Tab. 3 - Percent values of ostracod species.

SPECIES / SAMPLES	A1	A2	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	E3	E4	E5	E6	F1	F2	F3	F4	G1	G2	G3	G4	H	I
depth (m)	0,43	1,30	3,21	2,43	2,40	1,41	0,90	4,38	4,78	4,46	3,40	2,58	1,73	n.o.	1,52	2,30	1,51	1,11	1,42	1,54	1,49	1,30	0,50	0,94	1,12	1,50	0,20	0,70	0,80	0,65	0,26	0,12
Aglaiocypris complanata (Brady & Robertson, 1868)			0,59							1,22								1,34											0,40	0,46		
Aglaiocypris rara G.W. Müller, 1894						3,33							3,16																			
Aurila arborescens (Brady, 1865)	4,00	0,67	1,18		3,54	3,33					0,41	1,17		1,23	1,81		0,41	2,01	0,44	0,34		0,45			0,85	0,65	0,41	0,40		0,93		1,16
Aurila convexa (Baird, 1850)	4,00	6,04	1,18	4,55	7,96	10,00	17,14	7,14	12,50	1,22	2,88	0,58	1,05	10,43	4,07	0,53	0,82	4,03	0,87		0,35	0,45	1,18	1,92	0,43		0,82	1,62	1,21	0,46	1,09	
Aurila glyptica Barbeito-Gonzalez, 1971							2,86			0,81														0,96					1,21		1,45	1,16
Aurila prasina Barbeito-Gonzalez, 1971		2,01	0,59			3,33				1,22	3,29			0,61	0,90	1,06					0,35		0,59				1,23				1,45	
Aurila punctata (Münster, 1830)	4,00	7,38	2,94	22,73	11,50	3,33	12,86	35,71	12,50	0,81	1,65	1,75	5,26	1,23	1,81	2,12	7,76	3,36	1,31	1,35	0,35	0,45	0,59	0,96	0,43		0,41	1,21	0,40	0,46	0,36	1,16
Basslerites berchoni (Brady, 1870)			0,59	2,27						0,41	0,41	0,58							2,18	2,03	0,71	0,90	2,96	0,96	3,83	1,95			3,64		0,36	0,58
Callistocythere adriatica Masoli, 1968					0,88										1,36	0,53																
Callistocythere folliculosa Bonaduce *et al.*, 1976										1,22			1,05			1,06							0,59									
Callistocythere aff. *C. gilva* Bonaduce *et al.*, 1976		2,68	2,35				1,43				0,82			3,68	1,81		2,45	8,05	0,44		2,48	2,69	5,92	2,88	0,43	0,65	16,46		3,24	2,31	3,26	4,65
Callistocythere intricatoides (Ruggieri, 1953)		1,34	6,47		0,88					0,81	1,23	3,51	3,16	1,84	0,45	3,17	3,67	0,67	1,75	0,68	0,71	0,90		1,92	1,28				0,40	0,46	0,72	1,74
Callistocythere littoralis (G.W. Müller, 1894)										1,63																						
Callistocythere lobiancoi (G.W. Müller, 1894)			0,59																													
Callistocythere aff. *C. pallida* (G.W. Müller, 1894)												0,58					0,41															
Callistocythere aff. *C. rastrifera* (Ruggieri, 1953)										0,81	1,23	1,17		1,84							0,35						0,41					
Callistocythere sp. A		0,67	1,18		0,88		1,43						4,21								0,71						0,41	0,81			0,72	1,16
Callistocythere sp. B				4,55																												
Callistocythere spp.											0,82		1,05																0,40			
Carinocythereis whitei (Baird, 1850)						3,33	1,43				1,23	2,34		1,23	0,45	1,06	0,82		1,31	3,38	1,42	1,35	0,59	0,96	2,55	0,65	0,41	1,62	1,21	0,46	2,17	0,58
Caudites calceolatus (Costa, 1853)	4,00	0,67	0,59		0,88						0,82				2,26	0,53			0,44				0,59		0,43			0,81			0,36	
Cistacythereis (H.) turbida (G.W. Müller, 1894)	4,00	3,36	1,18	4,55	2,65		2,86	7,14		0,81	5,76	11,70	3,16	1,84	1,36	3,70	7,76	2,68	11,79	13,18	13,83	13,00	8,28	9,62	8,51	18,18	2,88	10,93	11,34	10,65	5,80	8,14
Costa batei (Brady, 1866)											0,41					0,53														0,46		
Cyprideis torosa (Jones, 1850)		0,67								0,41	0,82	0,58		0,61	0,45	0,53				0,34	0,35		1,18	0,96	0,43	0,65	0,82	0,81	0,40		0,72	1,74
Cytherelloidea sordida (G.W. Müller, 1894)			1,18				1,43			0,41	0,41	0,58	1,05	0,61	0,90	2,65	0,82	2,01	2,18	3,04	3,19	2,24	1,18	2,88	1,70	1,95	0,82	2,02	2,43	3,24	1,45	4,65
Cytheretta adriatica Ruggieri, 1952		6,71	0,59	6,82	7,08	3,33	4,29	21,43	25,00	0,41	2,88	7,60	1,05	0,61	2,26	3,17	1,63	0,67	2,18	4,39	1,06	1,79	0,59	2,88	0,43	2,60	0,41	2,02	1,21	2,78	4,35	2,91
Cytheretta subradiosa (Roemer, 1838)		2,68		4,55	1,77		2,86				1,65	2,92			0,45	1,59	2,45	1,34	0,87	2,36	2,13	1,35	0,59	5,77	0,85	4,55	1,23	3,24	2,43	1,39	1,81	0,58
Cytherois aff. *C. fischeri* (Sars, 1866)																				0,34												
Cytherois frequens G.W. Müller, 1894													1,05									0,45			0,43							
Cytherois aff. *C. frequens* G.W. Müller, 1894										0,41						0,53				0,34												
Cytherois incongruens G.W. Müller, 1894												2,34																				
Cytherois aff. *C. incongruens* G.W. Müller, 1894										0,41																						
Cytherois joachinoi Barra, 1992		0,67	2,94		0,88					0,81		4,68				2,12	0,41	4,70	3,06	1,35	3,19	1,79					0,41					
Cytherois pontica Marinov, 1966		0,67	1,18										3,16			1,06	0,41	0,67	0,44								0,41					
Cytherois succinea G.W. Müller, 1894										0,41																						
Cytherois aff. *C. triangularis* Bonaduce *et al.*, 1979												0,58																				
Cytherois aff. *C. uffenordei* Ruggieri, 1975																	0,41				0,35								0,81	0,46		
Cytherois sp.										0,41																						
Cytheroma cf. *C. karadagiensis* Dubowsky, 1939												1,17			0,45	1,06	1,22	1,34	0,44		0,71											
Cytheroma variabilis G.W. Müller, 1894																		1,34														
"Elofsonia" minima (Bonaduce *et al.*, 1976)			0,59				1,43			1,22	0,41			1,23		0,53					0,71											
Eucythere curta Ruggieri, 1975																		0,67														
Falsocythere terryi (Holden, 1967)															0,90				0,87													
Hemicytherura defiorei Ruggieri, 1953										0,41																						
Hemicytherura videns (G.W. Müller, 1894)			4,71							3,25	0,82	0,58	4,21	1,84	1,36	1,06	0,41	5,37	1,31	0,34	0,35				0,43	0,65	0,82					
Heterocythereis voraginosa Athersuch, 1979		2,01			0,88		1,43			0,41				3,07		0,53												0,40			0,36	
Leptocythere lagunae Hartmann, 1958											0,82	0,58		0,61		0,53			0,87	0,68			0,59		0,85		0,41	0,40	1,21			
Leptocythere levis (G.W. Müller, 1894)										0,41	0,82	0,58		0,61		1,59	1,22		2,62	3,38	10,99	5,83	11,24	3,85	4,26	1,95	11,11	6,07	19,03	11,57	1,09	3,49
Leptocythere ramosa (Rome, 1942)										0,41		0,58																				
Leptocythere aff. *L. rara* (G.W. Müller, 1894)													2,11																			
Leptocythere sp. 1																													0,81			
"Leptocythere" sp.				2,27																												
Loxoconcha affinis (Brady, 1866)		1,34	5,88		0,88						1,65			7,98	5,43	8,47	2,04		2,62	2,03	3,55		4,14		1,28		5,76		2,83	4,63	5,43	
Loxoconcha gibberosa Terquem, 1878	4,00	4,03	8,82	6,82	0,88	10,00	2,86			6,50	9,88	2,34	2,11	4,91	7,24	4,23	7,35	2,68	8,73	6,76	7,80	4,93	4,73	0,96	23,40	5,84	1,65	3,64	1,62	2,78		5,81
Loxoconcha aff. *L. gibberosa* Terquem, 1878											1,23																					
Loxoconcha ovulata (Costa, 1853)		4,03	0,59		5,31		1,43			0,81	4,12	9,36		0,61	2,26	2,65	1,63		0,44	0,34		0,90		0,96				0,40				0,58
Loxoconcha pontica Klie, 1937			1,18		1,77	6,67					0,82	0,58		3,07		1,06	1,22		0,44	0,68		1,35	0,59				0,82		1,21	1,39		1,16
Loxoconcha rhomboidea (Fischer, 1855)																													3,64			
Loxoconcha aff. *L. rhomboidea* (Fischer, 1855)		2,01																														
Loxoconcha rubritincta Ruggieri, 1964											0,41			0,61					0,87			0,45	3,55	4,81	0,85	1,30	16,05	2,43	3,24	7,41	11,96	9,88
Loxoconcha stellifera G.W. Müller, 1894	4,00	9,40	5,88	4,55	3,54	3,33	10,00		25,00	4,47	11,11	0,58		12,88	14,48	4,23	0,41	4,70	2,18	0,68	1,06	0,90	6,51	9,62	2,55	3,90	8,23	2,43	4,86	0,93	5,80	2,33
Loxoconcha sp.														0,61																		
Microceratina amfibola (Barbeito-Gonzalez, 1971)										0,41																						
Microcythere inflexa G.W. Müller, 1894			1,76							4,07		1,75				2,12	0,41															
Microcythere cf. *M. inflexa* G.W. Müller, 1894																				0,68												
Microcythere obliqua G.W. Müller, 1894																		1,34				0,90							0,40	0,46		
Microcythere aff. *M. obliqua* G.W. Müller, 1894																											0,41					
Microcythere rara G.W. Müller, 1894										0,41								0,67														
Microcythere vitrea Bonaduce *et al.*, 1976												0,58																				
Microcytherura (M.) fulva (Brady & Robertson, 1874)	4,00					3,33				0,41																						
Microcytherura (T.) angulosa (Seguenza, 1880)											0,41	0,58																				
Microcytherura (T.) sp.									12,50																							
Microxestoleberis sp.										0,41																						
Neocytherideis mülleri Kruit, 1955							1,43			0,41	0,41		1,05	1,23	0,45			0,67	3,06	3,38	4,26	3,14	11,24		1,70	5,19	4,53	1,21	10,12	2,31	3,62	2,33
Neonesidea corpulenta (G.W. Müller, 1894)										0,81	0,82												0,59					0,40				
Neonesidea formosa Brady, 1868					0,88																						0,41					
Neonesidea aff. *N. formosa* Brady, 1868			1,18							1,22					0,45																	
Neonesidea longevaginata (G.W. Müller, 1894)																												0,40				

Tab. 3 *(continue)*

SPECIES / SAMPLES	A1	A2	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	E3	E4	E5	E6	F1	F2	F3	F4	G1	G2	G3	G4	H	I
depth (m)	0,43	1,30	3,21	2,43	2,40	1,41	0,90	4,38	4,78	4,46	3,40	2,58	1,73	n.o.	1,52	2,30	1,51	1,11	1,42	1,54	1,49	1,30	0,50	0,94	1,12	1,50	0,20	0,70	0,80	0,65	0,26	0,12
Neonesidea mediterranea (G.W. Müller, 1894)																			0,44													
Neonesidea sp. 1										0,41										0,34												
Neonesidea spp.																0,53													0,81			0,58
Paracytheridea depressa G.W. Müller, 1894		0,67				3,33				1,22		1,75			0,45		0,82				2,48	0,45		0,96					4,05			
Paracytheridea aff. *P. parallia* Barbeito-Gonzalez, 1971										0,41											0,35											
Paracytheridea triquetra (Reuss, 1850)	4,00	0,67	0,59							1,63	1,23	1,17	2,11	1,84	0,90	1,59	3,27	7,38	1,31	1,35		2,24	2,37	1,92	0,85	1,95	4,94	2,83	1,21	1,85	3,99	1,16
Paracytherois aff. *P. flexuosa* (Brady, 1867)										0,41																						
Paradoxostoma angustum G.W. Müller, 1894										1,22							0,41	0,67									0,82					
Paradoxostoma aff. *P. angustum* G.W. Müller, 1894													1,05																			
Paradoxostoma breve G.W. Müller, 1894										0,41																						
Paradoxostoma caecum G.W. Müller, 1894										0,81																						
Paradoxostoma incongruens G.W. Müller, 1894																		1,34														
Paradoxostoma aff. *P. ponticum* Klie, 1942			1,76																													
Paradoxostoma aff. *P. rarum* G.W. Müller, 1894										0,41																						
Paradoxostoma aff. *P. rotundatum* G.W. Müller, 1894										0,41																						
Paradoxostoma simile G.W. Müller, 1894																						0,45										
Paradoxostoma triste G.W. Müller, 1894												1,17							0,44													
Paradoxostoma aff. *P. triste* G.W. Müller, 1894																									0,43							
Paradoxostoma sp. 1																					0,35											
Paradoxostoma spp.										0,41									0,44								0,41					
"Paradoxostoma" sp.1																		0,67														
Paranesidea aff. *P. reticulata* (G.W. Müller, 1894)										0,41	0,41				0,45																	
Pontocypria spinosa G.W. Müller, 1894																		2,01											0,40			
Pontocypris acuminata (G.W. Müller, 1894)										0,41					0,45																	
Pontocythere turbida (G.W. Müller, 1894)		4,70		4,55	2,65	10,00	2,86			0,41	1,23			3,07	1,81	1,06	0,41	0,67	0,44	0,34	0,35	0,45	1,18	0,96	1,28	1,30	1,65	4,45	0,81	2,31	9,78	18,02
Procytherideis complicata (Ruggieri, 1953)		0,67			0,88								2,11	1,23			0,82	0,67			0,35		2,96			1,30	1,65	2,02	2,43	2,31		2,33
Procytherideis retifera Ruggieri, 1978																							1,18									
Procytherideis subspiralis (Brady *et al*., 1874)		2,01									0,82			1,84		0,53						0,45		0,96	0,43						1,45	
Propontocypris monstrosa (G.W. Müller, 1894)																		0,67														
Propontocypris pirifera (G.W. Müller, 1894)			0,59																													
Propontocypris succinea (G.W. Müller, 1894)			0,59							1,22			2,11			0,53	0,41	3,36	0,44	0,34	0,35		1,18		7,23			0,40				
Propontocypris sp.																	0,41															
Pseudocytherura strangulata Ruggieri, 1991			0,59								0,41	0,58			0,90	0,53						0,45							0,40	0,46		
Sagmatocythere littoralis (G.W. Müller, 1894)										0,41						0,53																
Sagmatocythere napoliana (Puri, 1963)			0,59		0,88					0,41	0,82						0,41					0,45	0,59	0,96	0,43				0,40			
Sagmatocythere versicolor (G.W. Müller, 1894)										0,41	0,41	0,58			0,45	0,53		0,67	0,44	0,68	0,71		0,59						0,40			
Sclerochilus gewemulleri Dubowsky, 1939	4,00																															
Semicytherura acuminata (G.W. Müller, 1894)																											0,41					
Semicytherura aff. *S. acuminata* (G.W. Müller, 1894)										0,41																						
Semicytherura aff. *S. acuta* (G.W. Müller, 1894)																			0,44													
Semicytherura acuticostata (Sars, 1866)			0,59							0,41						0,53																
Semicytherura alifera Ruggieri, 1959																0,53																
Semicytherura biciemmei Ruggieri, 1991											0,82				0,45	0,53																
Semicytherura diafora Barbeito-Gonzalez, 1971			1,76							1,22		1,75	1,05	1,23		1,06	0,41	1,34	0,44	0,68	2,48	1,35			5,11	1,30	0,41		4,86	0,46		1,16
Semicytherura dispar (G.W. Müller, 1894)			1,76							3,25	0,82	0,58				0,53	1,22	0,67	0,44	0,68		0,45			0,85	0,65			0,81			0,58
Semicytherura aff. *S. inversa* (Seguenza, 1880)		0,67	2,35							0,41		0,58	2,11	2,45	1,81	1,59	4,08	2,01		1,01	0,35		1,18	0,96				0,81	0,40	0,46	0,36	0,58
Semicytherura mediterranea (G.W. Müller, 1894)																									0,43							
Semicytherura aff. *S. neglecta* (G.W. Müller, 1894)																													0,40			
Semicytherura aff. *S. omorfa* Barbeito-Gonzalez, 1971																				0,34		0,45										
Semicytherura paradoxa (G.W. Müller, 1894)					0,88					0,41																						
Semicytherura punctata (G.W. Müller, 1894)															0,90	0,53																
Semicytherura quadridentata (Hartmann, 1953)										0,41									0,44		0,35											
Semicytherura rara (G.W. Müller, 1894)		0,67									1,23																0,41					
Semicytherura aff. *S. rara* (G.W. Müller, 1894)										0,81		0,58									0,35											
Semicytherura reticulata (G.W. Müller, 1894)		0,67	2,35									4,68	5,26	0,61		2,12	0,82	3,36	1,31		0,35				0,85				0,40			
Semicytherura aff. *S. reticulata* (G.W. Müller, 1894)										1,22																						
Semicytherura ruggieri (Pucci, 1955)																		0,67														
Semicytherura simplex (Brady & Normann, 1889)										0,41								0,67														
Semicytherura sulcata (G.W. Müller, 1894)	4,00	0,67			1,77						0,41	0,58		1,23	0,90	1,06		0,00	1,31				1,18				0,41	0,40	0,81		0,36	
Semicytherura trachina Bonaduce *et al.*, 1976										1,22					0,45		0,41	0,67	0,87				0,59						0,40			
Semicytherura ventricosa (G.W. Müller, 1894)										2,44									0,44		0,35											
Semicytherura sp. A																									0,43							
Semicytherura spp.			0,59		0,88													0,67														
Tenedocythere prava (Baird, 1850)		0,67	0,59	2,27	1,77	10,00				0,41	1,23		1,05	0,61	1,81	0,53	0,41	0,67	0,44	0,68	1,06	0,90	0,59	0,96	0,43	0,65		0,40	0,40	0,46		
Triebelina raripila (G.W. Müller, 1894)			0,59	2,27	0,88					0,41	0,41		1,05	0,61	0,45	0,53			0,44	0,34	0,35	0,45						0,40	0,81	0,46		
Urocythereis distinguenda (Neviani, 1928)	16,00	11,41	2,35		17,70	10,00	7,14			1,22	1,65	8,19	24,21	3,07		0,53	14,29	3,36		0,68	0,71	10,31	3,55	11,54	0,43	4,55	3,70	15,79	3,24	9,72	15,94	6,40
Urocythereis margaritifera (G.W. Müller, 1894)	16,00	2,68	4,71	13,64	2,65	3,33	8,57	21,43	12,50	0,41	1,65	4,09	9,47	3,07	0,90	1,06	9,39	3,36	0,44	3,72	1,77	3,14	2,96	3,85	0,85	1,95	1,23	4,05	0,40	3,24	0,00	1,16
Urocythereis sp. 1 Barra, 1997	4,00	2,01	1,18		0,88		1,43			0,41	2,47	4,09	1,05	0,61	0,90	1,06	3,67	2,68	0,87	2,70	3,90	9,42	1,18	1,92	2,98	3,90	0,41	2,83	2,43	3,24	2,54	1,74
Xestoleberis communis G.W. Müller, 1894	12,00	8,05	11,76	6,82	9,73	3,33	8,57			8,94	10,29	3,51	1,05	3,07	12,22	7,94	2,45	3,36	10,92	14,19	10,28	8,52	0,59	11,54	9,79	9,09	1,65	8,50	6,48	7,87	3,99	3,49
Xestoleberis cypria Athersuch, 1978	4,00	1,34	1,76	2,27	2,65					4,07	7,41	1,17	1,05	1,84	9,05	10,05		1,34	2,62	0,68	0,71	0,45	0,59					0,40	0,81		0,36	
Xestoleberis dispar G.W. Müller, 1894	4,00	3,36	5,88	4,55	1,77	3,33	4,29	7,14		15,04	5,35	2,92	7,37	7,36	11,31	8,47	9,80	5,37	20,96	19,26	10,99	13,45	9,47	10,58	8,94	22,73	4,12	13,36	14,98	11,11	6,88	6,98
Xestoleberis plana G.W. Müller, 1894			1,18		0,88	3,33				4,47	0,41			1,23		1,59		1,34							0,43							

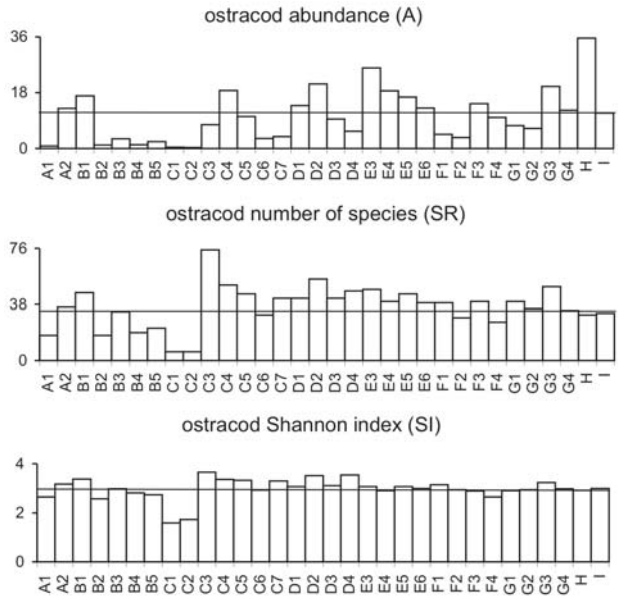

Fig. 5 - Ostracod abundance (A = number of specimens per gram of dry sediment) and diversity (SR = number of species, SI = Shannon index). Horizontal line indicates medium value.

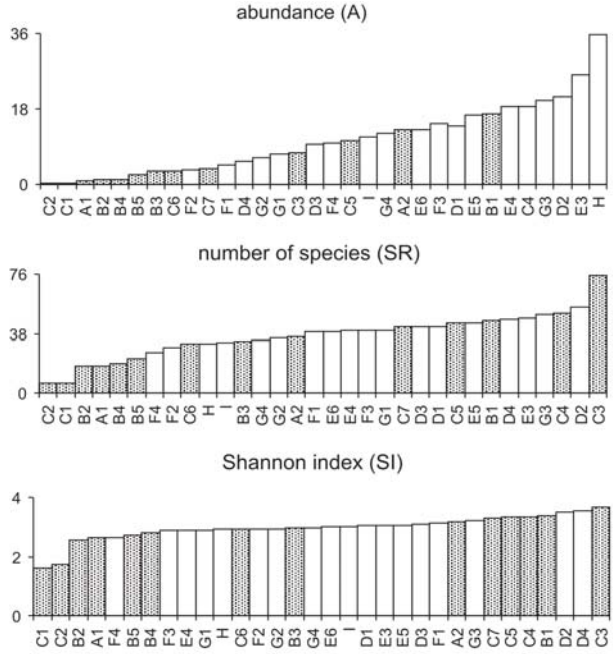

Fig. 6 - Ostracod abundance, number of species and Shannon index in increasing order. Samples from the northern and southern part of the bay are, respectively, in grey and white colour.

(200-400 specimens) are, in decreasing order of abundance, *Leptocythere levis*, *L. affinis*, *L. rubritincta*, *C. adriatica*, *Pontocythere turbida*, *Neocytherideis mülleri*, *Urocythereis* sp. 1, *U. margaritifera*, *X. cypria*, *Callistocythere* aff. *C. gilva*, *Aurila punctata*, *Cytherelloidea sordida*.

The ostracod assemblages show a wide variability both in abundance and diversity (Fig. 5). Abundance ranges from 0.33 (sample C2) to 35.61 (sample H). The lowest diversity is recorded in the sample C1 (SR = 6, SI = 1.59), the highest in the sample C3 (SR = 75, SI = 3.65).

Assemblage interpretation

Samples showing low values of abundance and diversity have been generally collected in the northern part of the bay, especially in coarse-grained sand (e.g. samples C1, C2, C6, B3, B4). In these sediments, assemblages are influenced by the relatively high-energy environment. In the southern, sheltered part of the bay, the bottom sediments are finer, and abundance and diversity values increase accordingly (Fig. 6). The most variable ecological index is abundance. Highest abundance occurs in the southernmost sample (H), which is the only collected in very fine sands.

Sample A1 is an exception to this trend, having very low abundance (A = 0.81) and low diversity (SR = 17, SI = 2.64) in fine sandy sediments. Location of this sample is about 50 m from the urbanized area, in a zone influenced by human pollution (Belmonte & Rubino, 1988). This factor seems to affect ostracod assemblages just for a few dozens of meters away the township. Indeed, the sample B1, at about 100 m from Porto Cesareo, shows rather high abundance (A = 16.96) and diversity (SR = 46, SI = 3.38).

Some well diversified assemblages have been recorded in transects C and D. These samples are located in the central-north sector of the bay, which is well connected with the open sea, with a depth of one meter at least.

The ostracod assemblages of the Porto Cesareo Lagoon comprises species which have been indicated by authors (*i.a.* G.W. Müller, 1894; Rome, 1964; Bonaduce et al., 1976; Athersuch, 1978; Yassini, 1979; Melis & Pugliese, 1985; Bonaduce et al., 1988; Athersuch et al., 1989) as phytophilous (Tab. 4) and typical of sandy bottom dwellers (Tab. 5).

Twenty-four species occur on any bottom type (Tab. 6). Few species show clear preferences for any substrate.

Phytophilous ostracod species	
Aglaiocypris rara	*Neonesidea longevaginata*
Aurila convexa	*Paracytheridea depressa*
Callistocythere littoralis	*Paradoxostoma* spp.
Cytherelloidea sordida	*Procytherideis complicata*
Cytherois frequens	*Propontocypris pirifera*
Cytherois succinea	*Sclerochilus gewemülleri*
Loxoconcha rhomboidea	*Semicytherura simplex*
Neocytherideis mülleri	*Xestoleberis cypria*
Neonesidea corpulenta	*Xestoleberis dispar*
Neonesidea formosa	*Xestoleberis plana*

Tab. 4 - Phytophilous ostracod species.

Ostracod species preferring sandy bottom	
Carinocythereis whiteii	*Loxoconcha rubritincta*
Cytheretta adriatica	*Semicytherura acuticostata*
Cytheretta subradiosa	*Semicytherura diafora*
Heterocythereis voraginosa	*Semicytherura sulcata*
Leptocythere ramosa	*Urocythereis margaritifera*

Tab. 5 - Ostracod species showing preference for sandy substrate.

Ostracod species occurring on any bottom type	
Aurila convexa	*Leptocythere levis*
Aurila punctata	*Loxoconcha stellifera*
Basslerites berchoni	*Neocytherideis mulleri*
Callistocythere aff. *C. gilva*	*Paracytheridea triquetra*
Callistocythere intricatoides	*Pontocythere turbida*
Callistocythere sp. A	*Semicytherura* aff. *S. inversa*
Carinocythereis whiteii	*Semicytherura sulcata*
Cistacythereis (H.) turbida	*Urocythereis distinguenda*
Cyprideis torosa	*Urocythereis* sp. 1
Cytherelloidea sordida	*Xestoleberis communis*
Cytheretta adriatica	*Xestoleberis cypria*
Cytheretta subradiosa	*Xestoleberis dispar*

Tab. 6 - Ostracod species recorded on any type of substrate.

Among the commonest species *A. punctata* and *A. convexa* dominate on coarser substrates. The absence of *L. gibberosa* and *U. margaritifera* in very fine sands is remarkable, as well as the rarity of *L. rubritincta* specimens on coarse-medium grained sands.

Data show that relationship between species distribution and type of bottom sediments is complex.

The ostracod assemblages are characterized by some species which are presently living exclusively or preferentially in the southern part of the Mediterranean Sea (Tabs. 7-9; Figs. 7-8). These records confirm the subtropical affinity of the Porto Cesareo Lagoon environment.

1 - *Xestoleberis cypria*	2 - *Loxoconcha pontica*	3 - *Microcythere* cf. *M. inflexa*	4 - *Aurila prasina*	5 - *Falsocythere terryi*	6 - *Callistocythere foliculosa*	7 - *Semicytherura trachina*	8 - *Urocythereis distinguenda*	9 - *Semicytherura* aff. *S. inversa*	10 - "*Elofsonia*" *minima*	Locality	References
+	+		+	+	+					Tripoli	Barra, 1997
+							+			Cyprus	Athersuch, 1979
	+		+	+	+					Tripoli	Bonaduce & Pugliese, 1975
	+	+	+							Naxos	Barbeito-Gonzalez, 1971
			+	+	+	+	+	+	+	Southern Adriatic Sea	Bonaduce *et al.*, 1976
			+			+		+		Gulf of Taranto	Bonaduce *et al.*, 1982
			+							Gulf of Gabès	Lachenal, 1989
				+	+					Egadi Islands	Melis & Pugliese, 1985
						+				Tunisian Shelf	Bonaduce *et al.*, 1988

Tab. 7 - References of "warm" ostracod species distribution reported in Fig. 7.

1 - *Semicytherura simplex*	2 - *Semicytherura ventricosa*	3 - *Paradoxostoma angustum*	Locality	References
		+	Malta Isle	Bonaduce & Masoli, 1970
		+	Saint George Bay	Bonaduce *et al*., 1970
+	+		Naxos	Barbeito-Gonzalez, 1971
+			Egadi Islands	Melis & Pugliese, 1985
+	+	+	Gulf of Naples	G.W. Müller, 1894
		+	Southern Adriatic Sea	Bonaduce *et al.*, 1976

Tab. 8 - References of "warm" ostracod species distribution reported in Fig. 8.

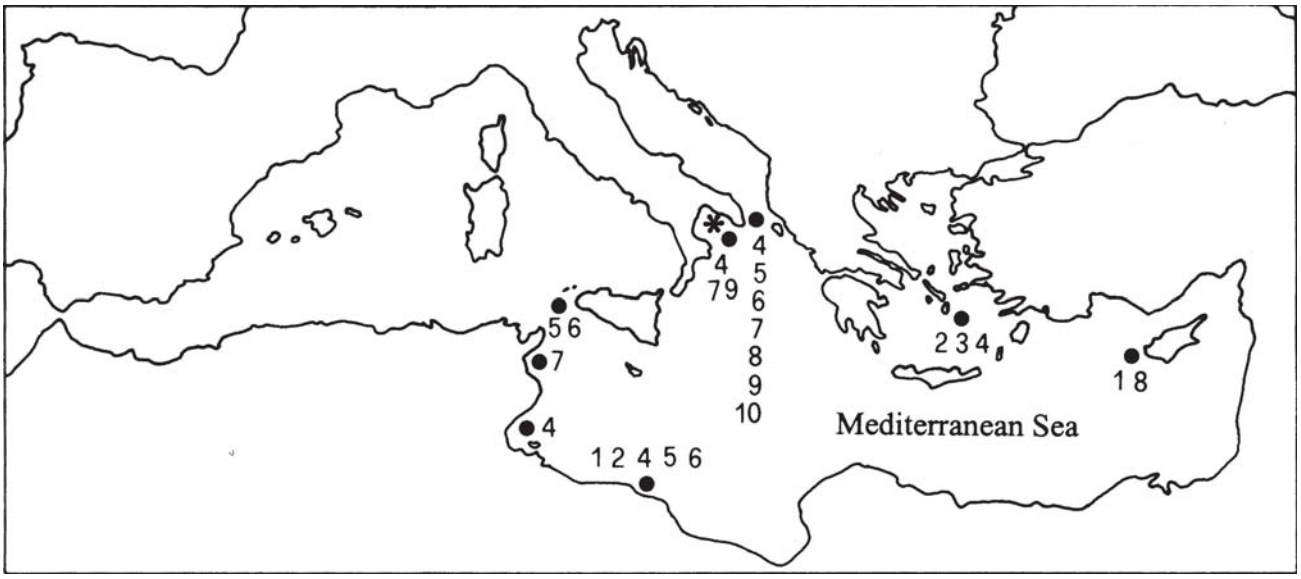

Fig. 7 - Distribution of "warm" ostracod species listed in Tab. 7, occurring exclusively in the central and southern Mediterranean, not recorded in the central Tyrrhenian sea.

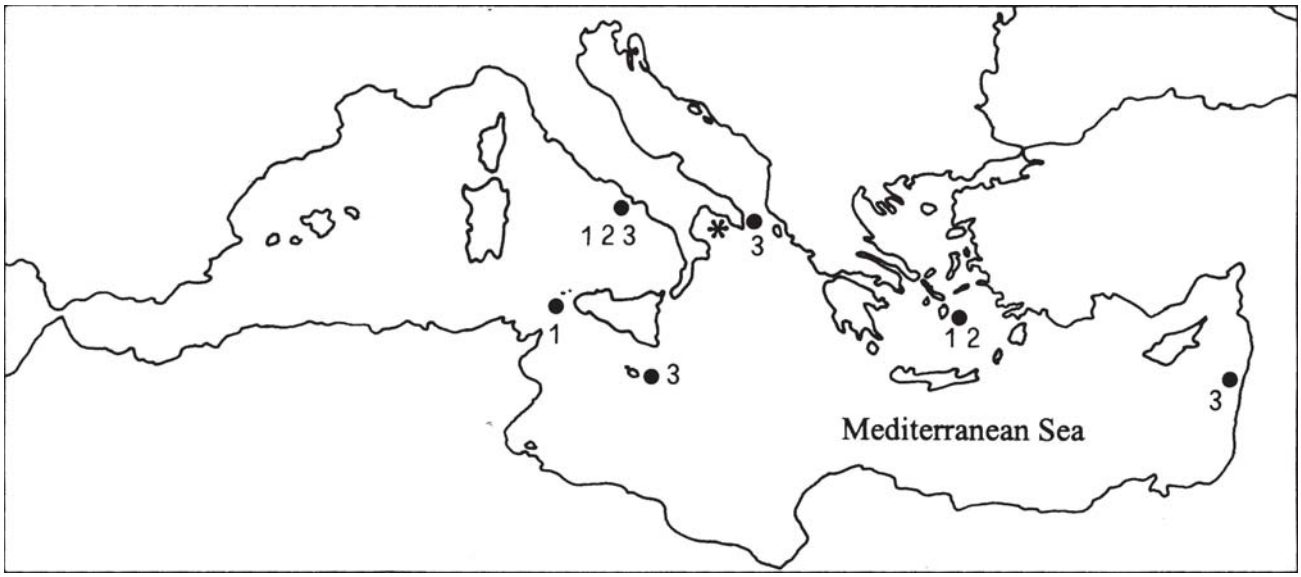

Fig. 8 - Distribution of "warm" ostracod species listed in Tab. 8, occurring exclusively in the central and southern Mediterranean, including the central Tyrrhenian sea.

Few rare species, that is *M. (M.) fulva*, *E. curta*, *M. vitrea*, *M.* (*T.*) *angulosa*, and *S. acuminata* are generally reported as taxa typical of not very shallow (mainly lower infralittoral-circalittoral) waters (*i.a.* Bonaduce et al. 1976, 1977, 1979, 1988; Yassini, 1979). It can be inferred that species characteristic of higher water depth, representing a negligible fraction of the assemblages, are able to survive in a very shallow, sheltered marine environment. Our data suggest that the coexistence, in a fossil assemblage, of upper infralittoral and infra-circalittoral forms does not necessarily indicate that shallower taxa have been displaced in a deeper environment. The occurrence of scattered specimens of these relatively "deep" species confirms that paleoecological investigations should be based on assemblage analysis, including state of preservation and the presence of different moults.

For 13 species we reported the first record in the Ionian Sea (Tab. 10).

A small number of species (*Callistocythere* aff. *C. gilva*, *Callistocythere* aff. *C. rastrifera*, *Callistocythere* sp. A, *Cytheroma* aff. *C. karadagiensis*, *Semicytherura*

Costa batei	*Heterocythereis voraginosa*	*Neonesidea corpulenta*	*Microcytherura (M.) fulva*	*Caudites calceolatus*	*Triebelina raripila*	*Neonesidea longevaginata*	*Neonesidea formosa*	*Procytherideis complicata*	*Tenedocythere prava*	Locality	References
+	+	+	+	+	+	+	+	+	+	Southern Adriatic Sea	Bonaduce *et al.*, 1976
+	+	+	+	+	+	+		+	+	Tripoli	Bonaduce & Pugliese, 1975
+	+	+	+	+	+	+		+	+	Tripoli	Barra, 1997
+		+			+	+		+	+	Tunisian Shelf	Bonaduce *et al.*, 1988
+		+		+			+	+	+	Gulf of Taranto	Bonaduce *et al.*, 1982
+		+	+			+	+	+	+	Egadi Islands	Melis & Pugliese, 1985
+				+		+		+		Gulf of Gabès	Bonaduce & Masoli, 1968
+	+							+		Northern Adriatic Sea	Bonaduce *et al.*, 1976
+		+				+	+			Malta Isle	Bonaduce & Masoli, 1970
+			+			+	+			Saint George Bay	Bonaduce *et al.*, 1970
+		+	+	+	+	+				Naxos	Barbeito-Gonzalez, 1971
+			+			+				Bay of Bou Ismail	Yassini, 1979
	+									Cyprus	Athersuch, 1979
		+			+	+	+			Gulf of Naples	G.W. Müller, 1894
		+				+				Monaco	Rome, 1964
		+	+	+	+		+			Tunisian Shelf	Bonaduce *et al.*, 1979
				+	+					Limski Canal	Uffenorde, 1972
							+		+	Northern Tyrrhenian	Bonaduce *et al.*, 1977
							+		+	Southern Spain	Aranky, 1987
								+	+	Saline Gulf	Arbulla *et al.*, 2001

Tab. 9 - Distribution data and references of ten ostracod species living preferentially (not exclusively) in the central and southern Mediterranean.

Species	Locality	References
Cytherois aff. *C. fischeri*	Limski Kanal	Uffenorde, 1972
Cytherois joachinoi	Sarno Plain (Pleist.)	Barra, 1992
Cytherois pontica	Black Sea	Marinov, 1966
Cytheroma cf. *C. karadagiensis*	Naxos	Barbeito-Gonzalez, 1971
	Limski Kanal	Uffenorde, 1972
"Elofsonia" minima	Adriatic Sea	Bonaduce *et al.*, 1976
Microcythere cf. *M. inflexa*	Naxos	Barbeito-Gonzalez, 1971
Loxoconcha pontica	Naxos	Barbeito-Gonzalez, 1971
	Tripoli	Bonaduce & Pugliese, 1975
		Barra, 1997
Paracytheridea triquetra	Limski Kanal	Uffenorde, 1972
	Adriatic Sea	Bonaduce *et al.*, 1976
Paradoxostoma aff. *P. ponticum*	Naxos	Barbeito-Gonzalez, 1971
Sclerochilus gewemülleri	Gulf of Naples	G. W. Müller, 1894
	Monaco	Rome, 1964
	Aegean Sea	Puri *et al.*, 1969
	Sea of Candia	Puri *et al.*, 1969
	Naxos	Barbeito-Gonzalez, 1971
	Adriatic Sea	Bonaduce *et al.*, 1976
	Egadi Islands	Melis & Pugliese, 1985
Urocythereis distinguenda	Adriatic Sea	Bonaduce *et al.*, 1976
	Cyprus	Athersuch, 1979
Urocythereis sp. 1	Tripoli	Bonaduce & Pugliese, 1975
		Athersuch, 1977
		Barra, 1997
	Saline Gulf	Arbulla *et al.*, 2001
Xestoleberis cypria	Cyprus	Athersuch, 1979
	Tripoli	Barra, 1997

Tab. 10 - List of ostracod species never recorded previously in the Ionian Sea.

aff. *S. inversa*, *Urocythereis* sp. 1) left in open nomenclature, are probably undescribed species and need further investigations.

CONCLUSIONS

The study of foraminiferal and ostracod assemblages evidenced distribution trends of the benthic microfaunas of the Porto Cesareo Lagoon.

Assemblages are characteristic of shallow warm water. The tropical/subtropical affinity of the inlet, previously assessed through the findings of algae, sabellid, echinoderm, gastropod, and sponge warm water species, is confirmed by the dominance of the foraminifer *Peneroplis pertusus*, the presence of *P. planatus*, *Spirolina acicularis* and *Glabratella patelliformis*. Numerous ostracod species show a geographical distribution restricted to the southern areas of the Mediterranean Sea.

Both foraminifers and ostracods are represented by species living on sandy substrate and phytophilous species. Epiphyte taxa prevail in the foraminifer assemblages.

Euryhaline foraminifers (*Ammonia beccarii*, *Haynesina depressula*) are relatively common in the southern part of the lagoon, probably due to karstic freshwater supply. Ostracod distribution in the lagoon seems not influenced by salinity variations, and testifies a fully marine environment.

The presence of *Ammonia gaimardi* and the low values of ostracod abundance and diversity in some samples located near the township of Porto Cesareo can indicate a certain influence of human pollution.

At the mouth of the lagoon, on sediments deposited in high energy waters, foraminifers are large, thick and frequently abraded; ostracod assemblages show low abundance and diversity.

The lack of abraded ostracod shells is probably due to their fragility. Actually, ostracod valves, compared with foraminifer tests, can be easily broken in high energy waters or dissolved within a short time in waters undersaturated in calcium carbonate. Some high-diversity ostracod assemblages have been recorded in the portion of the lagoon well connected to the sea, while the highest abundance was mainly recorded in the southern, sheltered sector.

Foraminifers have been divided in three groups: 1) species of open zone, 2) species of sheltered zone, and 3) ubiquitous species.

A little number of foraminifer and ostracod species, generally reported from deeper waters, occurs in the lagoon. Present data seem to demonstrate that these taxa are able to survive in the calm waters of the lagoon, even if the environmental parameters are probably not ideal for these species.

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