

BENTHIC FORAMINIFERAL ASSEMBLAGES FROM CORE TOPS OF THE SOUTHERN
ADRIATIC AND IONIAN SEAS. A QUANTITATIVE STUDY OF EASTERN
MEDITERRANEAN BATHYAL FAUNAS

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The present study is based on foraminiferal assemblages investigated in their composition, density, diversity and degree of specialization. It is part of Progetto Finalizzato OCEANOGRAFIA of CNR, Italy, and is funded through contract 79.01403.88.

Cores investigated are 33 overall, but 12 samples were discarded due to the presence of allochthonous thanatocoenoses in abundance.

Cores from the southern Adriatic (depth range 1000-1300 m approximately) and from the northern Ionian Sea (depth range 1400-1950) are from the core collection of Laboratorio di Geologia Marina of CNR, Bologna. Cores from the southern Calabrian Ridge (Cobblestone Area 4, depth range 3600-3800 m approximately) and from the western Mediterranean Ridge (Cobblestone Area 3, depth range 3000-3200 m) were collected in 1978 with the R/V EASTWARD. In the latter case, we analyzed tops of trigger cores precisely located with reference to the bottom topography that is very irregular with ridges, troughs and perched basins in Area 4; plateaus, craters and domes in Area 3. From each area we analyzed three cores from elevated areas (plateaus, domes), and three cores from basin floors. Also investigated were two core tops from near the base of the Malta Escarpment.

Table 1 plots core location, and the numerical values obtained from our study.

Faunas from the lower Adriatic are characterized by high percentages of Hoeglundina elegans, Uvigerina mediterranea and Pyrgo depressa.

	CORE	WATER DEPTH (m)	LAT.N	LONG.E	(A)	(B)	(C)	(D)	(E)
	IN 68-5	1030	41°14'.0	18°32'.0	42	88	2.09	21.1	13.7
	IN 68-6	1196	41°18'.8	18°16'.0	40	94	2.35	19.8	18.4
	IN 68-7	1225	41°56'.0	18°14'.1	48	425	8.85	17.9	54.3
	IN 68-8	1273	42°01'.5	17°57'.0	29	78	2.70	14.8	17.2
	IN 68-9	1234	41°47'.5	17°54'.5	18	47	2.60	10.2	9.3
	JOTI 72-58	1614	37°45'.1	15°52'.5	32	75	2.30	16.5	10.16
	JOTI 73-52	1837	39°39'.0	17°33'.6	22	53	2.4	12.1	9.0
	35462 / 1	3431	36°05'.7	15°44'.2	32	67	2.1	17.0	3.9
	CS 76-10	3225	36°19'.9	16°34'.3	23	190	8.3	9.6	23.0
AREA 4	6	3613	36°14'.9	17°04'.9	-	-	-	-	-
	10	3832	36°14'.7	17°46'.1	20	54	2.6	10.96	17.6
	40	3630	36°15'.2	17°42'.3	4	99	24.7	1.5	7.6
	42	3806	36°16'.3	17°43'.4	10	18	1.8	7.16	1.1
	44	3706	36°17'.3	17°43'.3	-	-	-	-	-
AREA 3	45	3692	36°16'.2	17°43'.5	2	102	51.0	0.49	6.7
	23	3001	35°50'.7	20°50'.4	4	229	57.2	1.27	11.8
	28	3150	35°51'.5	20°47'.6	3	121	40.3	0.96	6.1
	29	2866	35°50'.1	20°49'.6	3	123	41.0	0.95	17.1
	30	2864	35°50'.5	20°50'.7	4	227	56.7	1.27	17.7
	32	3243	35°51'.0	20°52'.1	6	117	19.5	2.41	9.9
	39	3021	35°52'.8	20°47'.6	2	108	54.0	0.49	8.8

TABLE 1 - Location, water depth and numerical data on core tops analyzed from the southern Adriatic and Ionian Seas: (A) number of species, (B) number of specimens, (C) diversity index, (D) diversity degree, (E) B foraminiferal number.

Assemblages from the northern Ionian Sea have a different composition, with high percentages of Nonion padanum and of the deep bathyal species Nonion pompilioides.

Results of the present study support the conclusions reached by Cita and Zocchi (1978) and by Massiotta et al., (1976), showing that foraminiferal assemblages from the lower mesobathyal zone (deeper than 2500 m) of the Ionian Sea are are scarce (B foraminiferal number consistently less than 10) and poorly diversified (2 to 6 species present). Relatively high values of faunal density recorded in tops of plateau cores (of the Cobblestone Project) are accounted to winnowing effects.

Unlike faunal density, faunal diversity and degree of specialization (= percentage abundance of the five more frequent species), parameters which appear to be dependent from water depth, faunal composition appears to be totally independent from bathymetry.

Foraminiferal faunas from Cobblestone Area 4 entirely consist of imperforated tests, with the species Articulina tubulosa and Miliolinella subrotunda being the best represented. These two species are absent altogether in Cobblestone Area 3, where the Glomospira charoides - Anomalinella minima biofacies dominates the assemblages. Differences in faunal composition cannot be accounted to the mineralogical composition of the substratum: indeed, X-ray analysis revealed a substantial uniformity, with the Area 4 cores - which yield the imperforated foraminiferal fauna - being lower in carbonates than the Area 3 cores. According to researches in progress by K. Kitazato on nutritional habits of benthic foraminifers, the difference might be attributed to the fact that imperforated foraminifers - unlike those with a perforated calcitic test, or those with an arenaceous test - live on organic matter, eventually decomposed. The occurrence of deep-sea Miliolids exclusively in the southern Calabrian Ridge Site should be accounted to the influence of cold water masses originating in the northern Adriatic, probably rich in organic debris.

REFERENCES

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