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BENTHIC POLYCHAETOUS ANNELIDS OF OGNINA BAY  
(EASTERN SICILY, ITALY)

**Riassunto** — *Anellidi Policheti bentonici della baia di Ognina (Sicilia orientale, Italia).*

Gli AA. hanno studiato gli Anellidi Policheti della baia di Ognina riscontrando 115 specie in 43 stazioni distribuite da 30 cm a 112 m di profondità.

Sono stati calcolati l'indice di Shannon ed i valori di ridondanza ed equitabilità. Sono state riconosciute 5 biocenosi principali ed è stata disegnata una carta delle biocenosi. Non è stato riscontrato alcun segno di inquinamento.

**Abstract** — The Polychaetous Annelids of Ognina bay were studied. 115 species, collected in 43 stations from 30 cm to 112 m were found.

Shannon's index, redundancy, and equitability value were calculated. Five major biocenoses were recognized and a biocenotic map was drawn. No evidence of pollution was found.

**Key words** — Polychaetes, Biocenoses, Mediterranean sea.

Benthic Polychaetous Annelids of Ognina Bay, near Catania (Eastern Sicily) (Fig. 1) were studied.

The bottom is heterogeneous: close to the coast there is a slightly sloping lavic shelf which extends for 20 meters, reaching the depth of 6 m; thereafter the gradient suddenly increases sloping down to 65 m; at its base soft bottoms begin, which gently, reach -112 m.

On hard bottom 28 stations (1-28) were sampled, scraping 25 × 25 cm surfaces; on soft bottoms 50 dm<sup>3</sup> of substratum in each of 14 stations (29-43) were collected by a Charcot-Picard dredger.

The progressive numeration of the stations relates to the increasing bathymetry. The samples were collected in Autumn and in Spring. 115 species (Tab. 1), were identified, mostly collected, also quantita-

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TAB. 1 - Species distribution and their ecological guild of appartenance (Picard, 1965).

SPECIES	Mesolit.	Upper Infralit.	Middle Infralit.	Lower Infralit.	Circalit. Hard. bott.	Circalit. soft bott.	Ecological guild
1) Aphroditidae sp.			2		1		
2) Laetmonice hystrix (SAVIGNY, 1820)						2	excl. DC
3) Pontogenia chrysocoma (ROULE, 1906)		1					
4) Eupanthalis kinbergi MC INTOSH, 1876						2	excl. DE
5) Adyte sp.			1				
6) Harmothoë areolata GRUBE, 1860		1					
7) Harmothoë sp.		1	1	1			
8) Harmothoë spinifera (EHLERS, 1864)		1			1		Sspr
9) Lepidasthenia maculata (GRUBE, 1840)						1	excl. VTC
10) Lepidonotus clava (MONTAGU, 1808)	16	13		1			excl. AP
11) Polynoë scolopendrina SAVIGNY, 1822					2		
12) Euphrosyne foliosa AUD. & M. EDW., 1833	3	3					
13) Sthenelais boa (JOHNSTON, 1833)					3		SM
14) Sthenolepis yhleni (MALMGREN, 1867)					2	1	SM
15) Chrysopetalum debile (GRUBE, 1855)						1	excl. AP
16) Anaitides madeirensis (LANGERHANS, 1880)			2				Sspr
17) Eulalia sp.					1		
18) Eulalia viridis (LINNAEUS, 1767)	6						Cav
19) Eumida sanguinea (OERSTED, 1843)		2					
20) Cenetyllis nana (SAINT-JOSEPH, 1906)		1			1		excl. AP
21) Paranaitis pusilla (CLAPAREDE, 1868)		1					
22) Phyllodoce bruneo-viridis SAINT-JOSEPH, 1898				1			
23) Phyllodoce sp.			2		1		excl. AP
24) Sige macroceros (GRUBE, 1860)	1	2					
25) Amblyosyllis formosa (CLAPAREDE, 1863)	1				1		
26) Autolytus prolifer (MULLER, 1788)			2		5		
27) Autolytus sp.			3		2		Cav
28) Eurysyllis tuberculata EHLERS, 1864		1					excl. AP
29) Eusyllis assimilis MARENZELLER, 1875	1	1					
30) Haplosyllis spongicola (GRUBE, 1855)		2					
31) Odontosyllis ctenostoma CLAPAREDE, 1868			2				
32) Odontosyllis dugesiana CLAPAREDE, 1864		6	1				
33) Odontosyllis gibba CLAPAREDE, 1863			1				

SPECIES	Mesolit.	Upper Infralit.	Middle Infralit.	Lower Infralit.	Circalit. Hard. bott.	Circalit. soft bott.	Ecological guild
34) Sphaerosyllis hystrix (CLAPAREDE, 1863)			1			1	SM
35) Syllis armillaris MULLER, 1771	37	18	2		6	1	Lre sd
36) Syllis cirropunctata MICHEL, 1909	1	7	5				E ± P P ± C
37) Syllis cornuta RATHKE, 1843			1			3	SM
38) Syllis gracilis GRUBE, 1840	1	3					Cav
39) Syllis hyalina GRUBE, 1863	9	5	2				excl. AP
40) Syllis krohnii EHLERS, 1864	1	3					Lre
41) Syllis nigricirris GRUBE, 1863	3	1					
42) Syllis prolifera (KROHN, 1852)	54	31			2		excl. AP
43) Syllis sp.				1			
44) Syllis variegata GRUBE, 1860	36	7	3		3		Lre
45) Syllis vittata GRUBE, 1840	9	3	2				
46) Trypanosyllis zebra GRUBE, 1860	4	4					Lre
47) Ceratonereis costae (GRUBE, 1840)	2	6	1		1	1	Sspr
48) Eunereis sp.	1						
49) Laeonereis glauca (CLAPAREDE, 1870)		3		1	2		
50) Nereidae sp.	1						
51) Nereis diversicolor MULLER, 1776		1					
52) Nereis rava EHLERS, 1868		3	3	1	11		Lre
53) Perinereis cultrifera (GRUBE, 1840)	50	11	1				excl. AP
54) Platynereis dumerilii (AUD. & M. EDW., 1833)	89	63	24				excl. AP
55) Aglaophamus rubella (MICHAELSEN, 1897)						3	Gavel
56) Nephtys hystrixis (Mc INTOSH, 1900)						1	excl. VTC
57) Nephtys incisa incisa (MALMGREN, 1865)						2	pref. DE
58) Nephtys sp.						4	
59) Glycera rouxii AUD. & M. EDW., 1833						19	Vas. Tol.
60) Glycera tessellata tessellata GRUBE, 1863					1	1	Sspr
61) Goniada maculata OERSTED, 1843						11	excl. VTC
62) Eunice harassii AUD. & M. EDW., 1843	1			1			Lre sd
63) Eunice pennata (MULLER, 1776)				1			
64) Eunice torquata QUATREFAGES, 1875					2		
65) Eunice vittata (DELLE CHIAJE, 1828)		1	1	3	11	7	excl. RIPC
66) Lysidice collaris GRUBE, 1870	2	1	1				

SPECIES	Mesolit.	Upper Infralit.	Middle Infralit.	Lower Infralit.	Circalit. Hard. bott.	Circalit. soft both	Ecological guild
67) <i>Lysidice ninetta</i> AUD. & M. EDW., 1833		3				1	Lre sd
68) <i>Nematoneis unicornis</i> (GRUBE, 1840)					1	1	SM
69) <i>Palola siciliensis</i> (GRUBE, 1840)	1	14	1		1		excl. C
70) <i>Hyalinoecia</i> sp.						1	
71) <i>Hyalinoecia tubicola</i> (MULLER, 1776)						118	pref. DC
72) <i>Onuphis eremita</i> AUD. & M. EDW. 1776					1		excl. SFBC
73) <i>Lumbrineris coccinea</i> (RENIER, 1804)	15	23	4	2		1	excl. RIPC
74) <i>Lumbrineris fragilis</i> (MULLER, 1776)						3	Vas. Str.
75) <i>Lumbrineris funchalensis</i> (KINBERG, 1865)	5	1		1	1		Lre sd
76) <i>Lumbrineris gracilis</i> (EHLERS, 1868)	2				1	1	Lre
77) <i>Lumbrineris latreillii</i> AUD. & M. EDW., 1834						4	SM
78) <i>Lumbrineris</i> sp.		1	1			3	
79) <i>Ninoe kinbergi</i> EHLERS, 1887						1	
80) <i>Arabella geniculata</i> (CLAPAREDE, 1868)			1			3	Gravel
81) <i>Drilonereis filum</i> (CLAPAREDE, 1868)						2	Lre
82) <i>Dorvillea rubrovittata</i> (GRUBE, 1855)			1			1	
83) <i>Spiophanes bombyx</i> (CLAPAREDE, 1870)					1		excl. SFBC
84) <i>Protoaricia oerstedii</i> (CLAPAREDE, 1864)	2	1					
85) <i>Chaetopteridae</i> sp.						1	
86) <i>Chaetozone setosa</i> MALMGREN, 1867						4	Vas. Str.
87) <i>Cirriformia tentaculata</i> (MONTAGU, 1808)	1	1				7	
88) <i>Tharyx marioni</i> (SAINT-JOSEPH, 1894)						6	
89) <i>Polyopthalmus pictus</i> (DUJARDIN, 1839)	2	7	4				excl. AP
90) <i>Dasybranchus caducus</i> (GRUBE, 1846)		1	4				Sspr
91) <i>Notomastus latericeus</i> SARS, 1851					1	47	SM
92) <i>Praxillella gracilis</i> (SARS, 1861)						6	
93) <i>Owenia fusiformis</i> DELLE CHIAJE, 1841						1	Sab. Tol.
94) <i>Owenidae</i> sp.						1	
95) <i>Sternaspis scutata</i> (RENIER, 1807)						15	excl. VTC
96) <i>Amage adpersa</i> (GRUBE, 1870)		3				62	Mixt
97) <i>Ampharete acutifrons</i> (GRUBE, 1870)						3	
98) <i>Melinna palmata</i> GRUBE, 1870						1	SM
99) <i>Terebellides stroemi</i> SARS, 1835						1	Vas. Tol.

SPECIES	Mesolit.	Upper Infralit.	Middle Infralit.	Lower Infralit.	Circalit. Hard. bott.	Circalit. soft both	Ecological guild
100) Amphirite rubra (Risso, 1828)		1					
101) Eupolymnia nebulosa (MONTAGU, 1818)			2		4		Lre
102) Lanice conchylega (PALLAS, 1766)			4				Sspr
103) Nicolea venustula (MONTAGU, 1818)	2	8	20	4	4		excl. AP
104) Pista cristata (MULLER, 1776)					2		Vas. Tol.
105) Pista unibranchia DAY, 1963				1		1	
106) Polycirrus aurantiacus GRUBE, 1860					2		
107) Polycirrus sp						1	Sspr
108) Thelepus cincinnatus (FABRICIUS, 1870)			1			1	
109) Thelepus triserialis (GRUBE, 1855)					2		
110) Amphyglena mediterranea (LEYDIG, 1851)	1	17	7				excl. AP
111) Bispira mariae Lo BIANCO, 1893					1		
112) Branchiomma bombyx (DALYELL, 1853)						1	
113) Branchiomma lucullana (DELLE CHIAJE, 1828)		3	2		1		excl. AP
114) Chone acustica (CLAPAREDE, 1868)						1	
115) Demonax brachychona (CLAPAREDE, 1870)						1	
116) Euchone rosea LANGERHANS, 1880						1	
117) Hypsicomus sthichophthalmos (GRUBE, 1863)					1	1	
118) Laonome (Euratella) salmacidis CLAP., 1868			1				Mixt
119) Megalomma vesiculosum (MONTAGU, 1808)						1	Sspr
120) Pseudopotamilla reniformis BUSH, 1904	3	3				3	Cav
121) Sabellidae sp.				1			
122) Ditrupa arietina (MULLER, 1776)					12	218	excl. DC
123) Filogranula sp.			2		4		
124) Hydroides elegans (HASWELL, 1883)		1					
125) Hydroides pseudouncinata ZIBROWIUS, 1971		1		2			
126) Pomatoceros triqueter (LINNAEUS, 1880)						4	
127) Serpula concharum LANGERHANS, 1880		3	2				
128) Serpula sp.				2		3	
129) Serpula vermicularis LINNAEUS, 1767		3					excl. C
130) Spirobranchus polytrema (PHILIPPI, 1844)	2	20					CR
131) Vermiliopsis infundibulum (PHILIPPI, 1844)				1			excl. DC
132) Vermiliopsis labiata (COSTA, 1861)				1	1		
133) Vermiliopsis striaticeps (GRUBE, 1862)		1					



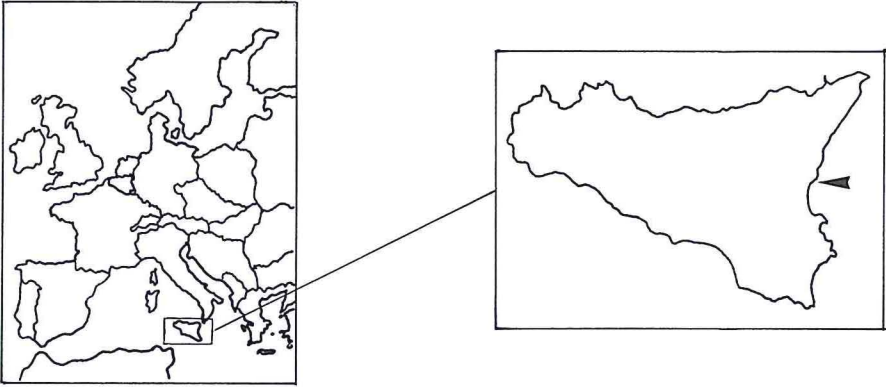


Fig. 1 - Sampling stations.

tively, from the highest stations of the rocky bottom and in the soft ones; less rich and varied were the stations of intermediate depth (Fig. 2a).

On rocky bottom *Platynereis dumerilii* was the dominant species (176 individuals), followed by *Syllis prolifera* (87 individuals), *Syllis armillaris* (63), *Perinereis cultrifera* (62), *Amphiglena mediterranea* (25).

On soft bottoms there was a bloom of *Ditrupa arietina* (218 individuals), but in other stations we found a rich thanatocenosis of this species; also abundant were *Amage adspersa* (62 individuals), *Notomastus latericeus* (47) and *Sternaspis scutata* (15). Seasonal differences were found, with a higher number of species in spring (93) than in autumn (85); nearly 50% species of found were present in both seasons (among them there were the characteristic species of recognized biocoenoses). The species with a seasonal occurrence (38 in spring and 27 in autumn) were always present with a low number of individuals.

For each station Shannon's diversity index, equitability value and redundancy were calculated; the data were above the average of the surrounding areas (Fig. 2b).

Five major biocoenoses were recognized, related to depth and substrate type, and a biocoenotic map (scale 1 to 15.000), following MEINESZ *et al.*, 1983 was drawn. (Fig. 3).

In the highest fringe, down to 6 m, we found the «assemblage with predominant photophilic algae» with *Platynereis dumerilii*, *Syllis prolifera*, *S. hyalina*, *Nicolea venustula*, *Amphiglena mediterranea*, *Lepidonotus clava*, *Polyophthalmus pictus*; below down to about 40 m, the «assemblages with predominant hemiphotophilic soft algae in low

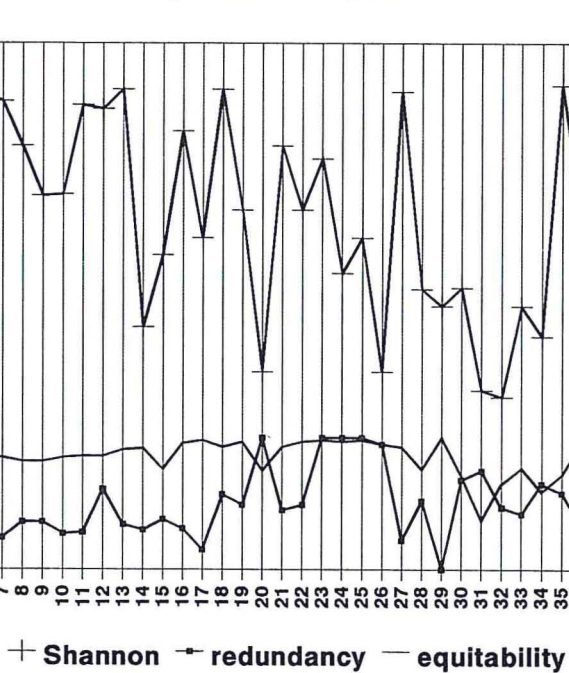
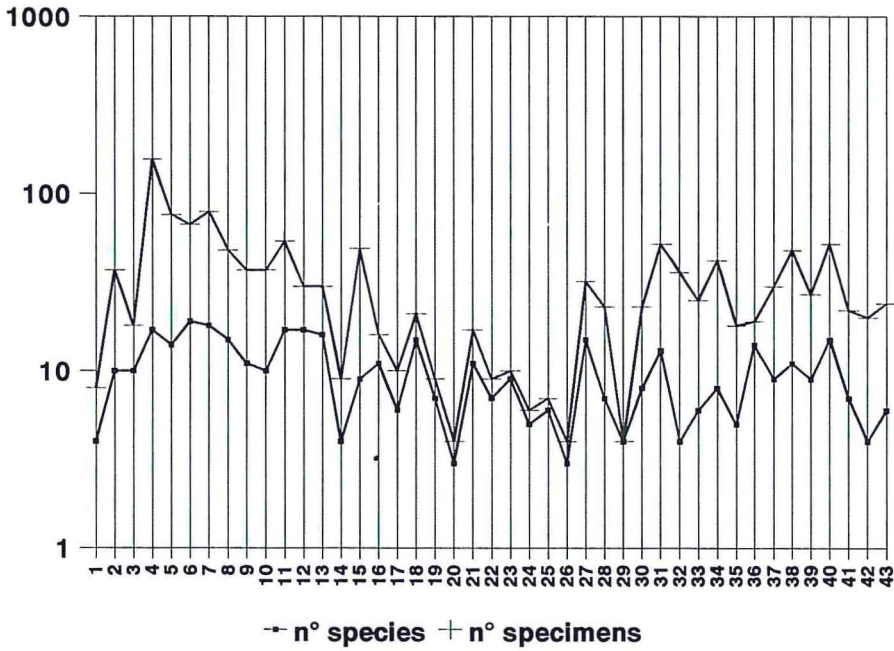


Fig. 2 - a, species and specimens distribution. - b, biological indexes.











-  Assemblages with predominant photophilic algae.
-  Assemblages with predominant hemiphotophilic soft algae in low roughness.
-  Shelf-edge detritic assemblages/Muddy detritic assemblages.
-  Coralligenous assemblages.
-  Shelf-edge detritic assemblages/Coarse sands and fine gravels under bottom currents.
-  Shelf-edge detritic assemblages.
-  Shelf-edge detritic assemblages/Terrigenous mud-shelf assemblages.
-  Terrigenous mud-shelf assemblages.

Fig. 3 - Biocenotic map.

roughness» with *Eunice vittata*, *Lumbrineris coccinea*; in the deepest fringe, down to 70 m we found the «coralligenous assemblage» with *Palola siciliensis* and *Serpula vermicularis*.

On soft bottoms, in N-O zone there is a facies of transition between DC and DE, marked by *Laetmonice hystrix* and *Eupanthalis kinbergi*; another facies of transition between DC and SFCF was found, on the ground of granulometric analysis and of the species present there.

The S-O zone is occupied by DC with *Ditrupa arietina*, *Vermiliopsis*



*infundibulum* and *Laetmonice hystrix*; while the S-E zone is characterized by the presence of VTC with *Sternaspis scutata*, *Goniada maculata* and *Lepidasthenia maculata*; between these two typical biocoenoses a facies of transition is intercalated.

This study shows that in Ognina bay the biocoenoses are well defined, not obviously polluted, as shown by the absence of species indicative of environmental problems and confirmed by the values of the utilized indexes.

#### REFERENCE

- BELLAN-SANTINI D. (1969) - Contribution a l'étude des peuplements infralittoraux sur substrat rocheux. *Rec. Trav. Stat. Mar. Endoume*. Bull. N. 63, Fasc. N. 47.
- MEINESZ *et al.* (1983) - Normalisation des symboles pour la représentation et la cartographie des biocénoses benthiques littorales de Méditerranée. *Ann. Inst. Océanogr.*, Paris 159 (2).
- PERES J.M., PICARD J. (1964) - Nouveau manuel de bionomie benthique de la mer Méditerranée. *Rec. Trav. Stat. Mar. Endoume.* Bull. N. 31, Fasc. N. 47.
- PICARD J. (1965) - Recherches qualitatives sur les biocoenoses marines des substrats meubles dragables de la région marseillaise. *Rec. Trav. Stat. Mar. Endoume*. Bull. N. 36, Fasc. N. 52.

#### ABBREVIATIONS

- Ap = Assemblages with predominant photophilic soft algae.
- C = Coralligenous assemblage.
- Cav = Cavity species.
- CR = Calcifying species.
- DC = Coastal detritic assemblages.
- DE = Muddy detritic assemblages.
- E ± P - P ± C = ± Clean waters, photophilic ± roughness.
- excl = Exclusive species.
- Gravel = Gravel bottoms species.
- Lre = Large ecological distribution.
- Lre sd = Large ecological distribution on hard bottoms.
- Mixt = Mixed soft bottoms species.
- pref = Preferential species.
- RIPC = Assemblages with predominant hemiphotophilic soft algae in low roughness.
- Sab Toll = Sandy bottoms tolerants species.
- SFBC = Fine sand well classed.
- SM = Soft bottoms.
- Sspr = Species without a clear ecological meaning.

Vas Str = Muddy bottoms characteristic species.  
Vas Toll = Muddy bottoms tolerant species.  
VTC = Terrigenous mud-shelf assemblages.

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