

Updated checklist of benthic fauna and flora in nearshore waters off Yumurtalık, Turkey (Mediterranean Sea)

Erhan Mutlu

mutlu@ims.metu.edu.tr
Institute of Marine Sciences P.O. Box 28, Erdemli, 33731, Turkey

Abstract- Three cruises were conducted to determine benthic fauna and flora in a coastal (1- 40 m depth) small area off Yumurtalık (Adana-Turkey) in the Eastern Mediterranean Sea in July 1999 (16 stations), February (2 dredge lines and 6 grab stations) and May 2001 (2 dredge lines and 7 grab stations). Nine macrophytic benthic species and 76 faunal species (1 Nemertini, 40 Polychaete, 17 Crustacea, 15 Mollusca, 2 Echinodermata and 1 Cephalochordata) were recorded in July 1999. In February 2001, 11 epiflora/faunal species were found and a total of 50 species of infauna was composed of 2 Mollusca, 14 Crustacea, 33 Polychaete and 1 Nemertini. In May 2001, 18 epiflora/faunal species were found. A total of 84 species of infauna were recorded. In May 2001, a cumacean species (*Bodotria nalanae* new sp. Mutlu and Watling, 2002) new to science was found.

Keywords- benthic fauna, flora, NE Mediterranean

Introduction

Compared with Atlantic, the Mediterranean marine communities have more species with generally smaller individuals having a shorter life cycle (Bellan-Santini et al 1994). The oligotrophic characters of the eastern Mediterranean, particularly Levantine Basin, result in low diversity of species as compared to that of the western Mediterranean. However, the influx of Red Sea species into Mediterranean waters enhances the diversity of the eastern Mediterranean that now accounted for up to 10% of the total eastern Mediterranean fauna and 5% of the entire Mediterranean fauna (Fredj and Meinardi 1989, Zibrowius 1991). The vertical variability in the biological diversity of sessile epifauna in the Iskenderun Bay is much more pronounced than the lateral variability when the size of the study area is concerned.

Material and Methods

Fig. 1 shows location of the benthic stations (marked by small dots) that were visited in July 1999, February and May 2001. The station located at depth deeper than <10m were sampled from R/V Bilim. However, at the coastal station the depth was too shallow for a large vessel and therefore, an inflatable boat was used. A standard Van Veen grab (0.1 m² sampling area) was used to take benthic samples. At the coastal stations, the grab was manually deployed. Significant part of the other was stored into a nylon bag for grain size analysis of the sediment. Samples

taken for macrobenthic study were sieved with a set of 2, 1 and 0.5 mm mesh size filters. The organisms were identified at lowest taxonomic level possible, enumerated, wet-weighted. In addition to infaunal samplings, two dredge samplings were conducted within the study area in order to determine species composition of epiflora/fauna.

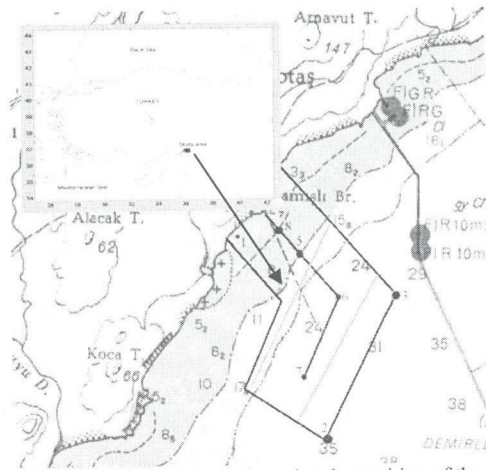


Fig. 1. Study area. Circles square dots give the position of the stations

Results

Three cruises were conducted to determine benthic fauna and flora in a coastal (1- 40 m depth) small area off Yumurtalik (Adana-Turkey) in the Eastern Mediterranean Sea in July 1999 (16 stations), February (2 dredge lines and 6 grab stations) and May 2001 (2 dredge lines and 7 grab stations). Nine macrophytic benthic species and 76 faunal species (1 Nemertini, 40 Polychaete, 17 Crustacea, 15 Mollusca, 2 Echinodermata and 1 Cephalochordata) were recorded in the first cruise. *Sargassum vulgare*, *Padina pavonia* and *Halopteris scoparia* were common epifloran species. *Nemertini* sp (Nemetini), *Glycera* sp. *Nomamastus latericus*, *Heteromastus filiformis*, *Prinospia fallax*, *Sigambra parva* (Polychaete), *Alpheus glaber*, *Callinassa tyrrhena*, *Ampelisca brevicornis*, *Upogebia pusilla* (Crustacea), *Abra alba*, *Abra prismatica* *Tellina* sp, *Myrtea spinifera* (Mollusca), *Echinocardium cordatum* (Echinodermata), and *Amphioxus lanceolatum* (Cephalochordata) were dominant species (Tables 1 and 2).

11 epiflora/faunal species were found. 2 species of macrophytes (*Caulerpa prolifera* and *Halopteris scoparia*), 1 mollusca (*Strombus persicus*), 5 Crustacea (*Aphseudes glaber*, *Balanus improvisus*, *Goneplax rhomboids*, *Scylarides* sp. *Thalamita poissonii*), 1 Polychaete (*Nephtys hombergi*) and 2 Tunicata (*Molyta manhattensis* and *Phallosia mammillata*) were recorded from the dredge samples. A total of 50 species of infauna was composed of 2 Mollusca, 14 Crustacea, 33 Polychaete and 1 Nemertini. *Nassarius circumcinestus* and *Nassarius mutuabilis*

(Mollusca), *Callinassa tyrrhena*, *Paleomon serratus*, *Processa elegantula* (Crustacea), *Cossura* sp., *Glycera rouxi*, *Heteromastus filiformis*, *Nephtys hombergi*, *Notomastus latericus*, *Prinospio fallax* and *Sigambra parva* (Polychaete) and *Cephalothrix linearis* (Nemertini) were dominant species (Tables 1 and 2).

Table 1. Species list of the infauna found in July 1999, February and May 2001.

Species	<i>Nereis diversicolor</i>	<i>Spionidae</i> (sp2.)	<i>Paleomon serratus</i>
Nemertini	<i>Nereis</i> sp	<i>Spiophanes bombyx</i>	<i>Perioculodes longimanus</i>
<i>Cephalothrix linearis</i>	<i>Nerine</i> cf. <i>cirratulus</i>	<i>Spiophanes foliosa</i>	<i>Portunus latipes</i>
<i>Nemertini</i> (sp.)	<i>Nerine cirratulus</i>	<i>Typosyllis prolifera</i>	<i>Processa elegantula</i>
Polychaeta	<i>Nerine oxycephala</i>	Undefined Poycheata (1)	<i>Processa nouveli</i>
<i>Aonides oxycephala</i>	<i>Nerine</i> sp.	Undefined Poycheata (2)	<i>Processa robusta</i>
<i>Aricidea jeffreysi</i>	<i>Notomastus aberans</i>	Crustacea	<i>Processa</i> sp.
<i>Aricidea</i> sp.	<i>Notomastus latericeus</i>	<i>Alpheus glaber</i>	<i>Pseudocuma longicornis</i>
<i>Capitella capitata</i>	<i>Notomastus</i> sp.	<i>Ampelisca brevicornis</i>	<i>Thracia pubescens</i>
<i>Capitellidae</i> sp.	<i>Ophelidae</i> sp. 1	<i>Anilocera physodes</i>	<i>Upogebia pusilla</i>
<i>Capitomastus</i> sp.	<i>Ophelidae</i> sp. 2	<i>Anomura</i> sp.	<i>Urothoe grimaldii</i>
<i>Chaetozone setosa</i>	<i>Orbinia cuvieri</i>	<i>Apseudes latreillei</i>	<i>Urothoe poseidonis</i>
<i>Cirratulidae</i> sp.	<i>Orbinia latreilli</i>	<i>Bathyporeia lindstromi</i>	Mollusca
<i>Cirratulus cirratus</i>	<i>Owenia fusiformis</i>	<i>Bathyporeia quilliamsoniana</i>	<i>Abra alba</i>
<i>Cirratulus filiformis</i>	<i>Paraonides lyra</i>	<i>Bodotria nalanee</i> new sp.	<i>Abra montagui</i>
<i>Cirratulus</i> sp.	<i>Phyllochaetopterus socialis</i>	<i>Bodotria scorpioides</i>	<i>Abra prismatica</i>
<i>Cossura</i> sp.	<i>Platynereis dumerili</i>	<i>Callianassa</i> sp.	<i>Abra</i> sp. (juv.)
<i>Diapatra neopolitana</i>	<i>Polydora ciliata</i>	<i>Callianassa subterranea</i>	<i>Acteon tornatilis</i>
<i>Diopatra</i> cf. <i>neopolitana</i>	<i>Polynoidae</i> (sp.)	<i>Callianassa tyrrhena</i>	<i>Anachis savignyi</i>
<i>Glycera rouxi</i>	<i>Pomatoceros triquetus</i>	<i>Caprella</i> sp.	<i>Bittium reticulatum</i>
<i>Glycera</i> sp.	<i>Prinospio</i> cf. <i>cirrifer</i>	<i>Crangon crangon</i>	<i>Bittium submamillatum</i>
<i>Glycera tridactyla</i>	<i>Prinospio cirrifer</i>	Decapoda protozoa	<i>Caecum trachea</i>
<i>Glycera unicornis</i>	<i>Prinospio ehlersi</i>	<i>Dexamine spinosa</i>	<i>Loripes lacteus</i>
<i>Harmothoe imbricata</i>	<i>Prinospio fallax</i>	<i>Diagenes pugilator</i>	<i>Macoma cumana</i>
<i>Harmothoe impar</i>	<i>Prinospio malmgreni</i>	<i>Ericthonius brasiliensis</i>	<i>Moerella pygmaea</i>
<i>Harmothoe</i> sp.	<i>Prinospio</i> sp.1	<i>Eurydice pulchra</i>	<i>Montaquia ferruginosa</i>
<i>Heteromastus filiformis</i>	<i>Prinospio</i> sp. 2	<i>Gastrosaccus spinifer</i>	<i>Myrtea spinifera</i>
<i>Lumbrinerides</i> cf. <i>amoureuxi</i>	<i>Puliella armata</i>	<i>Goneplax rhomboides</i>	<i>Nassarius circumcinetus</i>
<i>Lumbrineris latreilli</i>	<i>Rhynchospio glutacea</i>	<i>Iphinoe elisae</i>	<i>Nassarius mutuabilis</i>
<i>Lumbrineris</i> sp.	<i>Scalibregma</i> sp.	<i>Isopoda</i> sp.	<i>Nassarius</i> sp.
<i>Magelona papillicornis</i>	<i>Scolecopsis squamata</i>	<i>Leptochela pugnax</i>	<i>Odostomia</i> sp. (juv)
<i>Malacoceros</i> sp.	<i>Sigalion</i> cf. <i>mathildae</i>	<i>Leucothe richiardi</i>	<i>Pharus legumen</i>
<i>Maldanidae</i> sp	<i>Sigambra parva</i>	<i>Macrophthalmus graeffei</i>	<i>Pitar rudis</i>
<i>Monticellina heterochaeta</i>	<i>Spio filicornis</i>	<i>Metaphoxus pectinatus</i>	<i>Tellina</i> sp. (juv.)
<i>Nephtys caeca</i>	<i>Spio</i> sp.	<i>Monoculodes carinatus</i>	Echinodermata
<i>Nephtys hombergii</i>	<i>Spiochaetopterus costasum</i>	<i>Nebalia bipes</i>	<i>Amphipholis squamata</i>
<i>Nephtys</i> sp.	<i>Spiochaetopterus</i> sp.	<i>Orchomene nana</i>	<i>Echinocardium cordatum</i>
<i>Nephtys incisa</i>	<i>Spionidae</i> (sp1.)	<i>Palaemonetes</i> sp.	Cephalochordata
			<i>Amphioxus lanceolatum</i>

18 epiflora/faunal species were found. 11 species of macrophytes dominated with *Caulerpa prolifera*, *Codium* sp. *Halopteris scoparia*, and *Styopodium schimperi*, 4 Mollusca (*Aplysia depilans*, *Pitar rudis*, *Sepia officinalis* and *Strombus periculus*), 2 Crustacea (*Alpheus glaber* and *Thalamita poissonii*) and 1 Tunicata (*Phallosia mammillata*) were recorded from the dredge samples. A total of 84 species of infauna were recorded. The diversity was composed of 6 Mollusca, 30 Crustacea, 47 Polychaete, and 1 Echinodermata. *Loripes lacteus*, *Abra montagui* and *Montaquata ferruginos* (Mollusca), *Callinassa subterranean*, *Periculodes longimanus* *Processa elegantula*, *Callinassa tyrrhena* and *Ampelisca brevicornis* (Crustacea), *Magelona papillocornis*, *Nephtys hombergi*, *Paranoides lyra*, *Prinospio cirrifera*, *Prinospio malmgreni*, *Glycera tridactyla* and *Spiochaetopterus costasum* (Polychaete) and *Echinocardium cordatum* (Echinodermata) were abundant species (Tables 1 and 2). In May 2001, a cumacean species, *Bodotria nalanæ* new sp. Mutlu and Watling, 2002, new to science was found and confirmed by Dr. Les Watling (2002). It has ornamentation much like *B. gibba*, but the proportions of the uropod articles are not the same as in *B. gibba* (Fig. 2).

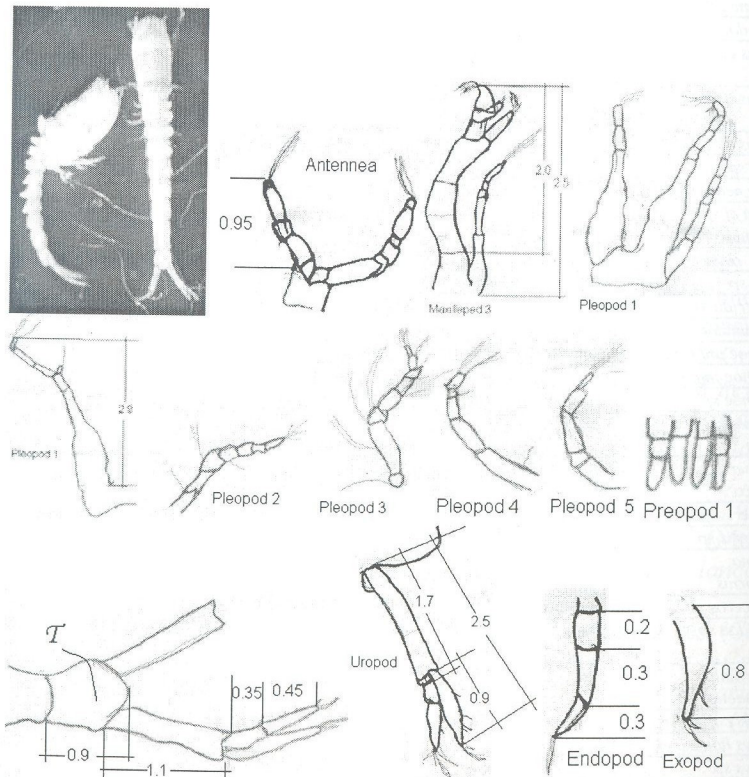


Fig. 2. Entire body and appendages of *Bodotria nalanæ* new sp. Mutlu and Watling, 2002 discovered in Iskenderun Bay (the units scaled based on 1 unit=0.25 mm).

Table 2. Species list of the epifauna and flora found in July 1999, February and May 2001.

Species	<i>Padina pavonia</i>	<i>Oxyurichthys peterci</i>	<i>Balanus improvisus</i>
Epiflora	<i>Palmophilium crassum</i>	<i>Stephanolepis ocheticus</i>	<i>Goneplax rhomboides</i>
<i>Caulerpa prolifera</i>	<i>Sargassum vulgare</i>	Mollusca	<i>Scylarides</i> sp.
<i>Codium</i> sp.	<i>Styopodium schimperi</i>	<i>Aplysia depilans</i>	<i>Thalamita poissonii</i>
<i>Cystoseira compressa</i>	Epifauna	<i>Pitar rudis</i>	Polychaeta
<i>Cystoseira</i> sp.	Fish	<i>Sepia officinalis</i>	<i>Nephtys hombergi</i>
<i>Dictyola cervicornis</i>	<i>Apogon nigripinis</i>	<i>Strombus persicus</i>	Tunicata
<i>Dictyola</i> sp.	<i>Arnoglossus laterna</i>	Crustacea	<i>Molyta manhattensis</i>
<i>Halopteris scoparia</i>	<i>Calionymus filamentosus</i>	<i>Aphseudes glaber</i>	<i>Phallosia mammillata</i>

Acknowledgements- The cruises were carried out within framework of three projects "Iskenderun coal fired: power station identification of benthic infauna" and "Identification of marine fauna & flora of a petroleum terminal in the Iskenderun Bay" by the Institute of Marine Sciences and funded by PARMAŞ and ENVY. Photo of the species was taken using a digital camera bought from budget of a TUBITAK Project YDABAG 100Y017.

References

- Bellán-Santini D, Lacaze JC, Poizat C. "Les biocenoses marines et littorales de la Méditerranée synthèse, menaces et perspectives". Museum d'Histoire Naturelle, Paris (1994).
- Fredj G, Meinardi M. "Inventaire faunistique des ressources vivantes en Méditerranée: intérêt de la banque des données Medifaune". *Bulletin de la Société Zoologique de France*, **114**: 75-87 (1989).
- Les Watling: address: Professor of Oceanography and Pew Fellow in Marine Conservation Darling Marine Center University of Maine Walpole, ME 04573
- Mutlu E and L Watling. "A new cumacean species, *Bodotria nalanæ* n. sp". (in preparation)
- Zibrowius H. "Ongoing modification of the Mediterranean marine fauna and flora by the establishment of exotic species". *Mesogee*, **51**: 83-107 (1991).