Biol. Mar. Mediterr. (2019), 26 (1): 279-280

S. Lo Brutto, D. Iaciofano, B. Galil*

Dipartimento STeBiCeF, Università di Palermo, Via Archirafi, 18 - 90123 Palermo, Italy.
sabrina.lobrutto@unipa.it
*The Steinhardt Museum of Natural History, Tel Aviv University, Tel Aviv 69978, Israel.

AMPHIPOD ASSEMBLAGE UNDER THE INFLUENCE OF DESALINATION PLANTS IN THE SOUTH-EASTERN MEDITERRANEAN

POPOLAMENTO AD ANFIPODI E DESALINIZZAZIONE NEL MEDITERRANEO SUD-ORIENTALE

Abstract *- A check-list of amphipod assemblage, collected in the vicinity of two Israeli desalination plant marine outfalls, is provided with some notes about the species. The dataset highlights changes in species composition throughout the years, possibly due to local anthropogenic impacts.*

Key-words: *Amphipoda, desalination plants, Israel, Mediterranean.*

Introduction - Amphipods species list, collected between 2010 and 2017, near two desalination plants operating on the Mediterranean coast of Israel, is here provided for the first time to fill the gap of scarce knowledge about the benthic fauna in the area (Sorbe *et al*., 2002; Curatolo *et al*., 2013).

Materials and methods - The Palmachim and Soreq seawater reverse osmosis (SWRO) desalination plants are about 1 km apart. The capacity of the Palmachim plant (initial capacity 90 Mm^3 y^{-1}, outfall at 10 m depth, operational in 2007) was tripled in 2014 and marine outfall moved at 20 m depth. The Soreq plant began operation in 2013 (capacity 150 Mm^3 y^{-1}, outfall at 20 m depth). In the soft bottom facing each outfall three replicate samples were collected in spring and fall using a Van-Veen grab and sieved on a 250 μm mesh from a total of 191 sites sampled in 8 years. The specimens are deposited in the Museum of Zoology, University of Palermo (MZPA).

Results and conclusions - A total of 36766 specimens of amphipods were collected and identified in 30 species (Tab. 1). *Bathyporeia guilliamsoniana*, *Perioculodes longimanus* and *Urothoe grimaldii* showed the highest frequency, while two alien species, *Grandidierella bonnieroides* and *Paracaprella pusilla*, of which the first Mediterranean records were reported respectively in 2014 (Israel) and 2011 (Spain), were also collected in stable populations (Lo Brutto *et al*., 2016, 2019). Some *taxa* were listed to genus level due the inadequacy of the whole data (*e.g.* specimens too small or damaged material) however, within *Ampelisca* spp. *A. brevicornis* (Costa, 1853); *A. dalmatina* Karaman, 1975; *A. diadema* (Costa, 1853); *A. ledoyeri* Bellan-Santini & Kaim-Malka, 1977; *A. planierensis* Bellan-Santini & Kaim-Malka, 1977; *A. pseudospinimana* Bellan-Santini & Kaim-Malka, 1977; *A. sarsi* Chevreux, 1888; and *A. tenuicornis* Lilljeborg, 1855 have been scored; and within *Stenothoe* spp. *S. tergestina* (Nebeski, 1881); *S. bella* Krapp-Schickel & Lo Brutto, 2015; and *S. levantina* Krapp-Schickel & Lo Brutto, 2015. The amphipod assemblage increased in its richness from 2010 to 2017 following the increasing operational capacity of the desalination plants, possibly reflecting environmental changes regarding salinity and temperature.

Tab. 1 - List of species collected per year, from 2010 to 2017.
Lista delle specie raccolte tra il 2010 e il 2017.

	2010	2011	2012	2013	2014	2015	2016	2017
Ampelisca spp.	×	×	×	×	×	×	×	×
Apolochus neapolitanus (Della Valle, 1893)					×		×	×
Ampithoe ramondi Audouin, 1826					×		×	
Aora gracilis (Spence Bate, 1857)				×	×		×	
Grandidierella bonnieroides Stephensen, 1947						×	×	×
Autonoe spiniventris Della Valle, 1893						×	×	×
Nototropis massiliensis (Bellan-Santini, 1975)								×
Bathyporeia guilliamsoniana (Spence Bate, 1857)	×	×	×	×	×	×	×	×
Biancolina algicola Della Valle, 1893						×		×
Caprella equilibra Say, 1818						×	×	×
Paracaprella pusilla Mayer, 1890	×				×	×	×	×
Phtisica marina Slabber, 1769			×			×	×	×
Pseudolirius kroyeri (Haller, 1879)			×	×		×	×	×
Cheiriphotis mediterranea Myers, 1983		×	×	×	×	×	×	×
Medicorophium runcicorne (Della Valle, 1893)			×		×	×	×	×
Ericthonius brasiliensis (Dana, 1855)					×	×	×	×
Jassa ocia (Spence Bate, 1862)							×	×
Siphonoecetes dellavallei Stebbing, 1899								×
Leucothoe incisa Robertson, 1892	×	×	×			×	×	×
Elasmopus pectenicrus Bate, 1862						x	×	×
Ceradocus orchestiipes A. Costa, 1853							×	
Megaluropus massiliensis Ledoyer, 1976				×		×		
Perioculodes longimanus (Spence Bate & Westwood, 1868)	×	×	×	×	×	×	×	×
Pontocrates arenarius (Spence Bate, 1858)	×			×				
Gammaropsis sophiae (Boeck, 1861)					×	×	×	×
Photis longicaudata (Spence Bate & Westwood, 1862)					×	×	×	×
Podocerus variegatus Leach, 1814						×	×	×
Stenothoe spp.			×	×	×	×	×	×
Tryphosa nana (Krøyer, 1846)			×					
Urothoe grimaldii Chevreux, 1895	×	×	×	×	×	×	×	×

References

CURATOLO T., CALVARUSO C., GALIL B.S., LO BRUTTO S. (2013) - Geometric morphometry supports a taxonomic revision of the Mediterranean *Bathyporeia guilliamsoniana* (Spence Bate, 1857) (Amphipoda, Bathyporeiidae). *Crustaceana*, **86** (7-8): 820-828.

LO BRUTTO S., IACIOFANO D., GUERRA GARCÍA J.M., LUBINEVSKY H., GALIL B.S. (2019) - Desalination effluents and the establishment of the non-indigenous skeleton shrimp *Paracaprella pusilla* Mayer, 1890 in the south-eastern Mediterranean. *BioInvasions Rec.*, **8** (3): 661-669.

LO BRUTTO S., IACIOFANO D., LUBINEVSKY H., GALIL B.S. (2016) - *Grandidierella bonnieroides* Stephensen, 1948 (Amphipoda, Aoridae) - First record of an established population in the Mediterranean Sea. *Zootaxa*, **4092** (4): 518-528.

SORBE J.-C., BASIN A., GALIL B.S. (2002) - Contribution to the knowledge of the Amphipoda (Crustacea) of the Mediterranean coast of Israel. *Israel J. Zool.,* **48** (2): 87-110.