
Communications

Palaemon elegans – a new
component of the Gulf
of Gdańsk macrofauna*

OCEANOLOGIA, 46 (1), 2004.
pp. 143–146.

© 2004, by Institute of
Oceanology PAS.

KEYWORDS

Palaemon elegans
Baltic Sea
Gulf of Gdańsk

URSZULA JANAS¹
TOMASZ ZARZYCKI¹
PAWEŁ KOZIK²

¹ Institute of Oceanography,
University of Gdańsk,
al. Marszałka Piłsudskiego 46, PL–81–378 Gdynia, Poland;
e-mail: ula@sat.ocean.univ.gda.pl

² Gdynia Aquarium,
Marine Fisheries Institute,
al. Zjednoczenia 1, PL–81–345 Gdynia, Poland

Manuscript received 2 February 2004, reviewed 27 February 2004, accepted 2 March 2004.

Abstract

The present paper reports on the occurrence of the prawn *Palaemon elegans* Rathke in the coastal waters of the Gulf of Gdańsk in the years 2002–2003, and in other regions of the Baltic Sea as recorded by various authors.

The brackish character of the Baltic Sea makes it susceptible to continual colonisation by new species, both marine and freshwater in origin. Species entering the Baltic with highly saline inflows from the North Sea normally perish in the much less saline waters of the former. It does happen, though,

* This research was supported by European Community project under 5th FP, contract No. BALTDER EVK3–CT–2002–80005.

The complete text of the paper is available at <http://www.iopan.gda.pl/oceanologia/>

that the expansion of a species' range actually reaches completion through breeding success in the newly colonised area. One such species is the prawn *Palaemon elegans* Rathke, which is tolerant of a broad range of salinity – from 5 to 45 PSU (Ramirez de Isla Hernandez & Taylor 1985) (Photo 1).



Photo 1. *Palaemon elegans* from the Gulf of Gdańsk coastal zone

P. elegans is widespread along the Atlantic coast of Europe, in the North Sea, the Mediterranean and the western Baltic (Campbell 1994). Inhabiting the littoral zone, it is usually to be found on stones and rocks. It also populates shallow sandy bottoms and brown algae belts (Dalla Via 1985). In the past *P. elegans* was occasionally sighted in the outer part of Wismar Bay (Köhn & Gosselck 1989). At present it occurs and breeds in the coastal zone of German Baltic waters (Zettler – personal communication) and was also found in the offshore waters of Arkona Basin in 2002 (Zettler 2003). In the same year this species was also present in the coastal zone of Bornholm (Samsel pers. comm.). In June 2003 *P. elegans* turned up off the Finnish coast (Kekkonen 2003).

In October 2003 one of the species of prawns occurring in the coastal zone of the Gulf of Gdańsk was identified as *P. elegans* according to Hayward

& Ryland (1996) – manual for the identification of species. Up to that time, this species had been identified as *Palaemon adspersus* or *Palaemonetes varians*.

Very large numbers of *P. elegans* were observed in 2002 and 2003 in the coastal zone of the Gulf of Gdańsk (author's own observations, divers' observations). The species was found in port waters and around piers, where it was found attached not only to the structures but also to the algae growing on them. In those same years, *P. elegans* was also recorded in the Dead Vistula, an arm of the Vistula delta near Gdańsk, where the salinity was around 2 PSU. Single individuals of this species were also recorded on a sandy bottom at depths down to 15 m, where the salinity varied between 6.5 and 7.5 PSU. In both years young specimens as well as females with eggs were observed. Interestingly, the two species *P. elegans* and *P. adspersus* occurred in adjacent habitats. Laboratory observations showed that *P. elegans* is unable to survive in fresh water for longer than one week.

This is not the first observation of this species in the southern Baltic. It was reported in the littoral zone from Kiel to the Gulf of Gdańsk as long ago as the 1920s (Balss 1926). Never before, however, has it occurred in the Gulf of Gdańsk in such large numbers. The species may be a significant component of the trophic web, since its diet consists, among others, of molluscs, crustaceans, polychaetes, bryozoans, fish larvae, as well as algae and detritus (Köhn & Gosselek 1989). It may itself be consumed by fish that feed on *P. adspersus*, such as eels, perch, round goby and eelpout (Sapota pers. comm.).

P. elegans Rathke is identified by the following features: the thorax and pleon usually bear dark yellow-brown bands (Hayward & Ryland 1996) (Photo 1). The rostrum is straight, or slightly upcurved, with 7–9 dorsal and 3 (rarely 2–4) ventral teeth. Three, occasionally two, of the dorsal teeth are located behind the posterior edge of the orbit. Further characteristic features of *P. elegans* are the mandibular palps with two segments. There are two appendages on the second pleopods in males: the appendix interna and the appendix masculina, whereas in the second pleopod in females there is only one such appendage – the appendix interna.

Acknowledgements

Our thanks go to Dr J. Samsel and other divers, whose observations have contributed greatly to the increasing interest in the prawn *Palaemon elegans*.

References

- Balss H., 1926, *Decapoda*, [in:] *Die Tierwelt der Nord- und Ostsee*, Lief. 6, Teil 10, H. 2, S. 1–112, G. Grimpe & E. Wagler (eds.), Leipzig.
- Campbell A., 1994, *Seashores and shallow seas of Britain and Europe*, Hamlyn Publ. Group Ltd, London, 320 pp.
- Dalla Via J., 1985, *Oxygen consumption and temperature change in the shrimp *Palaemon elegans**, Mar. Ecol. Prog. Ser., 26, 199–202.
- Hayward P.J., Ryland J.S. (eds.), 1996, *Handbook of the marine fauna of North-West Europe*, Oxford Univ. Press, New York, 800 pp.
- Kekkonen T., 2003, *Suomelle uusi katkarapulaji löytyi Hangon Tvärminnestä*, <http://www2.fimr.fi/en/itamerikanta/bsds/1124.html> [25.XI.2003].
- Köhn J., Gosselck F., 1989, *Identification Key for the Malacostraca of the Baltic Sea*, Mitt. Zool. Mus. Berl., 65 (1), 3–114.
- Ramirez de Isla Hernandez S., Taylor A.C., 1985, *The effect of temperature on osmotic and ionic regulation in the prawn *Palaemon elegans* (Rathke)*, Ophelia, 24, 1–15.
- Zettler M.L., 2003, *Benthologischer Arbeiten zur ökologischen Bewertung von Windenergie-Anlagen-Eignungsgebieten in der Ostsee*, Endbericht für die Areale Kriegers Flak (KF) und Westlicher Adlergrund (WAG), [computerlesbares Material] – Inst. Ostseeforschung, Sect. Biol. Meereskunde, FKZ: 802–85–210.