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**DISTRIBUTION AND INDIVIDUAL CHARACTERISTICS OF THE
PRAWN *PALAEMON ELEGANS* (CRUSTACEA, DECAPODA) FROM
THE GULF OF GDAŃSK AND THE DEAD VISTULA RIVER**

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Abstract

The aim of this study was to determine the distribution of a prawn species new to the Gulf of Gdańsk – *Palaemon elegans* – as well as to undertake an initial characterization of the length and mass of individuals of this species with respect to sex and site of occurrence. The investigation was carried out in late June and early July 2004 at four stations situated on the shores of the Gulf of Gdańsk and the Dead Vistula River.

The total lengths of males ranged from 23 to 40 mm and those of females from 27 to 50 mm. The relationship between total length and wet weight for males and non-ovigerous females was $W_w = 10^{-6} L_t^{3.15}$, $R = 0.97$, and that between the total length and the carapace length of males and females was $L_k = 0.42 L_t - 0.19$, $R = 0.91$. These relationships for *P. elegans* may be of use in assessing the size and mass of prawns consumed by predators.

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INTRODUCTION

The crustacean *Palaemon elegans* Rathke, 1837 (synonym: *Leander squilla elegans* (Rathke, 1837)) inhabits intertidal rock pools on the Atlantic coast of Europe, the North Sea, the Mediterranean (Campbell 1994), and the Black Sea (Başçınar et al. 2002). In the 1930s, *P. elegans* was accidentally introduced with fish (mullet) to the Caspian Sea. It was also the first invertebrate invader in the Aral Sea (Aladin et al. 2001, Aladin et al. 2002). As a euryhaline species, it migrates into the shallow waters of lagoons and river mouths (e.g., in Sweden and Norway) (Dolmen et al. 2004). *P. elegans* has been recorded in the western Baltic Sea (Campbell 1994). Although it was known in 2001 (Wysocki pers. com.), or possibly earlier, that *P. elegans* was already inhabiting the Gulf of Gdańsk, not until 2003 was it investigated there for the first time (Janas et al. 2004).

The aim of the present study was to determine the distribution of *P. elegans* in the Gulf of Gdańsk and the Dead Vistula River and to characterize the length and mass of individuals of this species with respect to sex and site of occurrence.

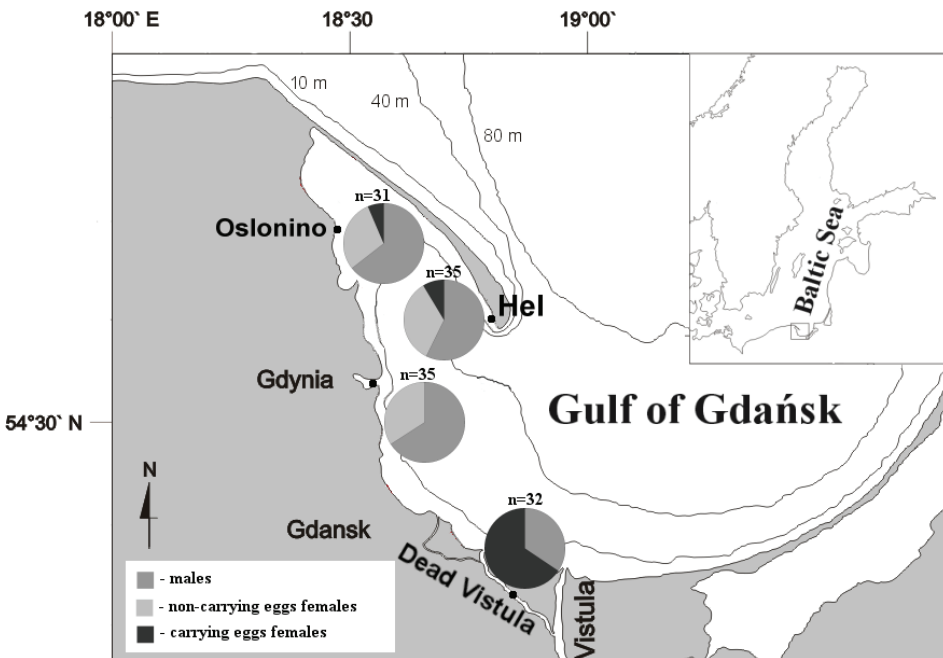


Fig. 1. Percentage of *P. elegans* males, ovigerous and non-ovigerous females at four studied stations in June-July 2004 (n- number of animals).

MATERIAL AND METHODS

The prawns were collected from the surface water (to a depth of approximately 1 m) with a 4 mm mesh hand net at four stations (Hel, Osłonino, Gdynia, Dead Vistula River) from 24 June to 1 July 2004 (Fig. 1). A total of 133 specimens were caught. Concurrently, the surface water temperature and salinity were measured with a conductometer (WTW, Germany).

The prawns were measured from the rostral tip to the posterior edge of the telson (total length) and to the posterior carapace edge (carapace length); both lengths were measured to the nearest mm. The endopodite of the second pair of pleopods was used to determine sex (Hayward and Ryland, 1996). In the males this endopodite is cleft and forms the *appendix masculina*. The wet weight of each specimen was measured with a precision balance (± 0.001 g). Ovigerous females were weighed together with their eggs. Total lengths and wet weights are given as means with standard deviation (\pm SD).

The total length-wet weight relationship was calculated for males and non-ovigerous females according to the power equation $W_w = aL_t^b$, where: W_w – wet weight in g; L_t – total length in mm; a – slope; b – the exponent; R – correlation coefficient. Linear regression was used to determine the relationship between the total length and carapace length of all the animals collected, as follows: $L_k = aL_t + b$, where: L_k – carapace length in mm; L_t – total length in mm; a – intercept; b – allometric coefficient; R – correlation coefficient;

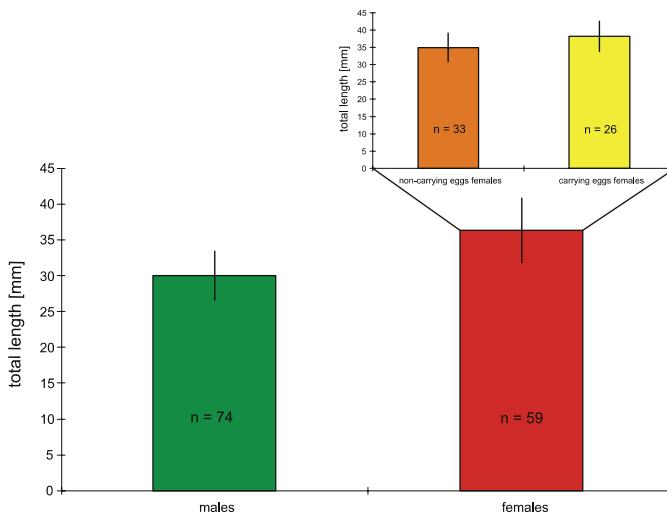


Fig. 2. Average length (\pm SD) of *P. elegans* males and females - non-ovigerous and ovigerous.

