

Difficulties in Identification of Species of the Genus
Eurytemora from the Southern Baltic

by

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Unlike the genus Acartia, of which the Baltic representatives are sufficiently different so that they certainly constitute different species, the genus Eurytemora creates a problem for the planktologists and it is uncertain whether the distinguishing of particular species would be appropriate.

The reasons for discussion and controverse opinions are as follows:

1. the species of this genus are subject to seasonal variations,
2. inside this genus, frequent hybridization among particular species takes place. This phenomenon was discovered by de Lint (1922) and also observed by Lucks (1937), as well as by Vanhöff (1917) and others,
3. up to now, there is no satisfactory description of the morphology of this genus.

On the basis of investigations carried out so far with respect to the genus Eurytemora, it may be stated that in the Baltic four species occur:-

1. Eurytemora hirundoides Nordquist (a)
2. Eurytemora hirundo Giesbrecht (b)
3. Eurytemora affinis Poppe (c)
4. Eurytemora velox Lilljeborg (d)

Besides, some authors, such as Mańkowski (1948), Waldmann (1959), Lindquist (1959), Ciszewski (1962) and Ackerfors (1965) express an opinion on the subject concerned, but only on the genus as a whole, without breaking it down into species, and without descriptions.

As follows from the above, the Eurytemora species occur in the whole Baltic. Nevertheless, one of the authors records E. hirundo as occurring in the Bothnian Bay, while the others say that in that area they only find E. hirundoides.

Some authors' views of the genus Eurytemora are as follows:-

Von Pesta (1927) classified the Eurytemora species according to the following system:

- E. affinis and E. velox for oligohaline regions (0,1‰ to 1,0‰ of salinity).
- E. hirundo, as characteristic for mesohaline (1,0‰ to 10‰), and
- E. hirundoides, occurring in polyhaline environments (salinity higher than 10‰).

Rzóska (1939) believes that it is not right to consider E. hirundoides a polyhaline form, and that the mistake derives from a wrong inscription in one of Thienemann's papers. This mistake was already corrected by Redeke who stressed that E. hirundoides is a mesohaline form. Rzóska analysed the opinions of his predecessors on the subject of the Eurytemora species and said that E. velox occurs merely in near-shore lagoons and isolated bays. E. affinis is found, according to him, in the coastal zone of the whole Baltic. E. hirundo, the occurrence of which has not been elucidated as far, is probably a coastal form too, and E. hirundoides moves relatively the greatest distance towards the open sea.

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As it has already been mentioned many of the authors have proved the existence of intermediate forms among the Eurytemora species, due to crossing. In this connection some of the authors are inclined to treat all the species as variations within the genus Eurytemora. Among others, Brady and Nordmann, following Lindquist (1959) expressed doubt whether the different forms of Eurytemora could be considered particular species. Gurney, following Lindquist (1959) compared two Eurytemora forms viz. E. affinis and E. hirundoides, and came to the conclusion that, "The differences, having regard to the variation found in Eurytemora affinis, are almost inappreciable, and it is difficult to understand how it can be separated from the hirundoides form".

Lindquist (1959) stated that it was impossible to identify the forms he had found in the Bothnian Bay, since there were cases, where some individuals showed features characteristic for two or three species. In accordance with Gurney he agreed that the individuals he had found should not be distinguished as separate species, but should be considered variations belonging to the same species.

Waldmann (1959), while studying the zooplankton of the Bornholm Deep and Arkona Deep, considered the genus Eurytemora as a whole, and at the end of its description he says that Schmidt-Ries (1939) also considered Eurytemora affinis as a guiding form for the waters both of the firths and the Baltic Sea.

Eurytemora species were also very difficult to identify Rzóška (1939), who had before him Eurytemora from the Bay of Puck, and Różańska (1963) who dealt with the genus obtained in samples from the Firth of Vistula. The difficulty was that features characteristic for both E. affinis and E. hirundoides were found. In the Firth of Vistula some of the individuals also showed the features of E. lacustris inhabiting fresh-water environments.

Recently, the planktologists have been more and more inclined to consider Eurytemora as a genus that indicates merely the variations and that it should not be broken down into particular species with definite morphologic features. The present author arrived at the same conclusion while studying the zooplankton of the Bay of Gdańsk. Apart from the typical forms such as Eurytemora velox, E. affinis, E. hirundo, E. hirundoides and E. lacustris, he found individuals showing some features of E. affinis together with some of E. hirundoides, as well as other forms which showed some of the features pertaining to E. lacustris.

Taking into consideration everything mentioned above, the author is willing to characterize the Eurytemora genus as a whole, without breaking it down into species.

In the Baltic the genus Eurytemora occurs during the whole year.

It was found to be numerically most abundant in summer-autumn. In winter the representatives of this genus were scarce. The reproduction takes place in the summer period. In spring the males prevailed but in the period of maximum occurrence the more numerous females carried filled egg-sacs.

The nauplii and copepodites of the orders I and II appeared as early as June, and remained until November, being most abundant in August. The older stages which also occurred in this period, were most numerous in spring and towards winter time. Thus, in spring a rather large quantity of mature males was found, while the bulk of females occurred from June.

The horizontal distribution of Eurytemora in spring is somewhat patchy, but in summer the distribution takes the shape of a belt with the number of individuals per m³ increasing in the direction from the open sea towards the bays, coasts and firths.

The vertical distribution of this genus is restricted to the surface water layer (0 m to 20 m depth), hence large quantities of Eurytemora individuals, particularly in the summer-autumn months, are found in shallow regions with bottom at about 20 m depth.

The most abundant catches were made in waters with 5,5‰ to 7,0‰ of salinity.

The representatives of Eurytemora are peculiar for surface layers of brackish waters.

Table 1. Records of species belonging to the genus Eurytemora.

Author	R e g i o n s												
	Skage- rrak	Katte- gat	Belt- Sea	Open waters of the Baltic	G u l f s						Sweden's coastal zone	Firths of	
					Pomera- nian	of Gdańsk	of Riga	of Fin- land	Pojo	Both- nian		Szcze- cin	Vistu- la
Aurivillius											b		
Driver			b			b							
Giesbrecht						b							
Halme									a,b,c				
Hessle-Vallin								a		a			
Kreffft		c											
Kuhlgatz			c										
Levander								a,b,d					
Lilljeborg										b	c,d		
Lucks						c,d							
Mańkowski						b							
Merkle			a	a							b		
Möbius						b							
Nikolajev				a			a	a		a			
Nordquist								d		a,d	c		
Otten			b										
Pesta	a		c										
Riech								d					
Rózańska													a,c
Rzóska								a,b,c,d					
Russel									c	c			
Sars	d										a		
Scott													
Schmidt-Ries									c	c			
Thust			c										
Wiktor					a,c							c	
Välikangas				a		a	a	a	a	a			