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Systematic position of *Neocrangon communis* (Decapoda, Crangonidae) based on the features of larval morphology

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Abstract

The present article deals with morphological comparison of four species of shrimp larvae, such as *Neocrangon communis* and *Mesocrangon intermedia, Crangon dalli* and *C. septemspinosa*, inhabiting the Okhotsk Sea and north-western part of the Pacific Ocean. Morphological comparison of I–V zoeal stages is discussed. The main morphological differences of the appropriate larval stages are detected. Most features of *C. dalli* and *C. septemspinosa* are similar and differ from *M. intermedia* and *N. communis*. It is shown that *M. intermedia* and *N. communis* more similar species by their origin than it is accepted to think. It is assumed that these two species should be included into one genus—*Mesocrangon.* The figures of I, III–V zoeal stages are presented.

Key words: *Crangon*, *Mesocrangon*, systematic, carapace, antennules, antennas, telson

Introduction

Neocrangon communis (Rathbun, 1899) and *Mesocrangon intermedia* (Stimpson, 1860) are two close species of shrimps from the family Crangonidae. These species haven't commercial value but they are widely spread in the Northern part of the Pacific Ocean. The larvae of these species undergo normal pelagic development, i.e. they have five larval and one postlarval stages. According to their morphology and early development the larvae are closer to the genus *Crangon* Fabricius, 1758. In Kamchatka waters there are two abundant species of this genus, such as *C. dalli* Rathbun, 1902 and *C. septemspinosa* Say, 1818. Larvae of these four species can be found in many plankton samples collected in Kamchatka waters during the period from April to October.

During the research on Decapods systematic and phylogeny it is necessary to take into consideration various early stages of the larvae. Gurney (1942) pointed out that if the larvae of two species differ from each other more than corresponding adults of the species it may give evidence to apartness of their relation. On the contrary, if the same features repeat in different larval species of one systematic group, one must be sure of their common origin.

Nowadays Crangonidae systematization is not complete. Modern classification is based on the morphological features of adult specimens. Before 1965 only *C. dalli* Rathbun, 1902 and *C. septemspinosa* Say, 1818 had belonged to the genus *Crangon*. During the revision of Crangonidae system Zarenkov (1965) a new genus *Mesocrangon* Zarenkov, 1965 was distinguished. This genus combines the former *Sclerocrangon intermedius* (Stimpson, 1860) and new subgenus *Neocrangon* Zarenkov, 1965, which combines the former *C. communis* Rathbun, 1899. Zarenkov (1965) allocated *Neocrangon communis* as a model species for this subgenus. Zarenkov (1965) considered that this species have one spike on the midline of the carapace, while all other authors noted two spikes (Vinogradov (1950). In order of further revisions *Neocrangon* got the status of the genus (Wicksten (1983)).

Early attempts to establish phylogenetic relationships within the Crangonidae have resulted in the proposal of vey distinct "lines of descent". Such schemes have never been used to group the lower taxa of traditional classification into more inclusive units of descent. However, possibly because many such early workers were interested in and conscious of the more conspicuous evolutionary trends of morphological characters, most of the genus-group taxa which were eventually named were justified, even if intuitively rather than explicitly, in an

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Only the representatives of the genus *Mesocrangon* have two spines on the carapace median line. The representatives of all other genus have one or three spines in this part. The diagnosis of the genus (and subgenus) *Neocrangon* indicates the presence of one spine on the carapace median line. While *N. communis* as well as *M. intermedia* have two spines on the median line. Both spines of *N. communis* are shifted to the front edge, while the second spine of *M. intermedia* is located in the middle of the carapace (Nizyaev *el al*. (2006), Sokolov (2001)).

The larvae of other representatives of the genus *Crangon* have morphological features similar to *C. dalli* and *C. septemspinosa*. For example, *Crangon hakodatei* Rathbun have similar development (Li & Hong (2003)).

Conclusions

The larvae of *M. intermedia* and *N. communis* differ from the larvae of the genus *Crangon* at appropriate zoeal stages. That is why *N. communis* mustn't be attributed to the genus *Crangon.* Also, this species shouldn't be belong to the genus *Neocrangon* because postlarvae and adults have two thorns in the median line of a carapace, instead of one as in other species of the genus (Sokolov (2001), Zarenkov (1965), Nizyaev *el al*. (2006)).

Variety of common features in the structure of *M. intermedia* and *N. communis* gives evidence to the common origin of these species. The presence of pigmented spots on telson distinguish these two species from other species of the family Crangonidae. These species phylogenetically close than other species of these genera.

Based on larval features the taxonomic position of *N. communis* have to be called into question. Prodably, this species should be included into the genus *Mesocrangon*. But the new data on DNA or other phylogenetic imformatiom are necessary to confirm the status of the valid genus.

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