

Sex Structure of *Macrobrachium Nipponense* Populations in Some Water Bodies of Uzbekistan

S. I. Kim

Branch of the Federal State Budgetary Institution of Higher Education “Astrakhan State Technical University” in the Tashkent region of the Republic of Uzbekistan

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Annotation: The size-sex structure of various populations of freshwater shrimp *Macrobrachium nipponense* from natural and artificial reservoirs of the republic was studied. The studies showed the presence of significant differences between the ratio of males and females, as well as their sizes. In conclusion, conclusions are made about which populations of *Macrobrachium nipponense* are more profitable to take producers from to form the broodstock.

Keywords: freshwater shrimp, *Macrobrachium nipponense*, population, male, female, size-sex structure of the population.

The biology of the accidental invader of the freshwater shrimp *Macrobrachium nipponense* in the conditions of Central Asia has been practically unstudied [2, 3].

Currently, it has successfully acclimatized and has become the most important component of our aquatic ecosystems. However, the species has not yet been sufficiently studied and is not used as an object of breeding in our republic. Shrimp occupy an intermediate position between delicacies and goods of mass consumer demand. The introduction of shrimp into aquaculture can become a new branch in the republic's agriculture.

Of interest are studies of the population parameters of this species, in particular the size and sex structure.

Methodology and materials

Freshwater shrimp were studied in a number of natural and artificial reservoirs of Uzbekistan,

collected from the end of May to September 2024.

The shrimp populations of Lake Aydar (northern shore), Lake Tuzkan (mouth of the Kly River), fish ponds of the Urtachirchik district and Yangiyul district of the Tashkent region were studied. A total of 214 shrimp specimens were processed during this time.

Male and female shrimp can be distinguished visually: males usually have larger claws and a larger body. But for a more accurate determination, a study of primary sexual characteristics was carried out.

- shrimp were caught using traps, nets or nets and fixed in a 4% formalin solution;
- the shrimp was removed from the 4% formalin solution and placed in ordinary water for soaking (it is recommended to work with formalin under a hood);
- after soaking, the shrimp was removed from the water and dried using filter paper;
- the necessary measurements were taken - weight, length; fertility was measured.
- under a binocular microscope, using hydrobiological needles, the 2nd swimming leg was separated and it was examined whether the reproductive organ that distinguishes a male from a female was present or not.

Results and discussion

The study of the sex structure of populations allowed us to draw the following conclusions:

- the sex structure of different populations of freshwater shrimp *Macrobrachium nipponense* differs significantly from each other, the difference between natural and artificial reservoirs is especially great;
- the following size groups were most fully represented in the studied material: 31-40 mm, 41-50 mm, 61-70 mm;
- individuals measuring 31-40 mm are not yet sexually mature;
- the largest number of large females (size group 61-70 mm - 15 females; 71-80 mm - 13 females) with mature eggs were caught in artificial reservoirs (ponds);
- Lake Tuzkan stands out in terms of the number of males and their sizes.

Some results of the work done are reflected in the graphs below (Figures 1,2,3,4).

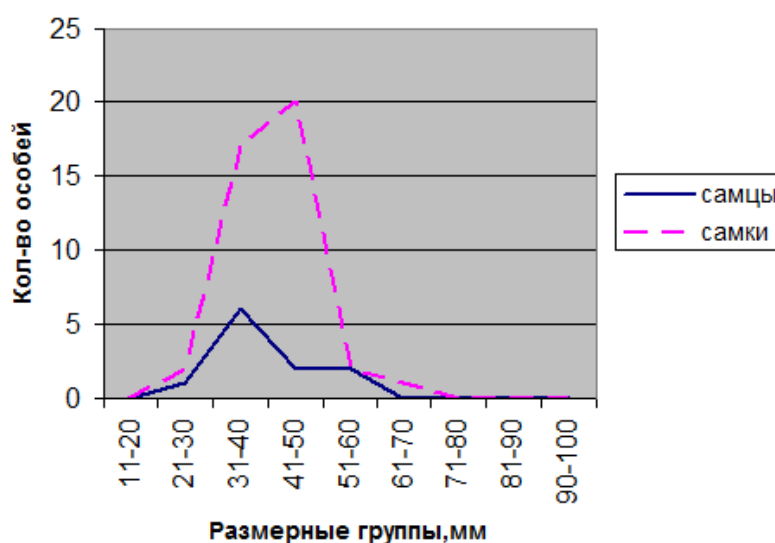


Fig. 1 – Size and sex structure of the shrimp *Macrobrachium nipponense* of the Aidar population.

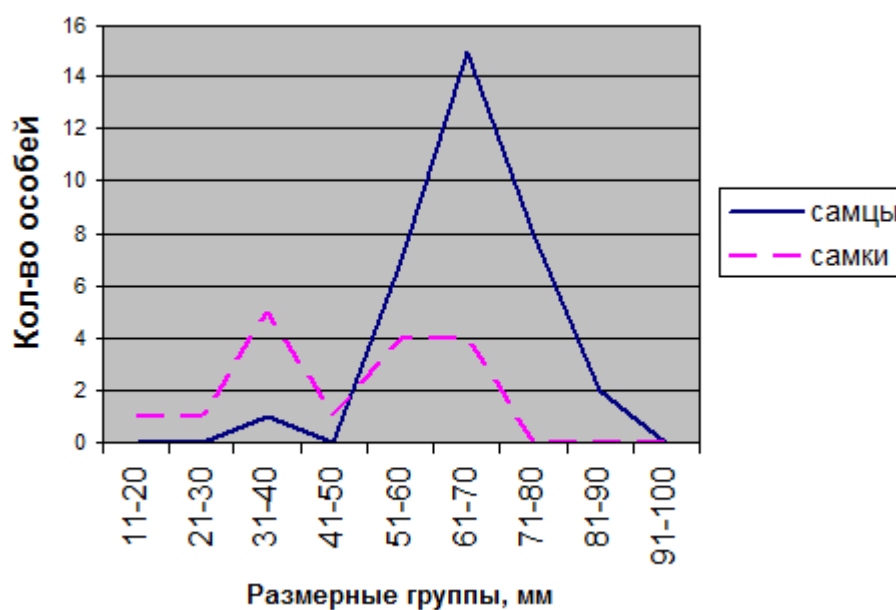


Fig.2 Size and sexual structure of the shrimp *Macrobrachium nipponense* of the Tuzkan population.

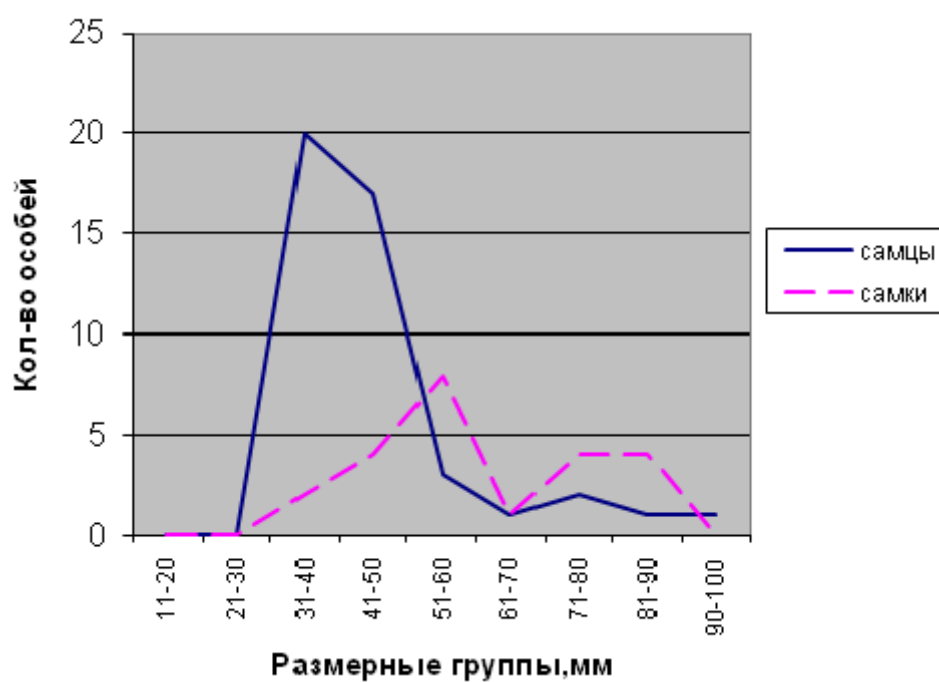


Fig. 3. Size and sex structure of the shrimp *Macrobrachium nipponense* from the population of ponds of the Yangiyul district.

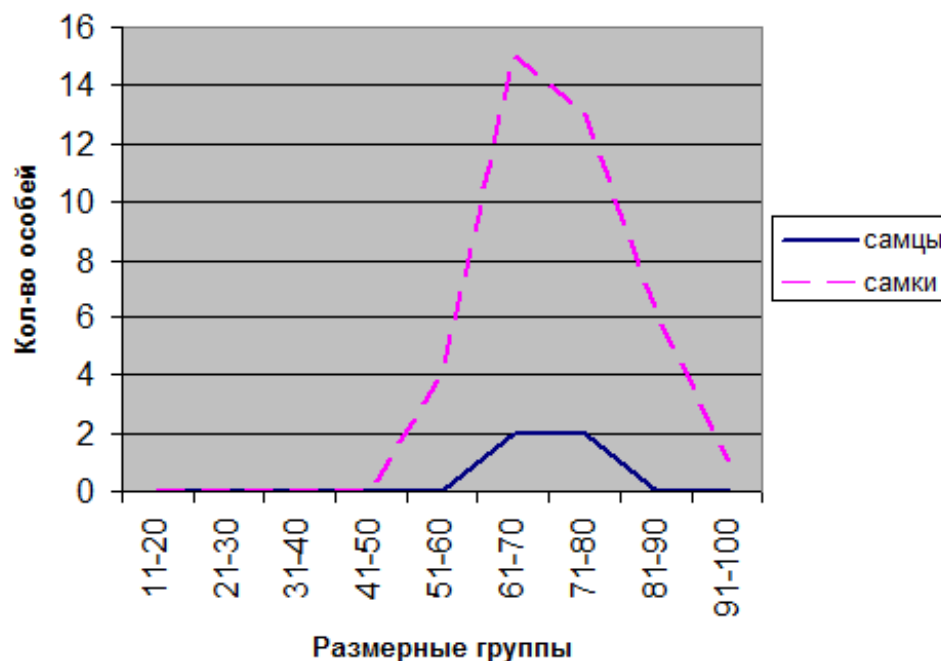


Fig. 4. Size and sex structure of the shrimp *Macrobrachium nipponense* from the population of ponds of the Urtachirchik district.

Conclusions: differences in size and fertility of females in artificial fish-breeding ponds are explained by better food supply and its availability.

To form a broodstock for the purpose of obtaining offspring from *Macrobrachium nipponense* in artificial conditions, females should be caught in the ponds of the Urtachirchik district of the Tashkent region, and males in Lake Tuzkan, which will affect the improvement of the genotype of the population.

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