

**TKACHENKO M.Yu.**

Institute of Marine Biology NAS of Ukraine

37 Pushkinska St., 65011 Odessa, Ukraine, e-mail: [marity.fish@gmail.com](mailto:marity.fish@gmail.com)

## **COMPARATIVE ANALYSIS OF THE MASS GOBIIDAE SPECIES NUTRITION SPECTRUM FROM THE BILOSARAYSKA BAY OF THE AZOV SEA**

The Azov Sea is one of the most strategically important and unique water bodies of Ukraine by its resource potential. According to the statistics, about  $34179 \pm 4677$  tons of fish resources are withdrawn during the active fishing period per year (Demchenko, 2012).

Round goby (*Neogobius melanostomus* (Pallas, 1814)) is the most mass species in the commercial fishing. But there are other gobies species, such as syrman goby (*Neogobius syrman* (Nordmann, 1840)), monkey goby (*Neogobius fluviatilis* (Pallas, 1814)) and ginger goby (*Neogobius eurycephalus* (Kessler, 1874)) that are often found in catches – 77 %, 69 % and 23 % respectively (Tkachenko, 2017).

Gobies were sampled by a dredge in the 5 km coastal zone of Bilosarayska Bay, Azov Sea, through July-September 2016 till 2018. Sample collection, fixation and processing were carried out according to standard hydrobiological and ichthyological methods (Jadin, 1960; Guide..., 1961; Pravdin, 1966; Anistratenko, 2011).

Nutrition spectrum of the round goby ( $n=134$ ) was represented by 19 taxons of hydrobionts. The dominant frequency of occurrence among all feeding objects belonged to *Abra segmentum* (Récluz, 1843) – 31.7 % and *Lentidium mediterraneum* (O.G. Costa, 1829) – 26.1 %. Notable, *L. mediterraneum* and *A. segmentum* are also dominated in all intestines – 35.8 % and 29.1 %. Polychaeta sp. – 50.4 % and *Rhithropanopeus harrisi* (Gould, 1841) – 44.8 % were dominated by biomass. Average total energy equivalent of round goby's nutrition objects was  $4.3 \pm 0.6$  kJ. The most energy-efficient were *R. harrisi* – 13.6 kJ and Polychaeta sp. – 7.8 kJ.

Feeding spectrum of syrman goby ( $n=59$ ) was represented by 10 taxons of hydrobionts. Dominant occurrence frequency belonged to *R. harrisi* – 33.9 % and *Abra* sp. – 19.4 %. Herewith, *R. harrisi* and *Amphibalanus improvisus* (Darwin, 1854) were prevailed in all intestines – 53.3 % and 30.5 % respectively. By biomass *R. harrisi* – 74.6 % and *Pisces* sp. – 22.6% were prevailed. These objects were also the most energy-efficient – 4.5 kJ and 19.8 kJ. Average total energy equivalent of syrman goby's nutrition objects amounted  $7.0 \pm 1.2$  kJ.

The monkey goby's ( $n=15$ ) nutrition spectrum was represented by 7 taxons of hydrobionts. The dominant frequencies of occurrence among all feeding objects were belonged to Polychaeta sp. – 38.5 %, *A. improvisus* and *Cerastoderma* sp. – 15.4 % each. By biomass *Pisces* sp. – 55.4 %, Polychaeta sp. – 33.3 % and *R. harrisi* – 11.1 % were dominated. The same objects were also the most energy-efficient – 19.8 kJ, 7.7 kJ and 5.0 kJ respectively. Average total energy equivalent of monkey goby's nutrition objects amounted  $6.3 \pm 1.9$  kJ.

Nutrition spectrum of the ginger goby ( $n=5$ ) was represented only by 2 taxons of hydrobionts – *R. harrisi* and *A. improvisus*. The most predominant object by biomass and energy-efficient was *R. harrisi*. Should be noted, that average total energy equivalent of ginger goby's nutrition objects was the highest among all species –  $11.0 \pm 2.9$  kJ.

The highest similarity (Bray-Curtis similarity) was notified between spectrums of monkey goby and syrman goby – 73.7; round goby and syrman goby – 67.7. The less similarity was found between nutrition spectrums of round goby and ginger goby – 18.2.

Accordingly, mollusks are the most typical for round goby's nutrition spectrum, but they are not the most energy-efficient in contrast to other species, where more high-calorie taxons dominated, such as crustaceans, fish and bristle worms. Thus, further studies of mentioned species nutrition spectrum in terms of age and geographical variability are relevant.