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AGRICULTURAL SCIENCES

**NUTRITION AND FODDER RELATIONS OF *PELECUS
CULTRATUS* (L.) IN KREMENCHUK RESERVOIR**

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The cascade of Dnipro reservoirs are an artificially transformed aquatic ecosystems. They serve as a basis for an extremely developed economic complex. Fishery use is one of the components of this complex. Up to 75% of the industrial stock of Ukrainian aboriginal ichthyofauna is concentrated in the Dnipro reservoirs, which needs constant addition and restoration [1].

Industrial catches of aboriginal fish species belonging to the category of secondary small-part species (*Perca*, *Pelecus cultratus* (L.), *Scardinius*, *Tinca tinca*) in the Kremenchug reservoir in recent years show a tendency to increase. In 2010–2014 the catch did not exceed 66 tons, in 2015 it amounted to 104 tons, in 2016 – 107 tons, in 2017 – 97 tons. In recent years, the maximum rates of commercial fishing of aboriginal fish species, which belong to the small particles, have been observed. So in 2018 it was 179.6 tons; in 2019 – 175.3 tons. In 2019 the *Pelecus cultratus* (L.) quantity in the industrial catches of small-part species of the Kremenchug reservoir was 31% [2].

Pelecus cultatus (L.) is found in small quantities throughout the reservoir, but its main concentrations are observed in the middle and lower parts [3]. The main components of the *Pelecus cultratus* diet are larvae and adults of insects, lower crustaceans and fish. Of secondary importance are lower plants, mosses, detritus.

In the spring of 2018 and 2019, the *Pelecus cultratus* feeding spectrum consisted almost exclusively of invertebrates, among which the leading role belonged to the larvae and pupae of chironomids. The ratio between them was not stable and was a reflection of their ratio in the reservoir. Thus, if in 2018 pupae predominated in the

Pelecus cultratus feeding at the top of the reservoir, then at the bottom – chironomid larvae. This difference is easily explained if we take into account that the heating of water in the upper part is much faster, and accordingly, the departure of chironomids occurs much earlier than in the deeper deep part of it. Other insects include day-old larvae and larvae of beetles and bedbugs, which were found in the food of fish caught in bays or in the branches of rivers, where the thickets of higher plants have been preserved.

In the bays of the lower part (Tsibulnytska) of the reservoir, the food of the small *Pelecus cultratus* (1 – 16–20 cm) consisted almost entirely of *Acanthocyclops vernalis*, *Cyclops sp.* Chironomid larvae were also of secondary importance.

In 2018 and in 2019, beetles of the genus *Gossinella* (*Cossinella 7-punctata*), whose mass development was observed in these years, played a significant role in *Pelecus cultratus* feeding.

In 2019, as part of the food of *Pelecus cultratus* caught in the bays of the upper part of the reservoir, carp juveniles were found, the high yield of which was observed in the previous year. Among the *Pelecus cultratus* caught at the same time in the channel part of the reservoir, the majority (90%) had empty intestines and only in some fish the food consisted of residues of chironomids. *Pelecus cultratus* feeding ranged from 5 to 78% 00. Higher filling indices were observed more frequently in *Pelecus cultratus* caught in the bays and, in particular, in those whose food consisted of young fish.

Compared to the previous season, in summer the crustacean value in the diet increases, and the larvae of chironomids and other insects decrease accordingly. By 2018, the zooplankton of the reservoir was relatively poor, the value of blue and green algae in the middle and lower parts of the reservoir, which in some cases ranged from 40 to 90% of its weight, increased as part of the *Pelecus cultratus* food. Larvae and fry of fish were found in the food of fish caught at the top of the reservoir, namely in the arms and bays.

The narrowest spectrum of nutrition was observed in the *Pelecus cultratus* in 2019 – crustaceans, mainly daphnia and leptodors, and in smaller fish (1 – 16–19 cm) – bosmines and hydros, as well as the remains of chironomids and beetles. Fish were absent from the *Pelecus cultratus* food, which could be due to the low yield of carp fry in the previous year.

Pelecus cultratus feeding during the study period was on average low and ranged from 13.5 to 19.5%. The highest filling index (195%) was observed in fish 23–25 cm long caught in Vasylykivska bay (upper part of the reservoir), the food of which consisted exclusively of one-day *Polymitaercys virgo*.

In autumn, the *Pelecus cultratus* diet was very weak, the filling indices ranged from 2.1 to 7.8%. The food of the fish in the middle and lower parts of the reservoir consisted mainly of blue and green algae, which were joined by daphnia, and later the larvae of bedbugs. In the composition of food decreased the importance of insects, except chironomids, and fish, but increased the role of crustaceans and algae, including blue and green.

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