

Growing of sterlet *Acipenser ruthenus* in pool conditions at various modes of illumination

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The development of sturgeon grown both in natural and artificial conditions, significantly influence the internal (genetic) and external (environmental) factors. Among the latter, the environment parameters such as temperature, salinity, illumination, water pH, oxygen content, fodder base, presence or absence of predators and others should be noted.

Growing of young fish in the sensory-depleted environment led to a slowdown in the growth of fry, reducing the operating parameters of the main systems of organs of animals (Obukhov and Klyuyeva, 1988; Nikonorov and Vitvitskaya, 1993).

Study of the effect of illumination on the sturgeon is both of theoretical and practical interest in connection with the increase of the share of artificially farmed fish in total volume of production.

Sturgeon is non-traditional object of growing in Azerbaijan. Azerbaijan does not have the natural resources of starlet sturgeon; therefore it is not grown at natural conditions for reproduction of

their stocks. Recently, sturgeons are increasingly grown on private farm enterprises in Azerbaijan for commercial purposes.

The works were carried out in 2015 in private fish farms in Khudat-Yalama area of Azerbaijan. Growing of larvae and young starlet was carried out in pool method. A small batch of fertilized hard-roes of starlet was brought in Azerbaijan Republic from Russian Federation. After hatching obtained free embryos, larvae and young starlet had been grown in pool method.

In the present work we studied the effects of prolonged exposure to the factor of illumination on the development of the young sterlet sturgeon *Acipenser ruthenus* (since hatching to 4 months of age). The experimental groups of fish of 1000 species were kept in a piscicultural pool conditions under identical conditions (volume of pools, the amount of seeding material, hydro-chemical conditions of the environment and the daily feeding regime). Only illumination differed: control group was

kept at 100 lux of illumination Day / Night for 12 hours, the experimental group was kept under illumination throughout the year.

The carried out analysis showed that the effect of illumination begins to affect the body of sterlet sturgeon already in one, two months of age and increases with age. It was noted that the round the clock illumination has impact on functional parameters of fries.

During the observation period significant changes in the rate of growing of fry and fingerlings and internal organs (Table 1) were noted. It has been shown that has a significant impact on the linear-weight indices of almost all major organs and systems of the fry.

Table 1: Linear and weight parameters of fry sterlet sturgeon, its internal organs at growing in different illumination conditions.

Illumination mode	Age, month	Length L, cm	Weight P, g	Weight of heart, mg	Weight of liver, mg	Weight of intestine, mg	Weight of spleen, mg
Norm	2	10,3±1,1	5,6 ±1,2	18,5±1,3	107,6±12	845±29	17,5±2,4
	4	15,1±0,8	14,1±0,8	28,9±2,4	283,4±19	1895±45	33,8±2,9
Illumination	2	13,6±1,3	11,2±1,1	28,1±1,7	513,6±17	1590±16	44,2±6,0
	4	16,4±1,0	22,5±3,1	62,8±4,6	586,4±22	3150±22	54,5±7,0

M±m(n=15), $p < 0,05$

Thus, the illumination, as one of the environmental factors has a significant impact on the development of different types of juvenile sturgeon (Kasimov, 1973; Ponomarenko *et al.*, 1992; Semenkova and Trenkler, 1993). This effect is comprehensive, affecting the development of many systems of the body of animals (Ruchin, 2006). Lack of illumination in the early period of postnatal development of sterlet sturgeon negatively effects on growth of juveniles that undoubtedly will affect in the future on the overall viability of juveniles. Sufficient illumination, in turn, leads to stimulation of activity of the majority of fish and an increase in the growth rate of juveniles.

The obtained data can be taken into account in determining the strategy of

growing of sterlet sturgeon on farms, aimed at enhancing their viability, as well as while calculating feasibility of using continuous illumination at their commercial growing.

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