

MITOCHONDRIAL DNA SEQUENCE VARIATION AND DEMOGRAPHIC HISTORY OF KALUGA AND AMUR STURGEON (ACIPENSERIDAE): A COMPARISON

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The variability of mitochondrial DNA control region (CR) of kaluga *Acipenser dauricus* Georgi, 1775 and Amur sturgeon *A. schrenckii* Brandt, 1869, endemics of the Amur River, classified as critically endangered by the IUCN Red List of Threatened species – was studied. Similar sample sizes in Kaluga ($n=122$) and Amur sturgeon ($n=112$) were analyzed. In Kaluga, there were less number of haplotypes (27 versus 73), and lower levels of haplotype (0.927 ± 0.009 versus 0.976 ± 0.009) and nucleotide (0.004 ± 0.002 versus 0.019 ± 0.010) diversity. Calculated in various ways, values of population parameter θ ($2N_{ef}\mu$) for kaluga were 2.8–9 times (5.3 times, on the average) lower than those of Amur sturgeon. Therefore, if rates of evolution of CR in these sturgeon species are the same, then it can be argued that the long-term female effective number (N_{ef}) in kaluga is about the same magnitude (~ 3 – 9.5 times, taking into consideration different length of their generations) lower than the N_{ef} in Amur sturgeon. Suchlike conclusion stems from the comparison of bayesian skylines: the N_{ef} in kaluga (ca. 2,800) is about 8 times less than the N_{ef} in Amur sturgeon (ca. 23,000). These estimates are consistent with calculations of the number of kaluga and Amur sturgeon made from the catch data obtained in the late 19th century. In contrast to Amur sturgeon, which is a typical benthophage, kaluga is a fish-eating predator, occupying the top of the trophic pyramid in the ecosystem of the Amur River. The abundance of top predators can not be high. Probably this is what induces kaluga's and Amur sturgeon's differences in the level of variation CR. It should be noted that if the current estimates of abundance of the Amur River sturgeons are correct (the ratio of mature kaluga to Amur sturgeon is $\sim 1:1$ (Koshelev et al., 2014)), then their dramatic decline in the 20th century was more due to Amur sturgeon than kaluga.

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