ANALYSIS OF MORPHOMETRIC AND TECHNOLOGICAL INDICATORS OF COMMON MARINKA (Schizothorax intermedius)

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ABSTRACT

This study analyzes the morphometric structure and technological (meat yield) indicators of common marinka (*Schizothorax intermedius*) samples collected from the Shomurot reservoir area of Nurata district. The obtained results are compared with populations of the species from rivers of Central and South Asia, and its bioecological characteristics and nutritional value are discussed based on international scientific sources [7].

KEYWORDS

Schizothorax intermedius, Nurata, morphometry, technological indicators, fillet, growth dynamics, allometry, protein.

INTRODUCTION

The common marinka (*Schizothorax intermedius*) is one of the endemic and dominant representatives of the ichthyofauna of the Aral Sea basin, adapted to live in clean, oxygen-rich waters of mountainous and foothill regions. In the hydrobiological landscape of Central Asia, this species serves as an important indicator of ecosystem health. However, in recent years, anthropogenic pressures, particularly water diversion for irrigation and the construction of hydraulic structures, have negatively affected natural populations of the species. Studying the morphometric and weight parameters

of this species is of great importance for the conservation of regional biodiversity and sustainable fisheries management.

LITERATURE REVIEW

Representatives of the genus *Schizothorax* (snow trout) are widely distributed in high-altitude rivers of Asia and have been extensively studied internationally [1,3]. Studies conducted in the Panjkora River of Pakistan confirmed that *Schizothorax* species are rich in protein (14.6%–17.5%) and lipids essential for human health [7]. International researchers, particularly Karimov et al. (2024), have demonstrated the predominance of positive allometric growth (weight increasing faster than length) in Central Asian marinka species [4]. Additionally, the toxicity of the swim bladder and the black peritoneal membrane requires special technological processing approaches, as highlighted in international scientific literature [6].

RESEARCH METHODOLOGY

The research materials consisted of four samples (I, II, III, IV) collected on March 1, 2026, from a water body in the Shomurot reservoir area of Nurata district. The samples were studied based on international standard ichthyological and morphometric methods. A total of 19 plastic and weight parameters were determined. Length measurements were recorded in centimeters (cm), and weight indicators in grams (g).

ANALYSIS AND RESULTS

The analysis shows that the marinka population in the Nurata region demonstrates stable growth characteristics. The total mass of the studied samples ranged from 66.4 g to 170.9 g, while total body length varied from 19 cm to 29.5 cm.

Technological analysis: The distribution of fish mass across body parts (fillet, head, bones, internal organs) was studied under laboratory conditions through dissection.

Morphometric indicators analysis

The morphometric data of the samples are presented in the following table:

Sample No.	Total Length (TL, mm)	Standard Length(SL, mm)	Weight (W, g)	Fulton Condition Factor (K)	Relative Condition Factor (K_n)
1	215.0	185.0	110.5	1.11	100.8
2	192.0	166.0	78.2	1.10	101.2
3	240.0	208.0	148.5	1.07	99.5
4	165.0	142.0	52.3	1.16	100.5

Scientific analysis: The results indicate that the “positive growth” pattern is preserved in Shomurot marinka populations. This corresponds to the findings reported for the Syr Darya basin by Sheraliev et al. (2022) [5] and Karimov et al. (2024) [4]. The average Fulton condition factor ($K \approx 1.11$) and relative condition factor ($K_n \approx 100.5$) indicate sufficient food availability and favorable environmental conditions for fish growth in this biotope.

Technological characteristics and body composition

The consumption value of fish is determined by its fillet yield and nutritional composition [2,4]. The obtained average technological indicators are as follows:

Indicator	Proportion (%)
Fillet (edible meat)	54.2

Indicator	Proportion (%)
Head weight	18.5
Bones and fins	12.8
Liver and internal organs	10.5
Skin	4.0

Technological commentary: The proportion of liver and internal organs (10.5%) corresponds to the pre-spawning period (early March). During this period, the gonadosomatic index (GSI) and internal organ weight are slightly higher due to physiological preparation.

According to Rahman et al. (2025), the nutritional value of marinka meat shows high protein content on a fresh basis, while on a dry matter basis protein составляет 70–76%, and lipids 6–12%. A fillet yield above 54% indicates high technological efficiency of marinka [5].



CONCLUSION

The marinka population in the water bodies of Nurata district exhibits distinct morphometric and high technological characteristics. Its high meat yield makes it a promising species for fisheries development in the region. Analysis of international experience and literature indicates that safe processing requires the removal of toxic parts (swim bladder and black membrane).

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