

## LOCAL, ENDEMIC, AND ACCLIMATIZED FISH SPECIES, AND CONSERVATION EFFORTS

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**Abstract:** This article explores the ichthyofauna of the Aral Basin, focusing on the local, endemic, acclimatized, and accidentally introduced fish species. The Aral Basin is home to 37 fish species, of which 22 are local or endemic, including species such as *Dzihunia amudarjensis*, *Iskandaria pardalis*, and *Salmo oxianus*, representing 19% of the basin's fish fauna. The paper highlights the importance of conserving these endemic species, several of which are listed in the Red Book of Uzbekistan. Additionally, the article addresses the ecological impact of acclimatized and accidentally introduced species and underscores the need for effective management strategies. Newly discovered species, such as *Gobio sibiricus* and *Opsariichthys bidens*, are also discussed, emphasizing the dynamic nature of the Aral Basin's ichthyofauna. The findings stress the importance of ongoing research and conservation efforts to maintain the biodiversity of the region and prevent the extinction of endangered species.

**Key words:** Aral Basin, ichthyofauna, endemic fish species, acclimatized species, conservation, Red Book of Uzbekistan, biodiversity, ecological impact, fish species discovery.

**Аннотация:** В данной статье рассматривается ихтиофауна Аральского бассейна, с акцентом на местные, эндемичные, акклиматизированные и случайно введенные виды рыб. В бассейне Арала было выявлено 37 видов рыб, из которых 22 являются местными или эндемичными, включая такие виды, как *Dzihunia amudarjensis*, *Iskandaria pardalis* и *Salmo oxianus*, которые составляют 19% общей ихтиофауны бассейна. В статье подчеркивается важность охраны этих эндемичных видов, многие из которых включены в Красную книгу Узбекистана. Также рассматривается экологическое влияние

акклиматизированных и случайно введенных видов рыб и необходимость эффективного управления этими видами. Также обсуждаются недавно открытые виды рыб, такие как *Gobio sibiricus* и *Opsariichthys bidens*, что подчеркивает динамичную природу ихтиофауны Аральского бассейна. Выводы акцентируют внимание на важности продолжения исследований и охраны биоразнообразия региона.

**Ключевые слова:** Аральский бассейн, ихтиофауна, эндемичные виды рыб, акклиматизированные виды, охрана природы, Красная книга Узбекистана, биологическое разнообразие, экологическое воздействие, открытие новых видов рыб.

The Aral Basin is home to a diverse and rich ichthyofauna, with 37 species of fish identified. These species include local and endemic fish, acclimatized species, and those that have been accidentally introduced. The local and endemic fish species are crucial for maintaining the region's ecological balance, while the acclimatized and accidentally introduced species have altered the ecological dynamics. The Aral Basin's fish fauna reflects the region's unique geographic and ecological characteristics and highlights the importance of understanding its biodiversity and the management of natural resources.

Among the 37 fish species identified in the Aral Basin, 22 species are considered local or endemic. Local fish species are those that naturally occur in this region, and their existence is vital for maintaining the ecological stability of the basin. Endemic species, on the other hand, are unique to the Aral Basin and are not found anywhere else in the world. These species have evolved over time to adapt to the specific environmental conditions of the basin and are crucial to the region's natural heritage.

Endemic fish species in the Aral Basin include *Dzhunia amudarjensis*, *Iskandaria pardalis*, *Oxynoemacheilus oxianus*, *Triplophysa kafirnigani*, *Carpoetobrama kuschakewitschi*, *Leuciscus lehmanni*, and *Salmo oxianus*. These

species make up 19% of the total fish fauna of the basin. Endemic fish are highly sensitive to ecological changes, and their preservation is crucial for maintaining the biological balance of the region. The presence of such a large number of endemic species in the Aral Basin underscores its biological importance.

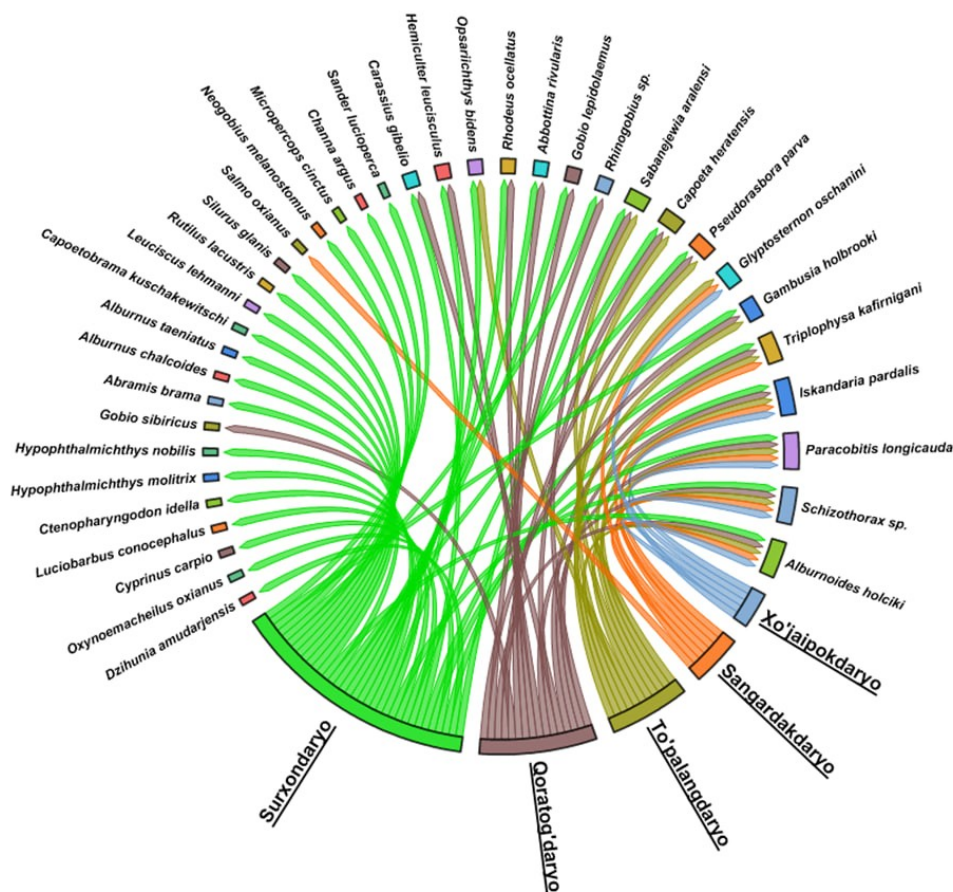
In addition to the local and endemic species, the Aral Basin also hosts 6 species of acclimatized fish. These species have been introduced into the region intentionally and have adapted to the local environmental conditions. Acclimatized species can sometimes alter the ecological dynamics by competing with native species for resources. However, they can also contribute to the diversification of the basin's ichthyofauna. The introduction of these species must be carefully managed to ensure they do not disrupt the delicate ecological balance of the region.

Accidentally introduced fish species, numbering 9 in total, have entered the Aral Basin due to human activities, such as transportation of fish for aquaculture or ornamental purposes. These species may pose a threat to local ecosystems, especially if they outcompete native species or introduce new diseases. However, they also represent an interesting aspect of the region's changing ecological landscape. These species must be monitored closely to assess their impact on the native fauna.

Five fish species from the Aral Basin are listed in the Red Book of Uzbekistan due to their endangered status. These species are *Sabanejewia aralensis*, *Luciobarbus conocephalus*, *Capoetobrama kuschakewitschi*, *Glyptosternon osshanini*, and *Salmo oxianus*. These fish are considered to be at risk of extinction and require immediate protection and conservation efforts. The inclusion of these species in the Red Book highlights the need for effective conservation strategies to prevent further loss of biodiversity in the Aral Basin.

The discovery of new fish species in the Aral Basin is an important aspect of ongoing research in the region. For example, *Gobio sibiricus* (Siberian gudgeon) was recorded for the first time in Uzbekistan, marking a significant expansion of the country's ichthyofauna. Similarly, the species *Opsariichthys bidens* was

identified for the first time in the Surkhandarya River and the lower reaches of the Topalangdarya River. These discoveries highlight the dynamic nature of the Aral Basin's fish population and provide new insights into the ecological changes occurring in the region.



**Figure 1. Distribution of fish families and species by river.**

### Conclusion

The Aral Basin's ichthyofauna is characterized by a high degree of biodiversity, including local, endemic, acclimatized, and accidentally introduced species. The preservation of endemic fish species is critical for maintaining the ecological balance of the basin. At the same time, the management of acclimatized and accidentally introduced species is essential to avoid potential disruptions to the local ecosystems. The inclusion of several fish species in Uzbekistan's Red Book underscores the importance of conservation efforts to protect these species from extinction. Furthermore, the discovery of new fish species demonstrates the need

for continued research and monitoring to better understand the evolving ecological dynamics of the Aral Basin and to inform conservation strategies.

### **List of used literature**

1. Fayziyeva D, Allayarov S. O‘zbekiston suv havzalarida Nemacheilidae (yalangbaliqlar) oilasining tarqalishi va zamonaviy o‘rganilganlik darajasi // NamDU ilmiy xabarnomasi. – Namangan, 2022. - № 3, –B. 156-161. (03.00.00; №17).

2. Allayarov S., Yuldashov M. Baliq turlarini molekulyar identifikatsiyalashning ahamiyati // O‘zbekiston qishloq va suv xo‘jaligi – Toshkent, 2022. - № 8, –B. 35-36. (06.00.00; №1).

3. Jovmirov F., Allayarov S. Surxondaryo havzasida tarqalgan Qizil kitobga kiritilgan baliqlar bioekologiyasi // “Tuproq va atrof-muhit masalalari” Respublika ilmiy-amaliy konferentsiya materiallari to‘plami. Termiz, 16-oktyabr 2020 yil, – B. 155-157.

4. Allayarov S. Amudaryo havzasida tarqalgan Amudaryo yalangbalig‘i – ‘Oxynoemacheilus’ oxianus (Kessler, 1877) ning morfologik belgilari // “O‘zbekiston zoologiya fani: hozirgi zamon muammolari va rivojlanish istiqbollari” II Respublika ilmiy-amaliy konferentsiya materiallari. Toshkent, 15-16 oktyabr 2021 yil, –B. 167-169.

5. Аллаяров С., Файзиева Д. Состояние современных исследований представителей семейства Nemacheilidae, распространенных в водоемах южных регионов Узбекистана // “Актуальные проблемы охраны животного мира в Беларуси и сопредельных регионах” Материалы II Международной научно-практической конференции. Минск, Беларусь, 11-14 октября 2022 г. – 34-36 б.

6. Fayziyeva D., Allayarov S. Amudaryo havzasi endemik turi Iskandaria pardalis (Turdakov, 1941) plastik belgilarining solishtirma tahlili // Materials of the 1st international conference: Conservation of Eurasian

biodiversity: contemporary problems, solutions and perspectives. Andijan State University, 15-17 may, 2023. Andijan, --P. 258-262.