



## FISH FAUNA INCLUDED IN THE RED BOOK OF THE REPUBLIC OF UZBEKISTAN IN BUKHARA REGION WATER BASINS

<sup>1</sup>Rayimov Avaz Rustamovich

PhD, Bukhara State University. rayimov78@bk.ru,

<sup>2</sup>Murodova Hilola Umarqulovna

MSc, Bukhara State University,

x.u.murodova@buxdu.uz.

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*Aspiolucius esocinus*.

### ABSTRACT

*The article analyzes the composition of species, leading groups, spectrum of families, and taxonomic composition of fish included in the Red Book of the Republic of Uzbekistan in Bukhara region and adjacent water basins. In Bukhara region and adjacent water basins, 2 groups, 3 families, and 9 species of 2 large groups of fish included in the Red Book of the Republic of Uzbekistan were found. Fish included in the Red Book of the Republic of Uzbekistan is one of the most important objects of biological diversity. Various biotic, abiotic and anthropogenic factors have a negative effect on fish included in the Red Book of the Republic of Uzbekistan.*

**Introduction.** By the 21st century, there is a sharp decrease in biological diversity [5]. As a result, conservation of biodiversity has become one of the global environmental problems. It is important to ensure the stability of water bodies, preserve fish biodiversity and increase fish productivity through modern methods [6]. identification of influencing factors and study of promising species, development of innovative technologies for control of their number is important nowadays.

The biology and ecology of fish included in the Red Book of the Republic of Uzbekistan theoretically help to solve the problem of finding ways to increase the economic efficiency of fisheries. Comprehensive development of fisheries and fish farms is one of the important factors for a fair solution to the food problem. The fact that the species composition, number, biotope distribution, reproduction, seasonal and annual dynamics of fish included in the Red Book of the Republic of Uzbekistan in the Bukhara region and adjacent water areas has not been studied is an urgent issue of the present time.

**Material and methods.** The information for this article is formed in the Bukhara region, such as Karakir, Zamonbobo, Dengizkol, Khadicha, Zikri, Devkhana, Kumsultan and Ayakogitma lakes, Todakol, Kuyimozor and Shorkol reservoirs, Amu-Bukhara machine canal networks and the information obtained on the basis of observations made in 2012-2023 in the areas of Kogon fishery are presented. Fish samples from reservoirs in Bukhara region were taken in field conditions with mesh nets of different sizes (35, 45, 55, 65 mm). For catching small fish, a net with a mesh of 15-30 mm, a Breden net with a mesh of 8-10 mm, a



composite net and fishing rods were used [1;2]. Caught fish were fixed with 4% formalin. Collections of fishes caught in different years were also used, especially those stored in the Zoo Museum of Bux.S.U [4]. Fishing rods were used to catch predatory fish. The weight of the fish was measured on an electronic scale. From the literature written by Mirabdullaev and other authors in determining the species composition of fish [3;8;10]. scientific names and systematic interpretation of fishes were performed using literature published by Dadaev and others [3;7].

**Result and discussion.** Based on the analysis of the field materials we collected, 2 genera (*Acipenseriformes*, *Cypriniformes*), 3 families (*Acipenseridae*, *Cyprinidae*) belonging to 2 large groups of fish included in the Red Book of the Republic of Uzbekistan (*Ganoidomorpha*, *Teleostei*, *Cobitidae*) 9 species were found found in Bukhara region and adjacent water areas (Table 1).

**Distribution of fish included in the Red Book of the Republic of Uzbekistan found in Bukhara region and adjacent water areas (2012-2022)**

(1 - Table)

No	Types of fish	Protection status	Devkhana	Xadicha	Ayak ogitma	Dengizkol	Kora-qir	Shurkul	Tudakul reservoir	Kuyimozor reservoir	Amu-Bukhara Canal	Amudarya
Type. Chordata												
Junior type. Craniata												
Group. Anamnia												
Big class. Pisces												
Class. <i>Osteichthyes</i>												
Junior class. <i>Actinopterygii</i>												
Big category. <i>Ganoidomorpha</i>												
Category. <i>Acipenseriformes</i>												
Family. <i>Acipenseridae</i>												
1	<i>Acipenser nudiventris</i> (A)	UzRDB RL CITES I	-	-	-	-	-	-	-	-	-	+
2	<i>Pseudoscaphirychus kaufmanni</i> (A)	UzRDB RL CITES I	-	-	-	+	-	+	+	+	+	+
3	<i>Pseudoscaphirhynchus hermanni</i> (A)	UzRDB RL CITES I	-	-	-	-	-	-	-	-	+	+
Big category. <i>Teleostei</i>												
Category. <i>Cypriniformes</i>												
Family. <i>Cyprinidae</i>												



4	<i>Barbus brachycephalus</i> (A)	UzRDB	-	-	-	-	-	-	+	-	-	+	+
5	<i>Capoetobrama kuschakewitschi</i> (A)	UzRDB	-	-	-	-	-	-	+	-	+	+	+
6	<i>Aspiolucius esocinus</i> (A)	UzRDB RL	-	-	-	-	-	-	+	-	-	+	+
7	<i>Luciobarbus conocephalus</i> (Z)	UzRDB	+	+	+	+	+	+	+	-	+	-	-
8	<i>Abramis sapa</i> (A)	UzRDB	-	-	-	-	-	-	-	+	-	+	+
<i>Oila. Cobitidae</i>													
9	<i>Sabanejewia aurata</i> (A)	UzRDB	-	-	-	-	-	-	-	+	-	+	-

Note: (A)-Fish that passed through the Amudarya River; (Z)-Fish that passed through the Zarafshan River;

UzRDB - Species included in the Red Book of the Republic of Uzbekistan (subspecies) (2019)

RL - International Union for Conservation of Nature and Natural Resources (IUCN) Red List Species (Subspecies) (2004)

CITES I, CITES II - species included in the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (subspecies).

4 of the 9 fish species included in the Red Book of the Republic of Uzbekistan in the Bukhara region and adjacent water basins (*Acipenser nudiventris*, *Pseudoscaphirychus kaufmanni*, *Pseudoscaphirhynchus hermanni*, *Aspiolucius esocinus*) were added to the IUCN Red List, 3 species (*Acipenser nudiventris*, *Pseudoscaphirychus kaufmanni*, *Pseudoscaphirhynchus hermanni*) are included in Appendix I and II of CITES [9;11].

*Luciobarbus conocephalus* can be included in the dominant species due to its occurrence in Bukhara region and all water areas adjacent to it. Subdominant species include *Pseudoscaphirychus kaufmanni*. *Acipenser nudiventris*, *Pseudoscaphirhynchus hermanni*, *Luciobarbus brachycephalus*, *Aspiolucius esocinus*, *Capoetobrama kuschakewitschi*, *White-eyed Bream*, *Sabanejewia aurata* are among the species found in Bukhara region and some adjacent water basins (Table 1).

*Cypriniformes* is the leading group of fish included in the Red Book of the Republic of Uzbekistan in Bukhara region and adjacent water basins, and it includes 6 species. The share of representatives of the rest of the category is less, it can be seen in table 2.

**(Table 2)**

**The spectrum of the leading species and families of fish included in the Red Book of the Republic of Uzbekistan in Bukhara region and adjacent water basins.**

Categories	Number of families	%	Type number	%
<i>Acipenseriformes</i>	1	33,33	3	33,33
<i>Cypriniformes</i>	2	66,67	6	66,67
Total	3	100	9	100

According to the results, in the Bukhara region and adjacent water areas, among the 9 species of fish included in the Red Book of the Republic of Uzbekistan, the most species are 6



species of the *Cypriniformes* family (66.67%), 3 species of the *Acipenseriformes* family (33, 33 %) (Table 2).

### Taxonomic composition of fish included in the Red Book of the Republic of Uzbekistan in Bukhara region and adjacent water areas.

Type.	Class.	Category	Family	Species	
Chordata	Pisces	<i>Acipenseri formes</i>	<i>Acipenseridae</i>	<i>Acipenser nudiventris</i>	
				<i>Pseudoscaphirychus kaufmanni</i>	
				<i>Pseudoscaphirhynchus hermanni</i>	
		<i>Cypriniformes</i>	<i>Cyprinidae</i>	<i>Barbus brachycephalus</i>	
				<i>Capoetobrama kuschakewitschi</i>	
				<i>Aspiolucius esocinus</i>	
				<i>Luciobarbus conocephalus</i>	
				<i>Abramis sapa</i>	
				<i>Eshvoylar- Cobitidae</i>	<i>Orol tikanagi -Sabanejewia aurata</i>

Among the fish included in the Red Book of the Republic of Uzbekistan in the Bukhara region and adjacent water areas, there are 6 species belonging to 2 families (*Cyprinidae*, *Cobitidae*) of the *Cypriniformes* family, 3 species belonging to 1 family (*Acipenseridae*) of the *Acipenseriformes* family. (Table 3).

**Conclusion.** It is very important to study the fish included in the Red Book of the Republic of Uzbekistan in Bukhara region and adjacent water areas, to create their cadastre, to carry out continuous monitoring, and to protect species of practical importance. It consists of information necessary for the organization of measures on the diversity, classification, number dynamics, level of study and the protection of the world of fish, their sustainable use.

Assessing the state of their populations and determining their trends of change by studying the fish included in the Red Book of the Republic of Uzbekistan in the Bukhara region and adjacent water areas. It is important to develop recommendations on ways to preserve rare and endangered species.

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