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Zooplankton of The Mingachevir Reservoir (Azerbaijan)

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ABSTRACT

The article provides information on the biodiversity of multicellular zooplankton communities (metazooplankton) distribution by biotopes, development dynamics, abundance and biomass by seasons in the Mingachevir Reservoir in the current period (2021-2023). As a result of the study 36 species of zooplankton were found belonging to 3 taxonomic groups (13 species of rotifers, 12 species of cladocerans, 11 species of copepods). Cosmopolitan and phytophiles-littoral species are more common in the reservoir. The total abundance of zooplankton varied between 4136-46410 ind./m^3, biomass 986.46-10013.98 mg/m^3.

Keywords: species composition, zooplankton, abundance, biomass.

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Introduction

Zooplankton is a very important and functional component of the ecosystem in every water basins. Whether migration, feeding traits, or as a consumer of primary fertility, zooplankton provides the direction and intensity of matter and energy flow in stagnant water basins, self-cleaning process. Its species composition and development dynamics make it possible to carry out a diagnostic assessment of the changes occurring in the water basin ecosystem (Andronikova 1996, Basharova 1995). Reservoirs are ecosystems that exists for a long time, and have their own stable level of planktonocenosis, which is the main indicator of the hydrobiological regime. From this point of view, the study of zooplankton of the Cascade Reservoirs (Varvara, Mingachevir, Yenikiand, Shamkir) of the Kura River, which has a great role in all areas of water management in our republic, caused interest. It is known that in the part of the Kura River flowing through our republic, 4 reservoirs forming a cascade - Shamkir, Yenikend, Mingachevir and Varvara Reservoirs are in operation. Among these reservoirs, according to their size and chronological order, the largest and oldest is Mingachevir (commissioned in 1953), and the smallest and youngest is Yenikend (commissioned in 2000) (Aliev and Bagirova 2009). The aim of this study is compare the species composition, abundance and biomass of zooplankton in the the Cascade Reservoirs of the Kura River in the current period.

Materials and Methods

Study Area

The Mingachevir Reservoir is situated on the territory of the Azerbaijan Republic - 40°55'30.1"N. and 46°47'44.3"E. It is located in the Samukh depression in the middle flowing of the Kura River. It is surrounded by the mountains: Gochashen (or Akar-Bakar) from the north and east, Bozdag from the south and southwest, and Palandoken Mountains from the northwest. The length of the reservoir is 75 km, the maximum width is 20 km, the maximum depth is 75 m (in the part near the dam), the average depth is 27 m, the area is 62000 ha. The length of the reservoir dam is 1550 m, the height is 80 m. A hydroelectric power station (HPS) consisting of 6 hydrounits with a total capacity of 371000 KW was built in this dam. Two large irrigation canals which commissioned in 1958 - the Karabakh (172 km long) and Shirvan (128 km long) canals take their source from the Mingachevir Reservoir (Ahmedzade and Gashimov 2016, Khalilov 2003, Tarverdiyev 1974). The main water sources of the Mingachevir Reservoir are Kura, Ganikh, Gabirri, and partially Ganjachay Rivers. According to its hydrological characteristics, the reservoir is conditionally divided into 4 parts: upper - river part (109 km^2), middle-semi-lake part (158 km^2), lower - lake part (316 km^2) and Khanabad Gulf (42 km^2). The river part covers the valleys of the rivers that flow into the reservoir and respectively are called Kura, Ganikh and Ghabirri Gulfs. The semi-lake part - located between the gulfs of the rivers and the lake part. Its area is 158 km^2, its depth is up to 30 meters, its length is 11 km. Its maximum depth is 56m. The lake part - area is 316 km^2, its length is 35 km, its maximum width is 11 km, and its average width is 10.8 km. This part is the deepest part of the reservoir (especially the right bank 55-75 m), it extends to the dam. Khanabad Gulf - covers the eastern end of the reservoir. Its area is 42 km^2. The northern and eastern shores are sloping, and the southern shore is steep. Here, the depth varies between 5-40 m (Tarverdiyev 1974).

Sampling and analysis

Zooplankton samples in the Mingachevir Reservoir were collected seasonally in 2021-2023. To collect samples from 9-12 stations in the central parts of the reservoir, as a means of transport were used motor boats and from the sublittoral zone 0-5 m, 5-10 m, 10-15 m, 15-20 m, etc. from the depths were used rowboats (Figure 1). For this purpose were used Apstein net (No. 77) to collect quantitative samples and scoop-nets of different sizes to collect qualitative samples from different areas of the reservoir (stone, sand, black sludge).

Quantitative samples were taken through in the vertical direction hauls from depths selected from relatively deep parts of the reservoir (30-50 m), but in the horizontal direction hauls, the Apstein net was inserted into the water at a depth of 0.5-1.0 m and drawn along the direction of movement of the boat at a distance of 5 meters. At each station, air and water temperatures were measured with a thermometer (Tetra TH Digital and Testo 610). The collected samples were fixed in 4% formalin and 70% alcohol solution depending on the density of organisms. Both live and fixed zooplankton samples were analyzed under OLYMPUS CX 41 RF and NICON SMZ 1270 microscopes and their identification was based on taxonomic keys (key-books and international taxonomic data systems). Bogorov chamber and stamped (marked) pipette for quantitative analysis were used (Abakumova 1983, Alekseev and Tsalolokhin 2010, Andronikova 1996, Borutsky et al. 1991, Vinberg and Lavrenteva 1982, Kutikova 1970, Manuylova 1964, Plotnikov et al. 2017, Rylov 1948, Smirnov 1971, Tsalolikhin 1995, Witty 2004). The biomass of species with large morphometric measurements was determined under a microscope using an ocular micrometer and an objective micrometer according to the methods of Ruttner-Kolisko (1977), Balushkina and Vinberg (1979). When it was impossible to determine the mass of small organisms, information about their mass was obtained from scientific literature. At the same time, the sizes of individuals of the species, male, female (with eggs, eggless), juveniles and nauplii stages were taken into account (Ulomsky 1947, 1951, 1952, 1955, 1958, Plotnikov et al. 2017).

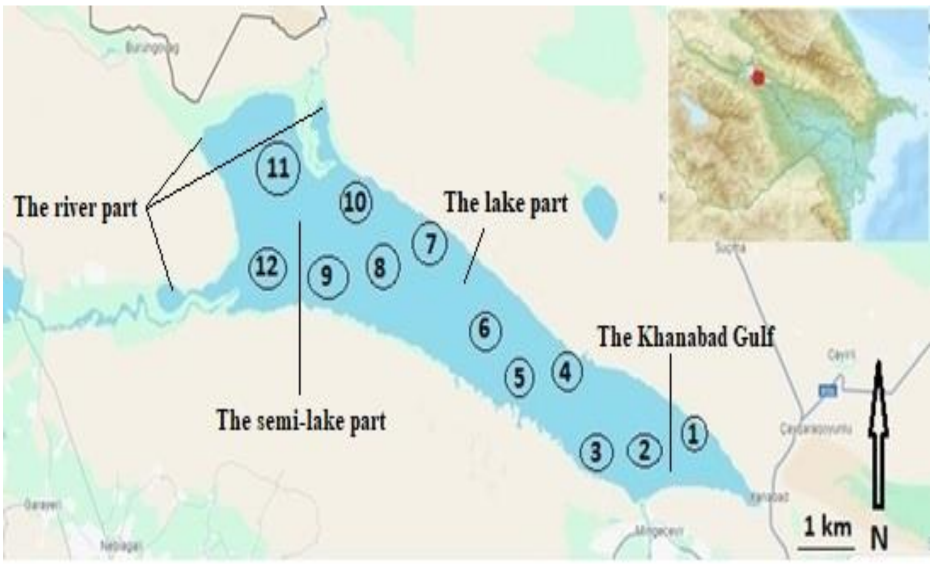

Figure 1. Map-scheme showing the location of biological stations in the Mingachevir Reservoir

In order to determine the frequency of occurrence, the percentage of the number of samples in which individuals of the species were found among all the samples taken from the reservoir was determined and was performed based on the following formula:

$$pF = \frac{n}{N} \cdot 100\%$$

where pF is the frequency of occurrence

n – the number of samples in which the species was recorded

N – number of all samples (Kojova 1970)

The frequency of occurrence of individuals of the species in the sample was considered if pF > 75% - constant, pF<75% >50% - regular, pF=25-50% - irregular and pF < 25% -random.

In order to reveal the similarities and differences in the distribution of zooplankton species found in the plankton of both studied reservoirs, using the similarity formula proposed by Sorensen (1948) the similarity coefficient of zooplankton species in the studied reservoirs was calculated based on the following formula:

$$K = \frac{2C}{A+B} \cdot 100\%$$

where, K- the similarity coefficient,

A and B – the general number of species found and identified in each of the compared reservoirs,

C-the number of common species to both reservoirs being compared.

The result are expressed in % the calculations and are based on the presence of species identified in both reservoirs, the fauna of which are compared. In the calculation, if C=0, then K=0, which means that there is no commonality or similarity between the 2 reservoirs being compared, and if A=B=C, then K=100%, which means the identification of the species in the reservoirs is compared.

Results

During the present study 2021-2023, 36 species were recorded belonging to 3 taxonomic groups of zooplankton in the Mingachevir reservoir. In terms of the number of species, rotifers are richest group with 13 species (36.1%), followed by cladocerans with 12 species (33.3%), copepods with 11 species (30.6%). Brachionidae family with 6 species belonging to 2 genera, Daphnidae family with 6 species belonging to 4 genera, Chydoridae family with 3 species belonging to 2 genera, Cyclopoidae family with 9 species belonging to 6 genera showed species richness.

Polyarthra vulgaris Garlin, 1943, *Asplanchna priodonta* Gosse, 1850, *Daphnia longispina* Müller, 1785, *D. hyalina* (Leyding, 1860), *Chydorus sphaericus* (Müller, 1785), *Bosmina longirostris* (Müller, 1785), *Arctodioptomus acutulobatus* Sars, 1903, *Termocyclops dybowskii* (Lande, 1890) were the most frequent species in all seasons of the year (Table 1).

The species recorded during the study are typical for the inland water basins of Azerbaijan. They are recorded in both mixohaline (saltish) and freshwater basins. Oligo-beta-alpha-mesosaprobe (o-β-α) species, saprobic index varied between 1.0-2.8. According to their origin they belong to the Boreal, Ponto-Caspian and endemic to Azerbaijan genetic groups (Kasymov 1972, Plotnikov et al. 2017).

Zoogeographically the main part of zooplankton species is cosmopolitan (58.3%). Holarctic and polyarctic species respectively account for 16.7% and 14.0% of the total species. According to the habitat character phytophilic-littoral species (41.7%) predominated in the samples collected from the reservoir, eurybionty species made up 30.5% of the total number of species, and true plankton species 27.8%. Littoral species *L. luna, C. reticulata, S. vetulus, M. brachiata, M. albidus, M. gracilis* and benthic species of the genus *Alona* sp. were recorded more in the shallow coastal waters (Table 1).

In winter (January-February) at a temperature range of +3.4-9.5°C were recorded 19 species in the zooplankton complex of the reservoir: *A. priodonta, B. calyciflorus, B. falcatus, K. cochlearis, P. vulgaris, T. tetractis, D. longispina, D. hyalina, M. brachiata, B. longirostris, Ch. sphaericus, A. affinis, A. acutulobatus, M. fuscus, M. albidus, C. strenuus, M. leuckartii, A. gigas, T. dybowskii. Among these species D. hyalina, B. longirostris, Ch. sphaericus, A. acutulobatus, T. dybowskii* were the leading species. These species are found in the zooplanktonocenosis of the reservoir throughout the year. Almost all of the 36 recorded species participate to one degree or another in the formation of the zooplankton complex in the reservoir in spring and summer (Table 1). In the spring season, under temperature conditions of +4.2-10.5°C *B. longirostris, Ch. sphaericus, A. acutulobatus were dominant, B. calyciflorus, K. cochlearis, K. quadrata, A. priodonta, S. pectinata, D. longispina, D. hyalina, M. brachiata, M. albidus, M. leuckarti* were subdominant species. In summer (June-August) in the shallow areas of the water reservoir at temperature range +18.2-25.5°C mass development of *A. acutilobatus* was recorded.

Table 1. Zooplankton species composition, zoogeography, habitat character and seasonal development dynamics in the Mingachevir reservoir in 2021-2023

№	Species	Zoogeography	Habitat	Winter	Spring	Summer	Autumn
	Rotifera						
1	*Synchaeta pectinata* Ehrenberg, 1832	K	Eut	-	+++	++++	++++
2	*Polyarthra vulgaris* Garlin, 1943	H, A	Eut	++	+++	++++	++++
3	*Asplanchna priodonta* Gosse, 1850	K	Eut	++	+++	++++	++++
4	*Lecane luna* (Müller, 1776)	K	L,Ph	-	+	++	++++
5	*Trichotria tetractis* (Ehrenberg, 1830)	K	L	+	++	++++	+++
6	*Lepadella ovalis* (Müller,1786)	K	Ph	-	++	++	+
7	*Brachionus leydigi* Cohn, 1862	K	L	-	+	++	+
8	*B.bennini* Leislsing, 1924	K	Pl	-	+	++	+
9	*B. falcatus* Zacharias, 1898	E, N	Ph	+	+++	+++	-
10	*B.calyciflorus* Pallas, 1766	K	Pl	++	++	++++	++++
11	*Keratella cochlearis* (Gosse, 1851)	K	Eut	++	+++	++++	++++
12	*K.quadrata* (Müller, 1786)	K	Eut	-	++	++++	++
13	*Filinia longiseta* (Ehrenberg, 1834)	K	Eut	-	+	++	-
	Cladocera						
14	*Diaphanosoma brachyurum* (Lievin, 1848)	H P	Pl	-	+	++++	++++
15	*Daphnia pulex* Leydig, 1860	H	Pl	-	+	+	+
16	*D. longispina* (Müller, 1785)	H	Pl	+++	+++	++++	++++
17	*D.hyalina* Leyding, 1860	P	Pl	+++	+++	++++	++++
18	*Simocephalus vetulus* Müller, 1776	K	Ph, L	-	++	++++	++
19	*Moina brachiata* Jurine, 1820	K	Ph, L	+	+	++++	++
20	*Ceriodaphnia reticulata* (Jurine, 1820)	K	Ph, L	-	+	++++	++
21	*Chydorus sphaericus* (Müller, 1785)	K	Eut	+++	++++	++++	++++
22	*Alona affinis* (Leydig, 1860)	K	Ph, L, Bt	+	+	++	++
23	*Coronatella rectangula* Sars, 1862	K	Ph, L,Bt	-	+	++	++
24	*Bosmina longirostris* (Müller, 1785)	K	Eut	+++	++++	++++	++++
25	*Leptodora kindtii* (Focke, 1844)	H	Pl	-	+	++	+
	Copepoda						
26	*Arctodiaptomus acutulobatus* Sars, 1903	P	Pl	++++	++++	++++	++++
27	*Macrocylops fuscus* (Jurine, 1820)	H	Ph	+	+++	++++	++++
28	*M.albidus* (Jurine, 1820)	K	Ph,L	+	+++	++++	++++
29	*Cyclops strenuus* Fisher, 1851	H	Pl	+	++	++	++
30	*C.vicinus* Uljanin, 1875	H, P	Eut	-	++	+++	++
31	*Megacyclops gigas* (Claus, 1857)	P	Pl	++	++	+++	+++
32	*M. viridis* (Jurine, 1820)	K	Eut	-	++	++	++
33	*Metacyclops gracilis* (Lilljeborg, 1858)	P	Ph, L	-	++	+++	+
34	*Mesocyclops leuckarti* (Claus, 1857)	K	Eut	+	++	+++	++
35	*Termocyclops dybowskii* (Lande, 1890)	P	Ph	+	++	+++	++++
36	*Attheyella crassa* (Sars, 1863)	H	L, Ph	-	+	++	-
	Total			19	36	36	36

Note: Species distribution or zoogeographic character (Segers 2007; 2008, Boxshall and Defaye 2008; Forro et al. 2008): A – Australia, P – Palaearctic, K – cosmopolitans, H – Holarctic, E – Ethiopia, N – Neotropics. Habitat character (Kutikova 1970; Manuylova 1964; Dumont and Negrea 2002; Dussart and Defaye 2002; 2006): Pl – planktonic, L – littoral, Ph – phytophilic, Eut – eurytopic. Bt - benthic. Frequency of occurrence of species (Kojova, 1970): pF < 25% (+), pF=25-50% (++), pF<75% >50% (+++), pF > 75% (++++), was not recorded (-).

In June 2021 the amount of *A. acutulobatus* at a depth of 0-5 meters was 8.600 ind./m3, and biomass was 4,644.05 mg./m^3 in Khanabad Gulf. In the autumn (September-November) at a temperature range of +17.8-23.5°C *Ch. sphaericus, B. longirostris, A. acutulobatus* were the leading species in both shallow and deep parts of the reservoir.

The total amount of zooplankton in the Mingachevir Reservoir ranged between 4136 and 46410 ind./m^3, biomass from 986.46 to 10013.98 mg/m^3. During the study years the highest values were recorded in June 2021 (35250 ind./m^3 and 9517.61 mg/m^3), in July 2022 (46410 ind./m^3.-1013.98 mg/m^3,), in June 2023 (10306 ind./m^3-2302.84 mg/m^3) (Table 2).

Table 2. Reletive density and biomass of zooplankton species in the Mingachevir Reservoir by seasons 2021- 2023

Date of sampling		2021				
		february	march	june	august	september
Number of species		11	22	26	26	26
Total: - N, ind/m^3		14475	32667	35250	9750	17039
N%	Rotifera	9	19,6	22,3	23,6	29,0
	Cladocera	34.4	34.6	27.1	35.4	36.0
	Copepoda	56.6	45.8	50.6	41.0	35.0
Total: - B, mq/m^3		4605.96	5928.43	9517.61	1791.80	3094.65
B%	Rotifera	0.2	0.6	0.5	0.7	0.7
	Cladocera	20.8	25.1	22.0	30.6	37.8
	Copepoda	79.0	74.3	77.5	68.7	61.5
Date of sampling		2022				
		january	march	june	july	october
Number of species		17	27	32	33	30
Total: - N, ind/m^3		4136	9419	17005	46410	45610
N%	Rotifera	13.1	23.4	32.3	23.1	22.6
	Cladocera	35.1	28.6	29.2	32.1	36.6
	Copepoda	51.8	48.0	38.5	44.8	40.8
Total: - B, mq/m^3		1150.92	2216.51	3691.71	10013.98	9369.15
B%	Rotifera	0.5	0.4	3.0	0.4	0.5
	Cladocera	17.0	16.1	25.0	20.8	21.1
	Copepoda	82.5	83.5	72.0	78.8	78.4
Date of sampling		2023				
		january	march	april-may	june	october-november
Number of species		19	36	36	36	36
Total: - N, ind/m^3		7279	9104	5000	10306	6623
N%	Rotifera	24.5	28.7	26.3	22.7	30.7
	Cladocera	23.1	27.7	31.1	28.0	32.0
	Copepoda	52.4	43.6	42.6	49.3	37.3
Total: - B, mq/m^3		1731.55	1872.91	986.46	2302.84	1145.25
B%	Rotifera	0.5	0.4	0.5	0.3	0.6
	Cladocera	14.6	19.0	25.2	17.7	20.4
	Copepoda	85.0	80.6	74.3	82.0	79.0

Analysis of the developmental dynamics of zooplankton by taxonomic groups showed that cladocerans and copepods have the ability to create high abundance and biomass in the zooplanktocenosis of the reservoir. In 2021, the highest abundance and biomass of cladocerans were recorded in March in the lake part of the reservoir (7300 ind./m^3) and in Khanabad Gulf (1103.81mg/m^3), the highest quantitative parameters of copepods were recorded in June (10800 ind./m^3-5021.08 mg/m^3) in Khanabad Gulf. In 2022, the highest amount of cladocerans were recorded in July in the semi-lake part of the reservoir (8620 ind./m3), biomass (1211.99 mg/m^3) in the Khanabad Gulf. In the same month, copepoda species made up 50.4% of the total amount of zooplankton and 79.6% of its biomass in the Khanabad Gulf. In 2023, the highest amount of cladocerans (respectively 24.3%-13.8% of the total amount and biomass) and copepods (53.7% of the total amount, 85.8% of the total biomass) were recorded in June in Sovkhoz kosa area (the southern part of the reservoir).

In all seasons of the research years (2021-2023), A. acutulobatus which dominated both in terms of amount and ability to create biomass, accounted for 10-35% of the total amount of zooplankton and 30-65% of its biomass. In this regard, *D. longispina, D. hyalina, Ch. sphaericus, T. dybowskii* were in second place, making up 2-15% of the total amount and biomass. Although *B. longirostris* is in the second place in terms of the ability to create amount, it accounted for only 0.5-1.0% of the total biomass of zooplankton.

Discussion

The analysis of existing literature sources about the zooplankton of reservoirs of Azerbaijan showed that the basis of zooplankton are ciliates, rotifers, cladocerans and copepods in reservoirs. Although ciliates and rotifers predominate in biodiversity and amount, cladocerans and copepods have always been at the forefront in terms biomass production (Aliev and Bagirova 2009, Kasymov 1972).

In the 50s and 80s of the previous century, much scientific research was carried out by Likhodeyeva (1963), Kasymov (1965), Ahmedov (1971), Alekperov (1987) and others in the Cascade Reservoirs of the Kura River. Only the hydrofauna of Yenikend Reservoir was studied in 2000-2005 (Aliev and Bagirova 2009, Kasymov 1972, Alekperov and Tapdiqova 2022).

Metazooplankton in the Mingachevir Reservoir was first studied by Likhodeyeva (1963) who found 21 zooplankton species. Then Ahmedov (1971) recorded 38 zooplankton species. Both researchers showed that species *A. priodonta, P. vulgaris, D. brachyurum, D. longispina, D. hyalina, B. longirostris, L. kindtii, S. sarsi, A. acutilobatus, M. fuscus, T. dybowskii* are the most common and permanent species in Mingachevir Reservoir (Ahmedov 1971, Likhodeyeva 1963). Protozooplankton (fauna of cilates) of Mingachevir Reservoirs was studied in the 1970s by Alekperov (1987) and who found 50 species of free-living ciliates in the Mingachevir Reservoir (Alekperov 1987, Alekperov and Tapdiqova 2022). The latest studies in the Cascade Reservoirs of the Kura River were carried out in 2001-2005 after the Yenikend Reservoir was put into operation, and the results of the research showed that the species composition of metazooplankton consisted of 26-31 species (Ahmedov 2003, 2006). As a result of the analysis of available literature materials, the study of the state of zooplankton in the Mingachevir Reservoir under modern conditions caused interest.

As a result of the comparative analysis of zooplankton data obtained in the Mingachevir Reservoir in 2021-2023 with the results of research in the 60s of the previous century, it was found that 16 species *(F. longiseta, B. calyciflorus, K. cochlearis, K. quadrata, A.priodonta, S. pectinata, D. brachyrum, D. pulex, D. hyalina, C. reticulata, M. brachiata, B. longirostris, Ch. sphaericus, L. kindtii, M. fuscus, T. dybowskii)* out of 21 species recorded by Likhodeyeva (1963), 25 species *(S. pectinata, A. priodonta, T. tetractis, B. leydigi, B. calyciflorus, K. cochlearis, K. quadrata, L. ovalis, P. vulgaris, F. longiseta, D. longispina, S. vetilus, C. reticulata, M. brachiata, B. longirostris, Ch. sphaericus, A. rectangula, L .kindtii, A. acutulobatus, M. fuscus, M. albidus, C. visinus, A. gigas, M. grasilis, T. dybowskii)* out of 38 species recorded by Ahmedov (1971) have preserved their existence for 55-60 years. The species registered in 2021-2023 – *L. luna, B. bennini, B. falcatus, A. affinis, C. strennus, M. viridis, M. leucarti, A. crassa* are new species for reservoirs. Of the species presented by both researchers as permanent species, 1 species - *T. dybowskii* - retains its dominance for many years, *B. longirostris, Ch. sphaericus, A. acutulobatus* dominated in the zooplankton complex of the reservoir in all seasons of 2021-2023.

Starting from the Central Aran zone of Azerbaijan and moving towards the Western zone, Varvara is the first, Shamkir is the last reservoirs of the Cascade Reservoirs of the Kura River. For the purpose of comparative study of the zooplankton of the Cascade Reservoirs, zooplankton of the Varvara Reservoir was studied in 2019-2021 and 41 metazooplankton species were recorded. 19 of them belong to rotifera (*S. pectinata, P. vulgaris, A. priodonta, L. luna, L. quadridentata, L. lunaris, T. tetractis, B. quadridentatus, L. ovalis, B. bennini, B. falcatus, B. diversicornis, B. calyciflorus, B. angularis, P. patulus, K. cochlearis, K. quadrata F. longiseta, H. mira*), 12 of them belong to cladocera (*D. longispina, D. hyalina, S. vetulus M. brachiata, C. reticulata, S. mucronata, M. hirsuticornis, G. testudinaria, Ch. sphaericus P. aduncus, A. affinis, B. longirostris*), 10 of them belong to copepoda (*A. acutulobatus M. fuscus, M. albidus, E. serrulatus, E. macruroides, P. fimbriatus, C. vicinus, A. gigas, M. gracilis, T. dybowskii*) (Alekperov and Tapdiqova 2021). When comparing the similarity coefficient according to Sorensen (1948) in Mingachevir and Varvara Reservoirs, it was found that: 1 species of rotifers *(Brachionus leydigi),* 4 species of cladocerans *(Diaphanosoma brachyrum, Daphnia pulex, Alona rectangula, Leptodora kindtii),* 4 species of copepods *(Cyclops strenuus, Megacyclops viridis, Mesocyclops leuckarti, Atheyella crassa)* were recorded in the Mingachevir Reservoir, but these species were not found in the Varvara Reservoir, 7 species of rotifers *(Lecane quadridentata, L.lunaris, Brachionus quadridentatus, B.diversicornis, B.angularis, Platyas patulus, Hexarthra mira),* 4 species of cladocerans *(Scapholeberis mucronata, Macrothrix hirsuticornis, Graptoleberis testudinaria, Pleuroxus aduncus),* 3 species of copepods *(Eucyclops serrulatus, E.macruroides Paracyclops fimbriatus)* were recorded in the Varvara Reservoir, these species were not found in the Mingachevir Reservoir.

The similarity coefficient of Rotifera between the Mingachevir Reservoir (13 species) and the Varvara Reservoir (19 species) are 12 species *(S. pectinata, P. vulgaris, A. priodonta, L. luna, T. tetractis, L.*

ovalis, B. benini, B. falcatus, B. calyciflorus, K. cochlearis, K. quadrta, F. longiseta) or K=75,0%.

The similarity coefficient of Cladocera between the Mingachevir Reservoir (12 species) and the Varvara Reservoir (12 species) are 8 species *(D. longispina, D. hyalina, S. vetulus, M. brachiata, C. reticulata, Ch. sphaericus, A. affinis, B. longirostris)* or K=66.7%.

The similarity coefficient of Copepoda between the Mingachevir Reservoir (11 species) and the Varvara Reservoir (10 species) are 7 *species (A. acutulobatus, M. fuscus, M. albidus, C. vicinus, A. gigas, M. gracilis, T. dybowskii)* or K=66.7%.

Between the Mingachevir and Varvara Reservoirs, a high similarity coefficient (75,0%) belongs to Rotifers, similarity coefficient is the same between Cladocerans and Copepods (66.7%).

Conclusion

As a result of research conducted after an almost 60-year break, information was obtained on the species composition, quantity parametrs, distribution by biotopes and the dynamics of development by season of multicellular zooplankton communities (metazooplankton) in the Mingachevir Reservoir under current conditions. It was determined that the metozooplankton of the reservoir consists of 36 species belonging to 3 taxonomic groups. In terms of biodiversity rotifers (36.1%) dominated. *P. vulgaris, A. priodonta, D. longispina, D. hyalina, Ch. sphaericus, B. longirostris, A. acutulobatus, T. dybowskii* were the most frequent species in all seasons of the year.

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