

Hydrological situation in the Dniester River basin in 2023¹

Meteorological conditions

In the upper part of the Dniester river basin, the hydrological regime of the rivers of the Dniester basin in 2023 was formed in unfavorable meteorological conditions. The winter period of 2022-2023 was characterized by very unstable weather conditions. There was a frequent alternation of periods of decrease and increase in air temperature, which led to the repeated formation and melting of snow cover, contributing to the increase in the water discharge of rivers and the passage of low-level floods (without negative consequences), the appearance of ice phenomena on the rivers of the basins with their subsequent destruction, and the absence of soil freezing. The average air temperature during the winter period exceeded the climatic norm by 0.7-2.6 °C (in January it was 4.9-6.7 °C higher than the monthly norm) and with a sufficient amount of precipitation.

The amount of precipitation in the Dniester basin up to Mogilev - Podilskyi in the period January-December 2023 slightly exceeded the climatic norm (763 mm fell against the annual norm of 723 mm).

Most of the annual precipitation in 2023 fell in the winter period and during the formation of spring floods - 1.1-1.8 monthly precipitation norms for each of the months. The rivers maintained an elevated water discharge of 120-230%. In March, the water discharge of the rivers did not exceed 90%, and in October it was the lowest - 71% of the month's norm.

The summer -autumn low flow of 2023 began in May and was formed in the conditions of a stable precipitation deficit. Only in June, their number was 134% of the monthly norm. In May -October, 409 mm of precipitation fell against the norm of 473 (86 %).

Table 1. Monthly and annual amount of precipitation (mm) compared to the norm in the Dniester basin to Mohyliv-Podilskyi

		Months												Year
		01	02	03	04	05	06	07	08	09	10	11	12	
2023	Fact	43	53	49	89	27	126	96	62	46	52	64	56	763
	Norm	35	40	43	49	83	94	104	71	70	51	44	43	723

¹ All data are provided by State Hydrometeorological Services of the Republic of Moldova and Ukraine

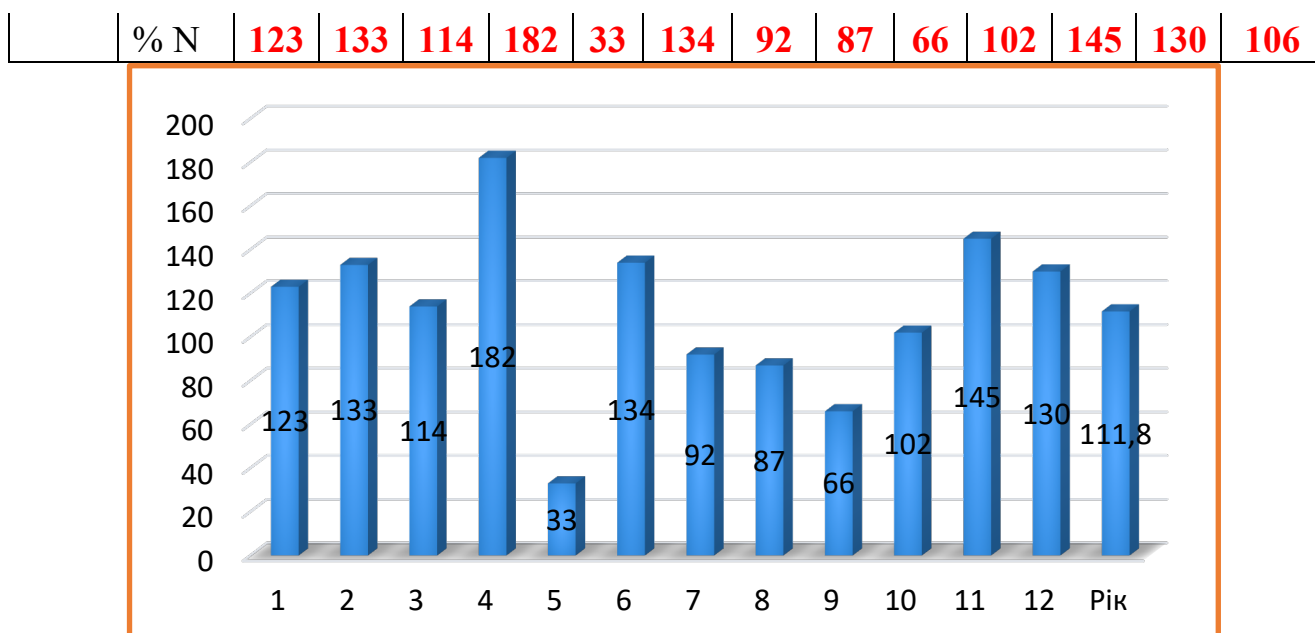


Figure 1. The total amount of precipitation for the month compared to the climatic monthly norms (%) for the year 2023

Table 2. Monthly and annual temperature ($^{\circ}\text{C}$) compared to the norm in the Dniester basin (upper part of the basin)

	Months												Year
	1	2	3	4	5	6	7	8	9	10	11	12	
Fact	2,1	0,5	4,8	7,6	13,8	17,5	20,3	21,4	17,6	11,8	4,3	1,3	10,3
Norm	-2,7	-1,4	2,6	9	14,1	17,6	19,4	18,9	13,8	8,6	3,4	-1,3	8,5
diff.	4,8	1,9	2,2	-1,4	-0,2	-0,2	0,9	2,5	3,7	3,2	0,9	2,6	1,7

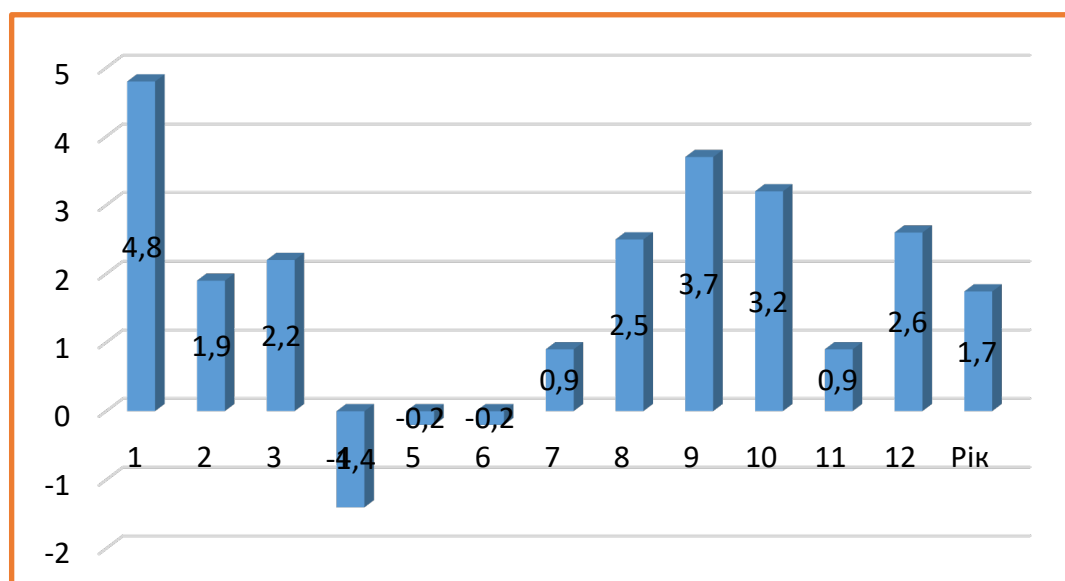


Figure 2. Deviation of average monthly air temperatures from the norms for 2023

In the downstream part of the basin, meteorological situation did not differ much from the upstream. Overall, annual temperature was above the norm by 0,3-0.4 °C. However, the sum of precipitations was below the norm by 20%.

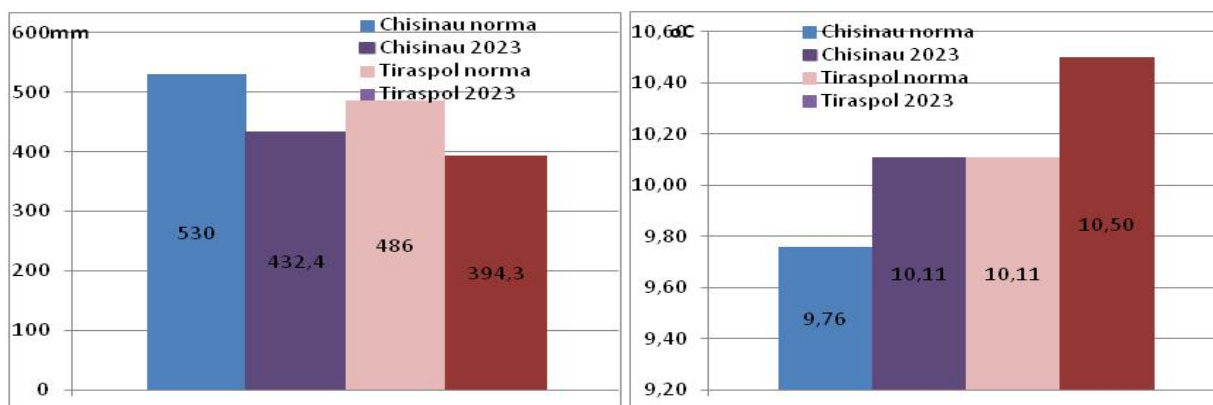


Figure 3. Variation of annual sum of precipitations and annual average temperature in comparison with norms

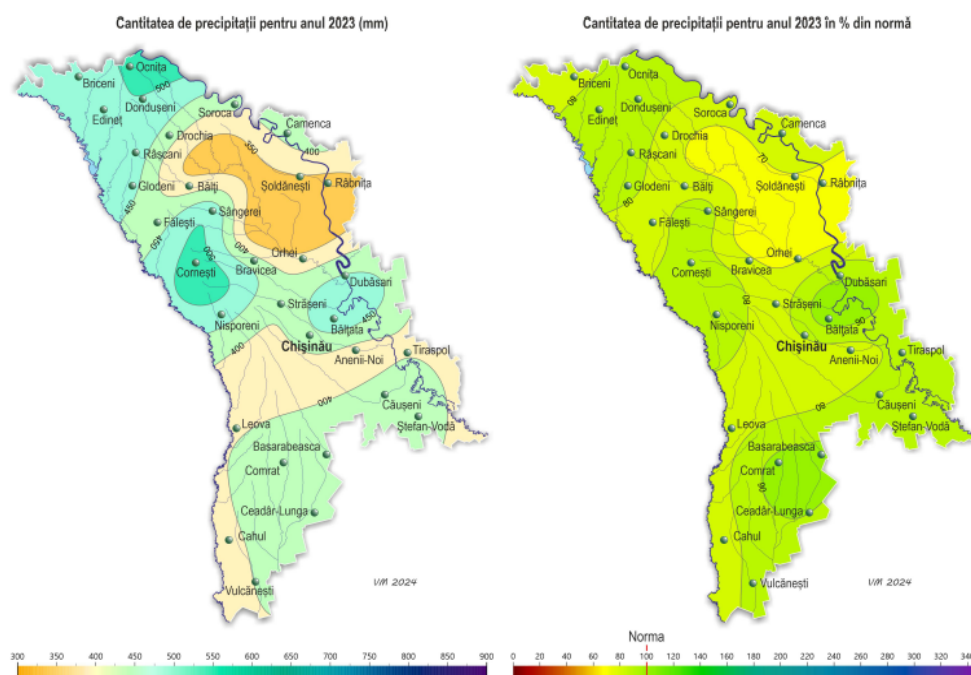


Figure 4. Distribution of annual precipitation, and % of norm, 2023

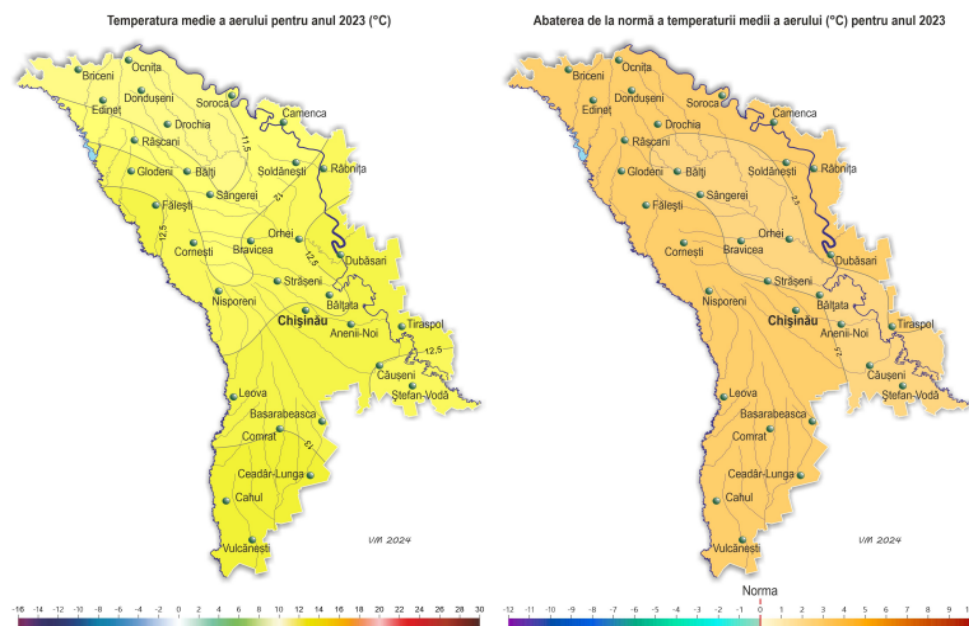


Figure 5. Distribution of air temperature, 2023

Monthly air temperature of winter months was above the norm by 3-5 °C. January can be highlighted as a cold month with the highest temperature above the norm – 4,9 °C, average being 2,2 °C when the norm is -2,7°C. In spring only March temperature exceeds the norm by 3.3 °C, while April is characterized by temperatures lower norm by 1,2°C, while May temperature being equal to norm. Temperatures of the Summer months exceed the norm by 1,1-4°C, August being the hottest from all. As in case of winter months, autumn months can be highlighted, for which temperatures were above norm by 2-5°C, September and October being characterized by 4,5 °C and 4,9 °C above the norm.

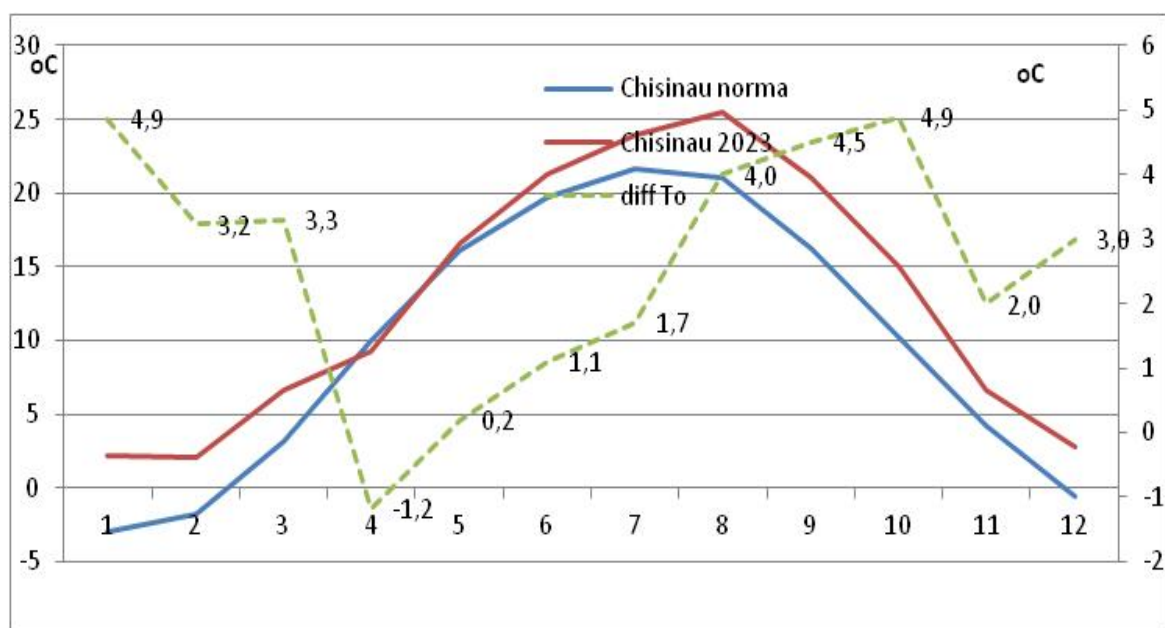


Figure 6. Variation of average monthly air temperature in 2023, Chisinau station

Monthly precipitations are mainly below the norm, except April and November. Thus, during winter month, only 50-70% of precipitations norm were observed. During spring, April is highlighted as a month of precipitations which exceed by 3 times the norm and May as a month with only 25% of precipitation from the norm. In summer months, only July is characterized by normal sum of precipitations, June is characterized only by 28% from norm, and August is significantly highlighted as a month with practically no precipitations. During autumn months, in September and October only 27-36% of precipitations norm were observed. Only November is rich in precipitations, being observed a sum of 2 norms in this month.

In such a situation, climate change continues to intensify, being observed months with precipitations much over norm by 2-3 times, and month with very low quantities, or even no rain. Also, temperatures are over norm by 3°C, 4 °C or even 5°C, except spring.

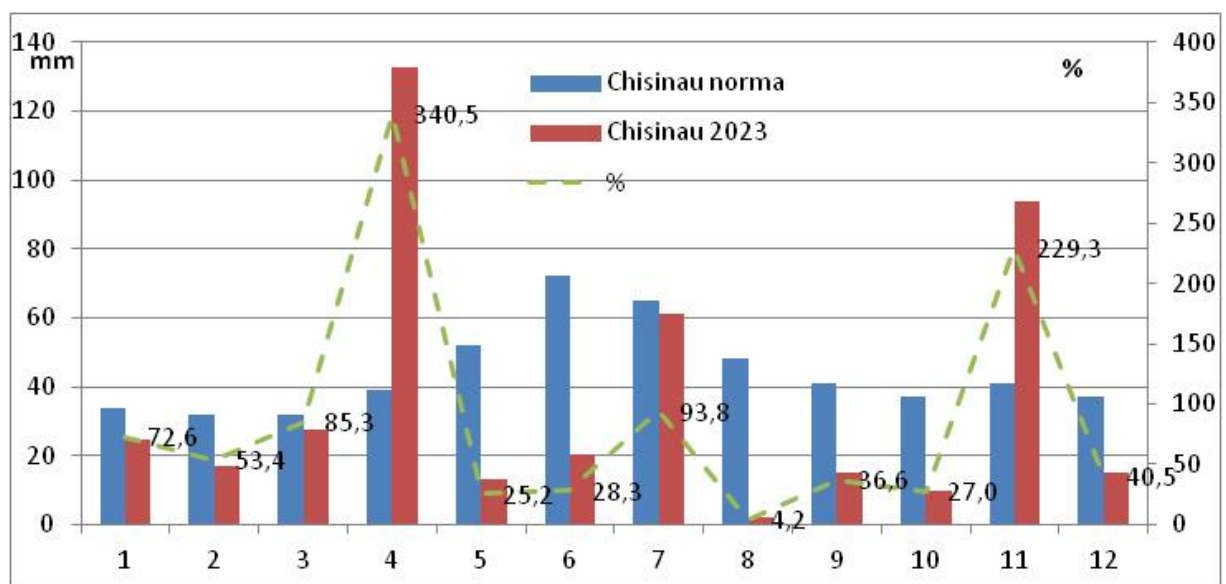


Figure 7. Variation of monthly sum of precipitations in 2023, Chisinau station

Hydrological conditions

Overall, in the upstream part, river flow was by 20% above norm, while in the middle part this parameter was of 95% of the norm, and in the lower part – about 90% of the river norm was observed.

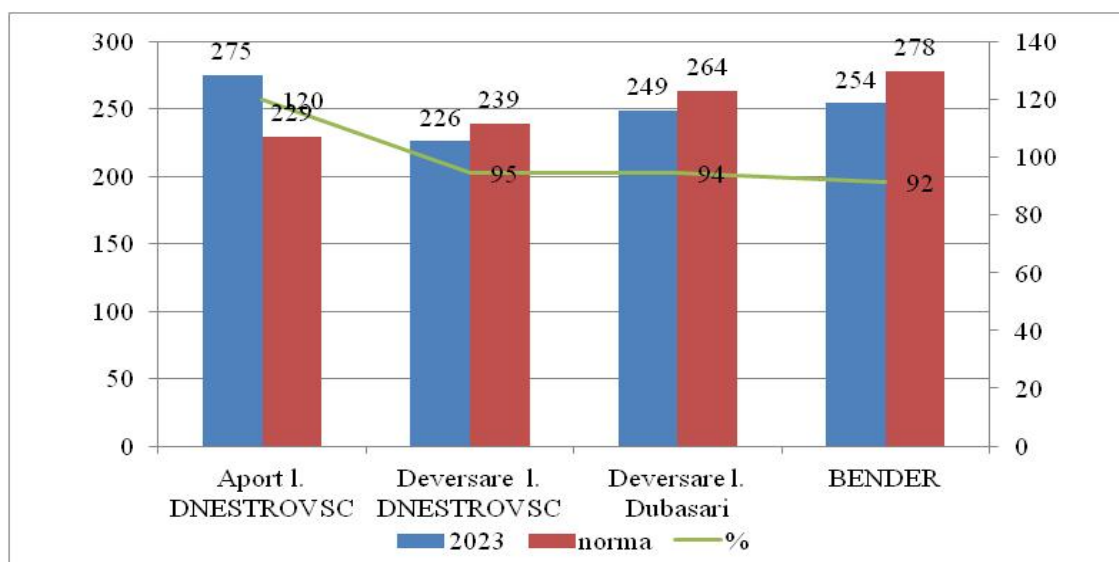


Figure 7. Variation of annual flow in comparison with norms

During 12 months of 2023, in the upper part, exceedance of the monthly flow above the norm was for 7 months; while in the downstream par it was mainly below norm for almost all months except April and December.

High flow is characteristic for April, July and December, the highest discharges being specific in April. Low flow was observed for the period August – November 2023.

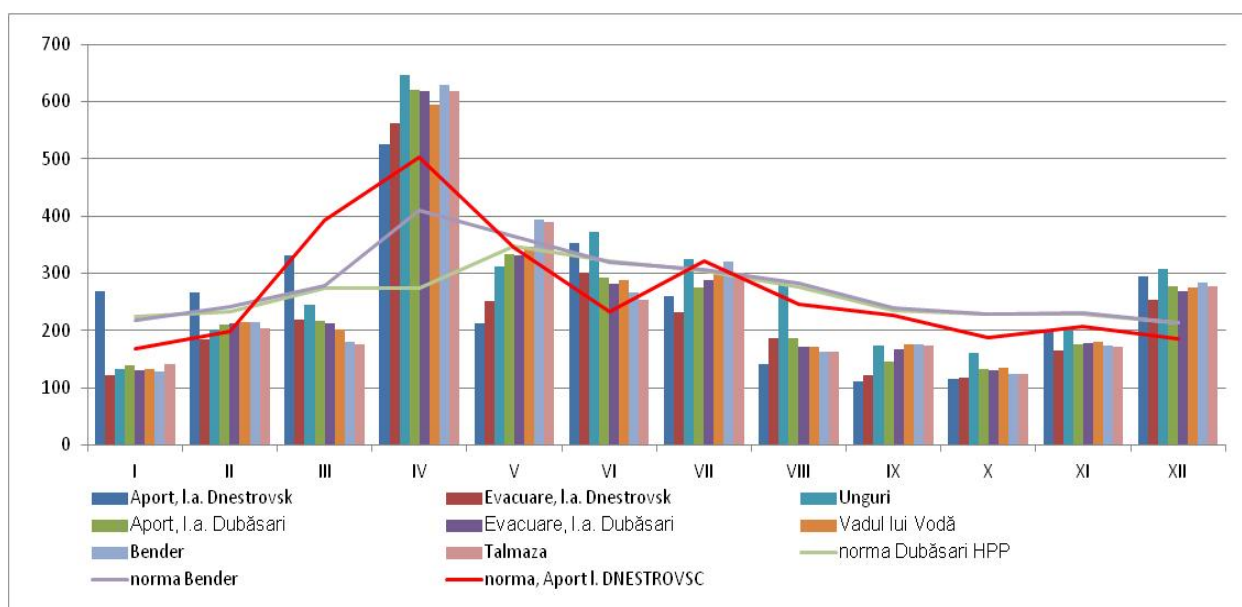


Figure 8. Monthly distribution of Dniester river flow

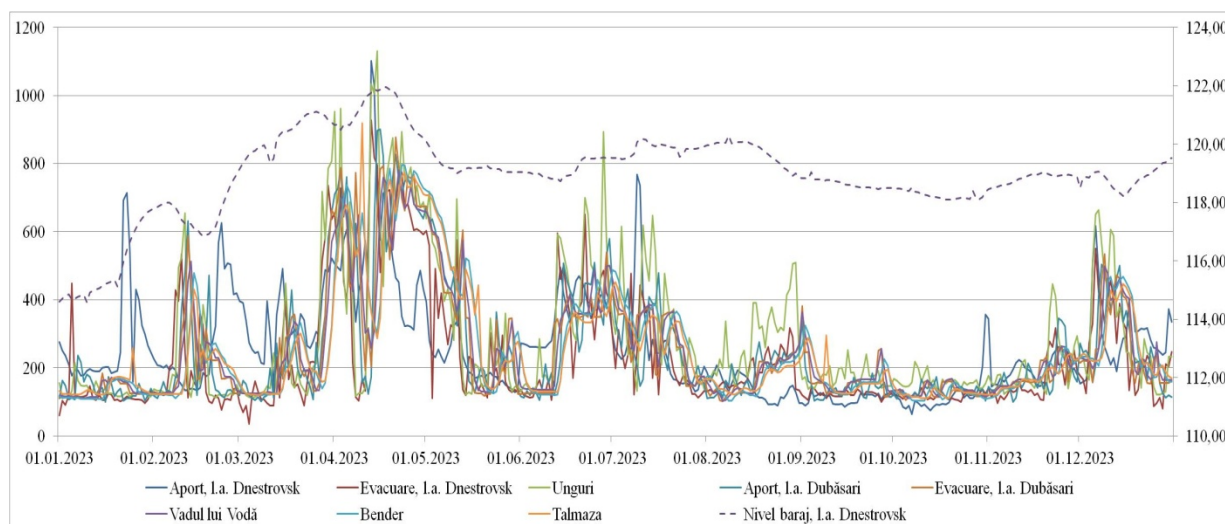


Figure 9. Daily distribution of Dniester river flow

Winter

In January 2023, the inflow into Dnestrovsk reservoir was 269 m³/s, being by 60% higher than the norm. The outflow from Dnestrovsk reservoir constituted, on average, 121 m³/s or 66% of the norm, the flow being by 55% lower than the inflow. In the lower part, the water flow rose to 129 m³/s at Bender, which is about 60% of the norm. The average level of the CHE-1 reservoir was on average of 115.6 m.

In February 2023, the average flows varied around 200 m³/s, which is close to the norm. The Dnestrovsk reservoir inflow was equal to 266 m³/s, being 34 % higher than the norm. In the downstream part, the flows are equal to the norm, being 185 m³/s, but being 81 m³/s lower than inflow in the Dnestrovsk reservoir, the water accumulation process being observed. The average level of the CHE-1 reservoir increases compared to last month, and equals 117.7 m. Flows downstream, from Unguri to Talmază, are 201-204 m³/s, without large variations.

As a result of the water accumulation in the Dnestrovsk reservoir, level increased by about 4.5 m during the 3 winter months, at the end of February being of 119 m.

During the winter period, in the upper part of the basin, a number of snowmelt-rainfall floods were formed on the rivers of the basin, which gave a water level rises of up to 1.3 m above the pre-flood levels. A higher level rise was observed on the Dniester and its tributary the Stryi River - 1.4-2.2 m, without negative consequences.

On February 17-24, as a result of the thaw and precipitation, the first wave of spring flooding began to form on the rivers, water level raised by 0.4-1.6 m above

the pre-flood levels without negative consequences, in the lower parts of the Strvyazh River - by 2.9 m with a short-term release of water on the floodplain. The maximum average daily inflow of water to the Dniester Reservoir was recorded on February 22 at the rate of $644 \text{ m}^3/\text{s}$ (89 % probability).

In natural regime, a small flood occurred between January 20, 2022 - February 3, 2023, the peak discharge was recorded on January 23, 2023, equaling $731 \text{ m}^3/\text{s}$. The waters of this flood were accumulated in the Dnestrovsk reservoir, the level rising proportionally from 115.06 m. to 118.02 m. Another major hydrologic event of the winter period, characterized by flow and level rise, occurred on February 20 - March 8. The peak flow was recorded on February 23, , with the value of $626 \text{ m}^3/\text{s}$. In the regularized regime, a water fluctuation has been observed between the 2 hydrological events in the natural regime. From February 7 to February 18, 2 fluctuations were recorded with peak flows of $534 \text{ m}^3/\text{s}$, February 10 and $360 \text{ m}^3/\text{s}$, February 16. Downstream the peak flows recorded at the stations in the Republic of Moldova amounted to $655 \text{ m}^3/\text{s}$ and $385 \text{ m}^3/\text{s}$ at Unguri and $589 \text{ m}^3/\text{s}$ and $315 \text{ m}^3/\text{s}$ at Dubasari, $479 \text{ m}^3/\text{s}$ and $273 \text{ m}^3/\text{s}$ at Bender. The water level in the Dnestrovsk reservoir, as a result of outflow, decreased from 118 m. to 116.9 m.

Spring

In March 2023 average flows are characterized by decreases spatially from the upper to the lower part. The monthly average inflow to the Dnestrovsk reservoir was $330 \text{ m}^3/\text{s}$, which is by 16% less than the norm. Downstream of the Dnestrovsk reservoir, the water flows are close to the multi-year average, the discharge from the Dnestrovsk reservoir constitutes $218 \text{ m}^3/\text{s}$, which is 90% of the norm. The discharges decrease to $213 \text{ m}^3/\text{s}$ at the Dubasari dam, the norm being $275 \text{ m}^3/\text{s}$, and to $180 \text{ m}^3/\text{s}$ at the Bender station, the norm being $278 \text{ m}^3/\text{s}$. The average level of the CHE-1 reservoir is higher compared to last month at 120.3 m. It should be noted that at the end of March the spring high-water phase begins, which continues in April and ends in May.

In April 2023, the water flows are characterized by values exceeding the norm, due to the transition of the spring floods. The inflow to the Dnestrovsk reservoir was equal to $525 \text{ m}^3/\text{s}$, by 5% higher than the norm. The discharges from Dnestrovsk reservoir were $561 \text{ m}^3/\text{s}$, and increased to $646 \text{ m}^3/\text{s}$ at Unguri. At Dubăsari the discharged flows reach $617 \text{ m}^3/\text{s}$, the norm being $275 \text{ m}^3/\text{s}$, and in the lower part, at Bender, the water flows increased to $630 \text{ m}^3/\text{s}$, the norm being $411 \text{ m}^3/\text{s}$. As a result of the passage of large volumes of water through the Dniester

river floodplain, water resources were accumulated in the Dnestrovsk reservoir, which raised the water level to 121.2 m, upper than normal retention level. In the second part of April, the water level at the Dnestrovsk dam amounted to 122 m, which is 1 m for the upper limit of the normal retention level of the reservoir.

In May 2023, the water level at Dnestrovsk dam was reduced to 119 m, or 3 m lower than the previous period. The monthly average water flows are characterized by values lower than the norm, in the middle part of the basin, upstream and downstream of the Dnestrovsk reservoir, the values being by about 20-40% lower than norm. In the lower part the spatial increase of flows was observed, the flow being about 332 m³/s at Dubasari dam or 96% of norm, and 394 m³/s at Bender or 108% of norm.

Spring flood in natural regime and organization of ecological flood

In the natural regime, the period of manifestation of spring flood is quite long, beginning on March 24 and ending on May 13. The total duration of the flood is 51 days, the total volume is 1910 million m³, the average flow is 439 m³/s, the peak flow is 1101 m³/s, and it occurs on the 21st day after the beginning of the phase. The increase curve is 21 days with average flow 479 m³/s, water volume 847 mil.m³, the decrease curve is 30 days with average flow 410 m³/s, water volume 1063 mil.m³. Water level increased up to 2 m on the Dniester river and up to 1.4 m on the tributaries, without negative consequences. On the left-bank tributaries of the Dniester, spring flood was not pronounced, general rises in water levels did not exceed 0.4 m above the pre-flood levels.

The spring flood downstream of Dnestrovsk dam can be divided into two sub-phases. The first part corresponds to the beginning of the phase in the natural regime, and the second - to its end, which is also considered as ecological flood.

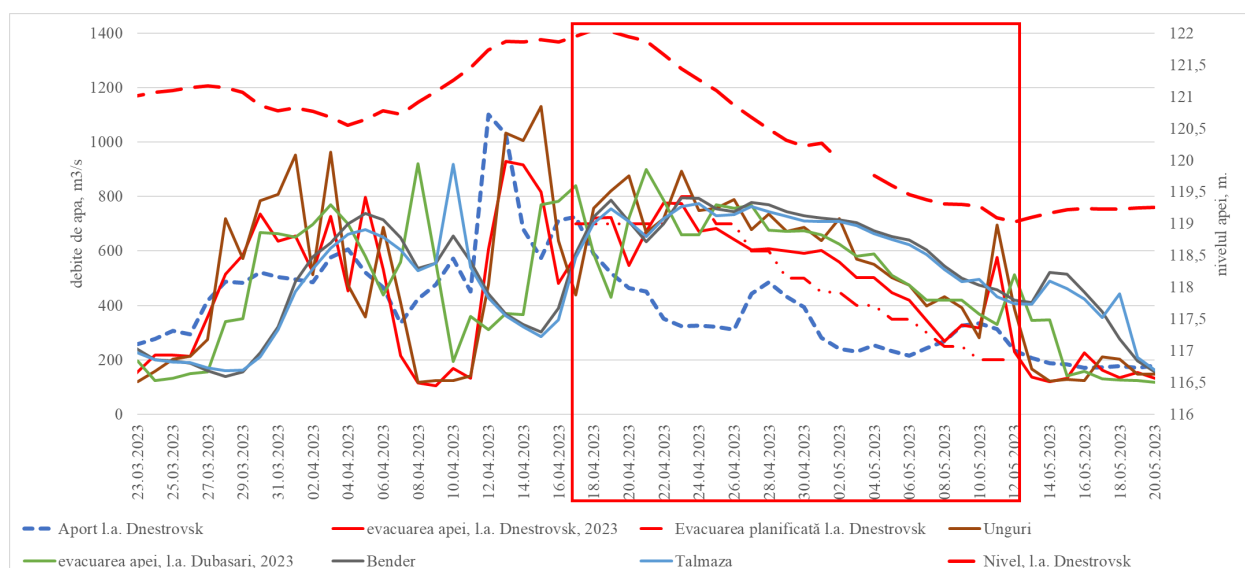


Figure 10. Spring flood and ecological flood (in red band)

Preparation of ecological flood was discussed at the meeting of the Interdepartmental Commission for Coordination of the Modes of Operation of the Dnieper and Dniester Reservoirs in Ukraine, at which representatives from the Republic of Moldova and Ukraine analyzed hydrological situation formed in the basins, meteorological forecasts and 3 scenarios of ecological flood releases. The negotiations resulted in the fact that ecological flood should be released, total duration of it – 26 day, maximum flow – 800 m³/s, beginning – 17 april.

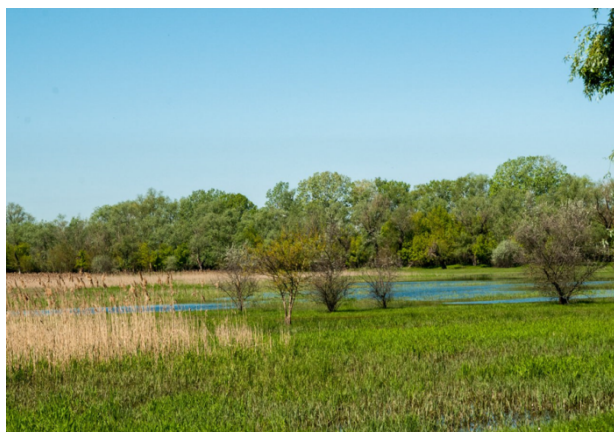
Thus, ecological flood can be considered to be the second subphase from the April floods downstream Dnestrovsk dam. Real situation shows that, this flood starts downstream of Dnestrovsk dam around on April 11 and ends on May 13, in the lower part of the Dniester it starts on April 17 and ends on May 20.

Thus, the real hydrological situation showed a picture relatively close to the planned one. The change in the water level of the Dnestrovsk reservoir coincided with the planned one, the decrease from 121.95 m to 119.03 m or about 3 m, the volume decreased from 2675 million m³ to 2289 million m³ or about 412 million m³. Dnestrovsk reservoir inflows during the first few days decreased from about 700 m³/s to 325 m³/s, approximately equal to the forecast. Subsequently, the actual inflows decrease being lower than the forecasted ones by up to 130 m³/s, and from April 26 onwards they increase exceeding the forecasted flows, on some days even by 150 -200 m³/s. During the planned peak discharge period of 700-800 m³/s, the actual discharges were 550-777 m³/s. The compensation flows were about 200-400 m³/s, close to the planned ones. The water level in the reservoir decreased by about 17-23 cm per day (on average by 12 cm) from 121,95 m to

120,87 m. During the hydrograph decrease curve, the actual water flows decreased slowly from 600 m³/s to 231 m³/s, higher than predicted. The compensation flows were in the range of 24-290 m³/s, the decrease in the water level of the Dnestrovsk reservoir was between 0- 27 cm, averaging 11.5 cm.

In the lower part of the Dniester River, the flood wave has a longer duration but also the peak water flows are of longer duration than those downstream of Dnestrovsk dam. Peak flows exceed 700 m³/s and have a duration of 16 days. It should be noted that flows of the same values discharged from the Dnestrovsk dam have a duration of 6 days, i.e. in the lower part the hydrological conditions are much more favorable than in the middle part for the development of ichthyofauna. The decreasing wave is quite long, about 17 days, the flows decrease slowly from 660 m³/s to 160 m³/s. Actual ecological flood volume exceeded the planned one to about 1123 mil.m³. The volume of the ecological flood in the lower part of the Dniester River, formed in the period from April 17 to May 12, is 1.4 km³ of water.

As a result, the water level in the lower course of the Dniester increased to 1.5-1.8meters. Flooding occurred: 15-20 cm water layer in the riparian swamps, 30-50 cm - the Dniester-Turunchuk interfluves. During visual inspection of spawning grounds in May, the presence of fish fry of different sizes was observed, which indicates that ecological floods took place in favorable conditions for aquatic bioresources.



The average water temperature during the ecological flood equaled 8.9 °C at Dnestrovsk, 8.66 °C at Soroca, 10.7 °C at Dubasari and Bender, and 11.9-12.7 °C from Bender to the mouth part. The daily water temperature is characterized by increasing tendencies for the whole period, being 7-11 °C at Dnestrovsk l.a., 6-10 °C at Soroca, 9-14 °C at Dubasari l.a., 10-14 °C at Bender and Talmaza and 10-14.6 °C at Tudora and Maiaki.

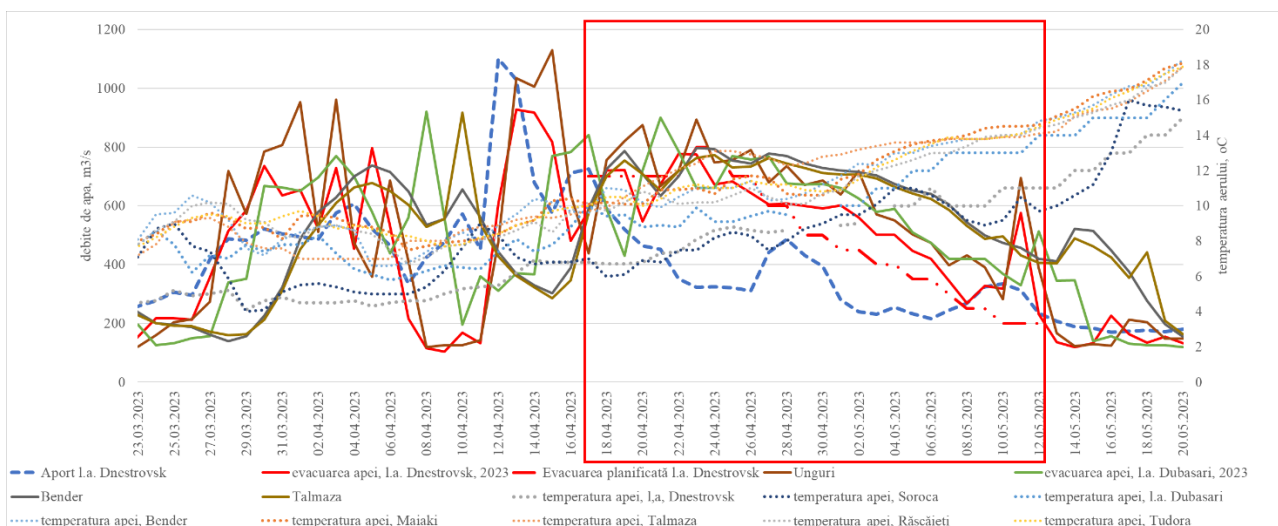


Figura 11. Daily water temperature during the spring flood and ecological flood, 2023

Summer

In June-July, as a result of precipitation, short pluvial floods were formed, increasing the water level by 0.5-1.5 m on rivers, 1.7-2.4 m on the Dniester, without negative consequences.

A more significant pluvial flood was formed on July 8-10, which maximum discharge of 768 m³/s upstream of Dnestrovsk reservoirs, the maximum levels of which reached a height of 2.9-3.2 m above the pre-flood levels, with the release of water on the floodplain of the Lukva, Vorona, Bystrytsia-Solotvinska rivers, flooding agricultural lands and some economic facilities in the Ivano-Frankivsk and Kalusk districts of the Ivano-Frankivsk region. On the Vorona River near Tysmenytsia, the maximum water level increased by 0.6 m, and exceeded the dangerous level of partial flooding of riverside residential and commercial buildings in the town of Tysmenytsia, Ivano-Frankivsk district, Ivano-Frankivsk region.

Downstream of Dnestrovsk reservoirs, June – July months are characterized by several fluctuations with fast modification of flow from about 600 – 700 m³/s to 150-200 m³/s. At Unguri, 6 peaks were measured with discharges over 600 m³/s, the highest being 893 m³/s, observed on 28 June, in such a way exceeding the peaks in natural regime. Downstream Dubasari, the fluctuation are attenuated, the highest flow was up to 500 m³/s, hydrograph of trapezoidal shape with one peak.

August is characterized by low flows, in natural regime being of around of 100 m³/s, or less, in downstream part of the Dnestrovsk reservoir flow being of the same value or more.

Autumn

In the August-November period, the summer-autumn low flow was observed. Water levels (expenditures) approached the minimum multi-year marks, and in some sections of the rivers, they were observed to be lower than them. Only at the end of October, a minor rain flood formed on the rivers of the Dniester basin (Lviv and Ivano-Frankivsk regions), without negative consequences, which did not significantly affect the increase in water discharge of the rivers. In the period May-October, the water discharge of the rivers of the Dniester basin was 55-90%, only in June it increased slightly. In November, as a result of a sufficient amount of precipitation, the water discharge of the rivers increased by 115-135%.

The Dniester reservoir operation in 2023

According to operational data, the inflow volume of the Dnestrovsk Reservoir for the period from January 1 to December 31, 2023 was 8.7 km³, (the average for the period of operation of the reservoir was 9.5 km³), the volume discharged from Dnestrovsk Reservoir was 7,18 km³.

Since the beginning of January, the gradual filling of the Dnestrovsk Reservoir up to the mark of 118.10 m (February 7) has been noted. In the next weeks, the outflow was insignificant. From the beginning of the formation of the spring flood (February 20), the filling of the reservoir had begun, and at 8:00 a.m. on February 28, the water level was 118.88 m (on January 1, it was 114.53 m), free capacity-0.280 km³. The maximum average daily inflow of water to the Dnestrovsk Reservoir was recorded on January 22, in the amount of 768 m³/s (80% exceedance). The average monthly inflow of water during the winter period was kept within the range of 219-298 m³/s (115-178% of the norm and 7-35% of exceedance).

The spring flood was formed by many small peaks, took place mainly within the riverbeds and was stretched over time. The maximum average daily inflow of water to the Dnestrovsk Reservoir was observed on March 14 and 30 with the values of 539 m³/s (94% exceedance) and 672 (85% exceedance) and on April 4, 13 and 28 with values of 630 m³/s (85% exceedance), 1230 m³/s (60% exceedance) and 585 m³/s (92% exceedance), respectively.

During March, as a result of the accumulation of flood flow, the Dniester Reservoir continued to fill up to a mark of 121.17 m (March 27). As of 8:00 a.m. on March 31, the water level mark was 120.78 m (on March 1, 119.10 m), free capacity - 0.030 km³.

In the period of April 12-14, as a result of the passage of flood waters by the Dnestrovsk Reservoir, an increase in water levels in the Mogiliv-Podilsky post was observed by 0.5-1.8 m per day, without negative consequences.

During the spring period from March 1 to April 30, 2.46 km³ of water entered the Dniester Reservoir, and 2.07 km³ was discharged.

In the period from April 17 to May 11, an ecological discharge was carried out from the Dniester Reservoir in the lower Dniester with average daily discharges in the range of 268-777 m³/s. The average daily inflow of water during this period was observed in the range of 215-812 m³/s, which made it possible to significantly slow down evacuations from the reservoir. As of 8:00 a.m. on May 11, the water level near the Dniester Reservoir dam was 119.09 m (April 17 – 121.95 m) - the reservoir was emptied by 2.86 m.. Inflow was 0.83 km³, the outflow volume was 1.21 km³.

The average inflow for May was 209 m³/s (61% of the monthly norm and 72% of exceedance). As of 8 a.m. on May 31, the water level of the Dniester Reservoir was equal to 119.05 m BS (May 1, 120.27 m BS), free capacity – 0.259 km³.

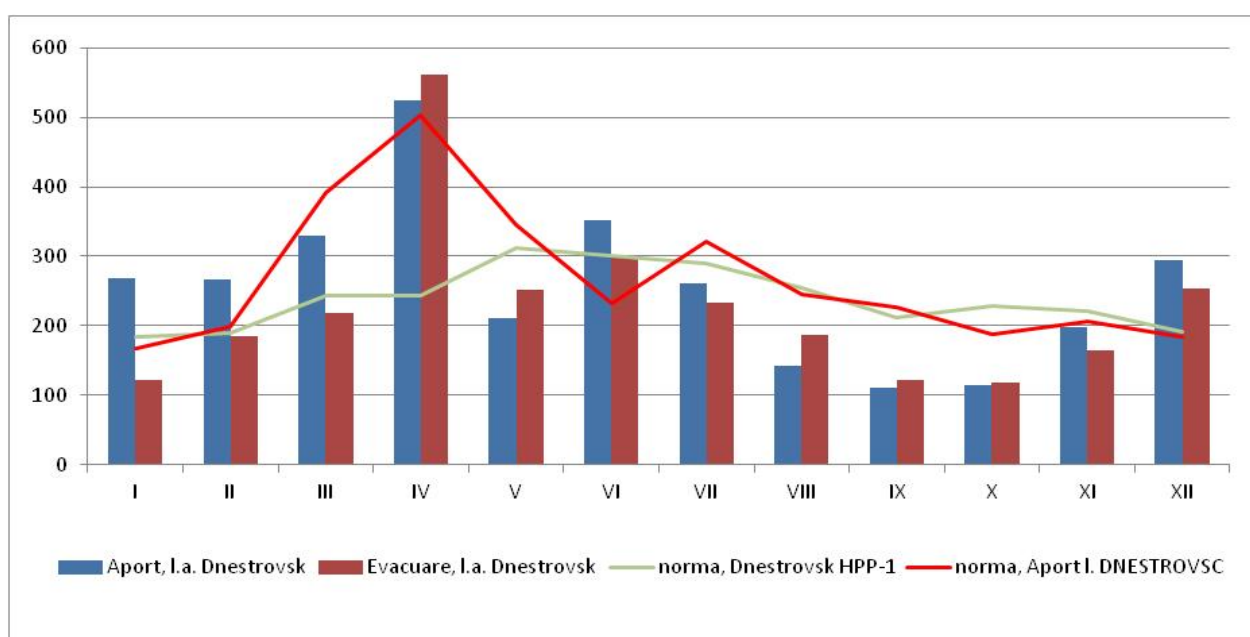


Figure 12. Variation of monthly inflow and outflow from Dniester Reservoir

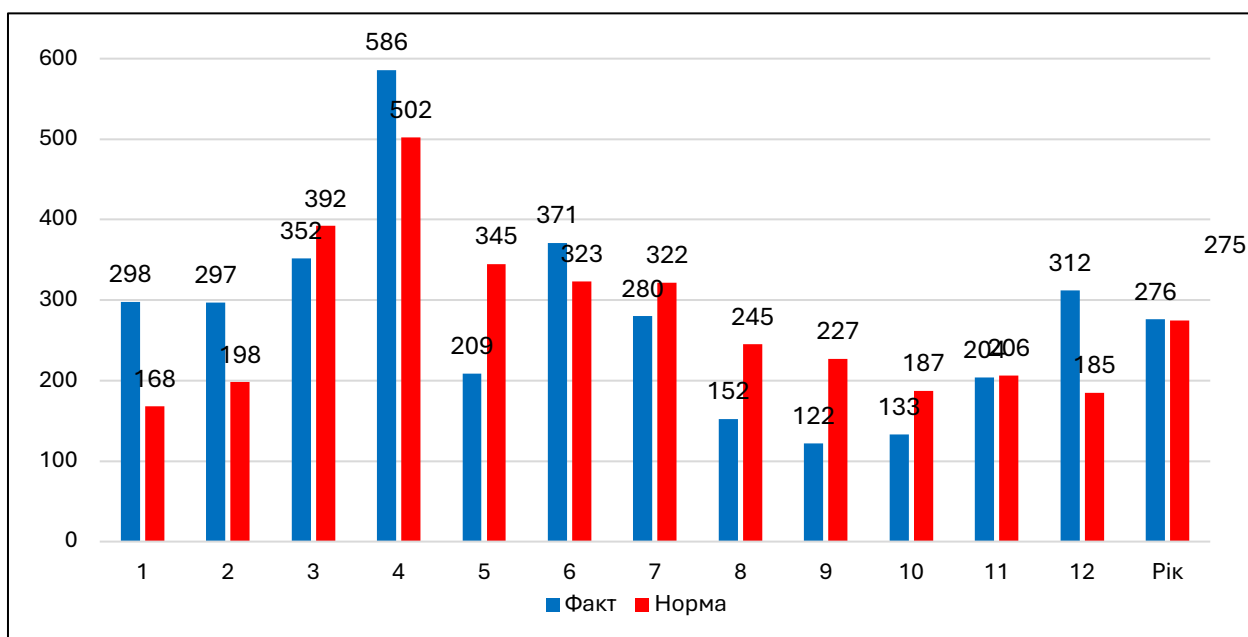


Figure 13. Average monthly inflow of water (m³/s) to the Dniester reservoir compared to the norm

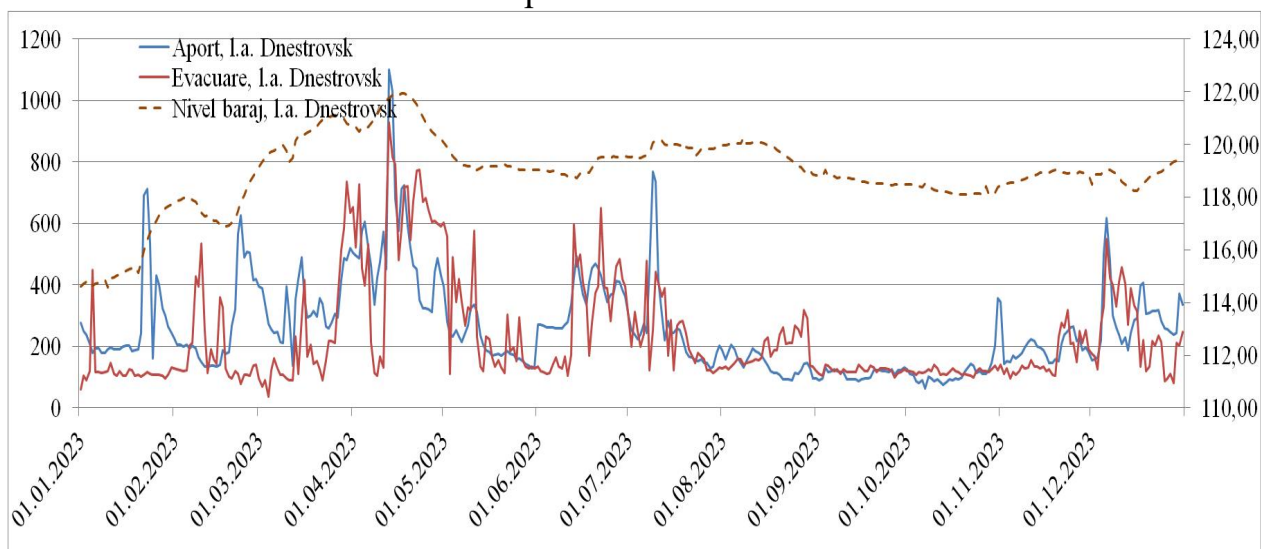


Figure 14. Variation of daily inflow and outflow from Dniester Reservoir

The maximum inflow of water to the Dniester Reservoir was observed on June 14 and July 9, with values of 774 m³/s (80% exceedance) and 1146 m³/s (66% exceedance). The average inflow of water to the Dniester Reservoir in June was 371 m³/s (115% of the monthly norm and 34% of exceedance); for July - 280 m³/s (87% of the monthly norm and 46% of exceedance). In the August-October period, the inflow of water to the reservoir continued to decrease and amounted to 122-152 m³/s (54-71% of the monthly norm and 62-73% of exceedance). The average monthly flow of water to the Dniester Reservoir in November increased and was equal 204 m³/s (99% of the monthly norm and 30% exceedance).

From the middle of June and throughout July, flood waters accumulated in the reservoir and as of 8 a.m. on July 31, the water level in the Dniester Reservoir was equal to 119.94 m (on June 1, 119.04 m BS), free capacity - 0.143 km³ .

In August-October, the Dniester Reservoir was slightly emptying, and as of 8:00 a.m. on October 31, the water level in the Dniester Reservoir was equal to 118.17 m (119.97 m BS on August 1), free capacity – 0.369 km³. In November, as a result of the accumulation of flood waters, the filling of the Dniester Reservoir was noted, and as of 8:00 a.m. on November 30, the water level was equalled 118.82 m BS, free capacity - 0.288 km³.

Water discharges from the reservoir during the summer-autumn low-flow period were kept within the limits of sanitary and ecological norms - 100-210 m³/s, only during periods of floods they increased to 250-650 m³ /s.

Water temperature regime

Water temperature regime of the Dniester river is influence by natural factor such as climate, as well as anthropogenic factors such as Dnestrovsk reservoir. As can be seen from the figure below, average temperature of water under the impact of climate is about 13-14°C. This temperature is specific for middle and lower course of the Dniester river. Downstream Dnestrovsk reservoir water temperature continues to be much lower as a result of reservoir operation. Thus, at Naslavcea, water temperature is up to 4 °C lower as in case of natural conditions influence. Lower Naslavcea, farer Dnestrovsk reservoir, water temperature increases, in such a way, at Unguri it is already 10,2 °C, Soroca – 11,5 °C.

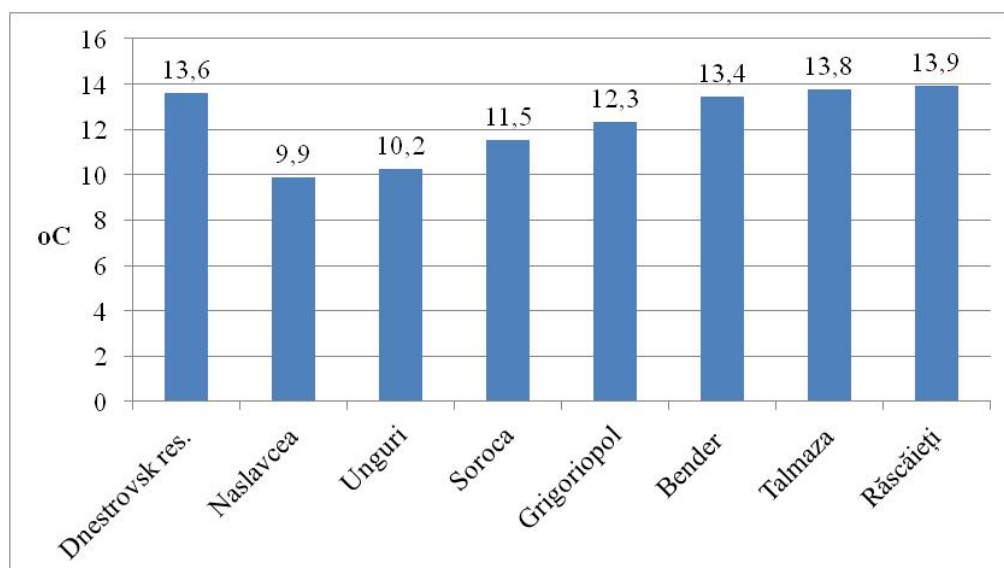


Figure 15. Annual water temperature

In natural condition, monthly variation of water temperature is characterized by minimum of 2-3°C in winter months, and maximum of 24-26°C during summer months. Under the impact of Dnestrovsk reservoir, a redistribution of temperature can be observed. During winter time, temperature is by 1-2 °C higher than in case of natural conditions, and the maximum values shift much to autumn months, maximum averages being of 16-17°C or by 10°C lower as in case of natural conditions. Thus, water temperatures at Naslavcea and Unguri in June are 12 °C, July 15°C, August 17°C. Water temperature increase farther downstream Dnestrovsk reservoir, and at Soroca it already 16°C, 18°C, 21 °C for mentioned summer months, being smaller as in case of natural conditions by 4-7°C. In November, December months, water temperature is higher by 1-3 °C at first two post downstream Dnestrovsk reservoir in comparison with the ones lower Dubasari. Thus, the impact of Dnestrovsk reservoir on water temperature continues to be present.

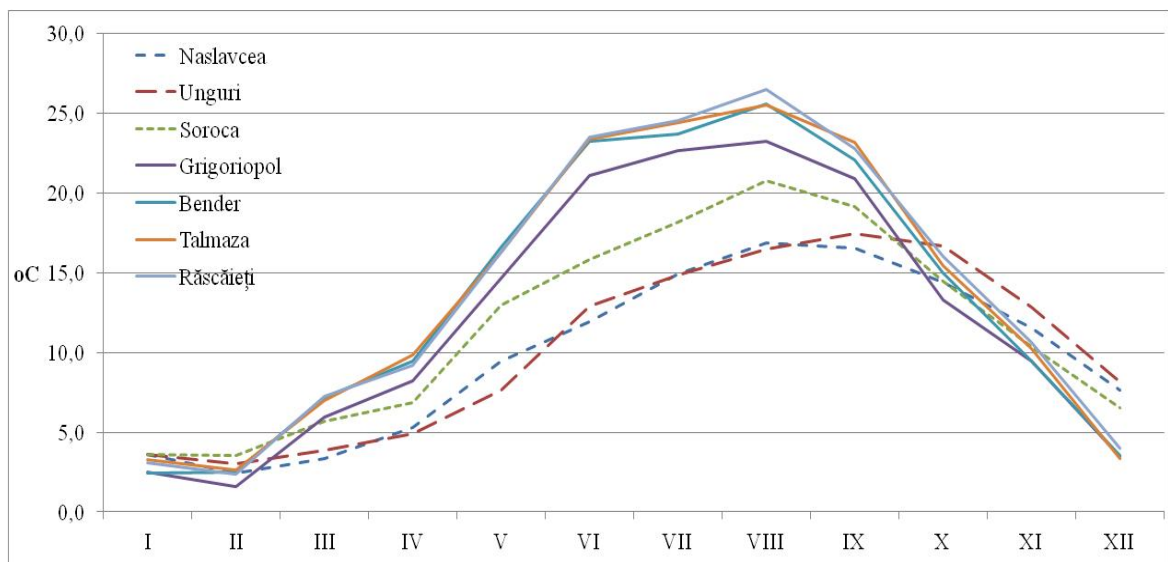


Figure 16. Variation of monthly water temperature

Hydropeaking effect

The Dnestrovsk Hydropower Complex (DHC) continues to provoke hydropeaking effect. In 2023, average intraday water level amplitude downstream DHC is 69 cm, the value decreasing with the increasing distance from the HPP-2. Thus at Unguri, about 30 km, downstream the value is about 66 cm and at Soroca, about 100 km downstream, the value decreases twice, to 34 cm. In case of Dubasari Reservoir, the data show average amplitude of 28 cm downstream Criuleni and Vadul lui Voda. In natural conditions, average level amplitude is about 12 cm.

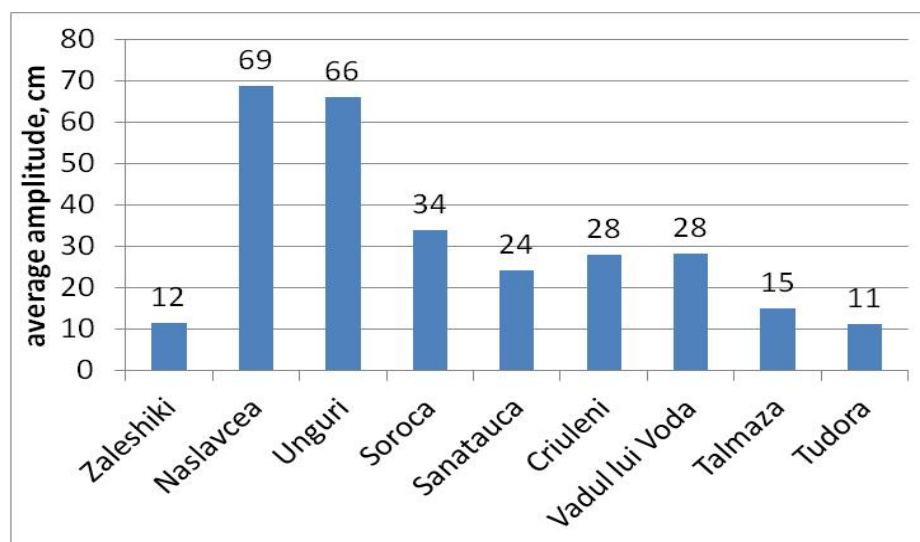


Figure 17. Annual average intraday level amplitude

Monthly average intraday level amplitude at different hydrologic posts is shown below. As can be observed, Naslavcea, Unguri post are highlighted among the others. The highest values of intraday amplitude are observed in spring and summer months, while the lowest – in autumn. Thus, in April average intraday water level amplitude at these stations is 110 cm, February, March, May and December – the value is about 60-80 cm, June – August 50-60 cm. The lowest averages are 20-40 cm observed in autumn months. At other posts, the averages are much smaller. In such a way, intraday amplitude is increased by DHC by over 3 times in comparison with the natural conditions.

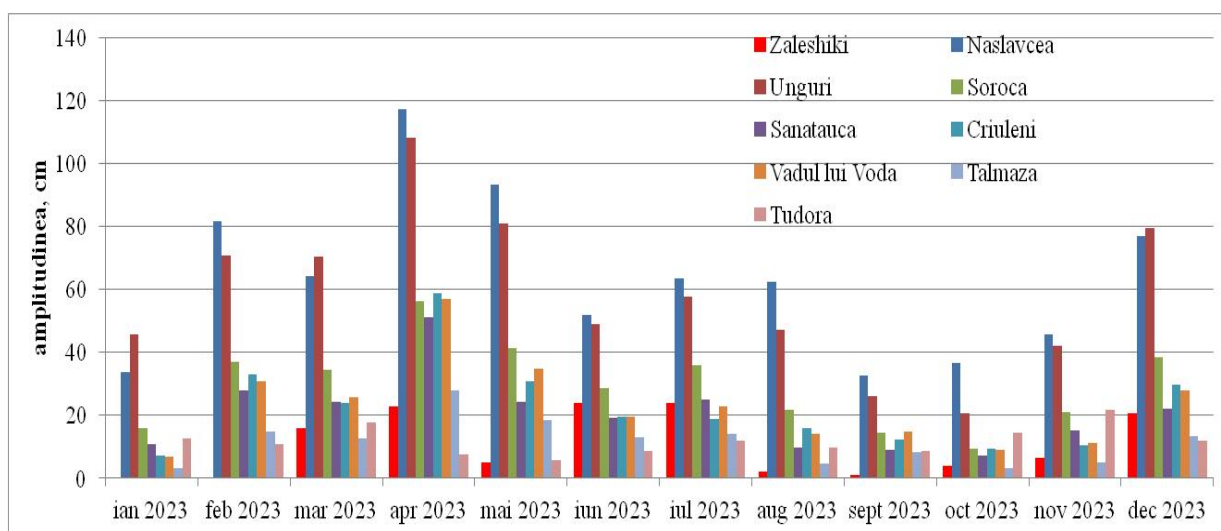


Figure 18. Monthly average intraday level amplitude

Taken into account that DHC increases the water level intraday amplitude at least by 3 times, this fact was transferred into a threshold, and evaluation was performed in order to estimate the occurrence of hydropeaking downstream DHC, Dubasari, and natural conditions.

The value of threshold is considered 35 cm, while natural value of intraday amplitude is about 12 cm. Thus, this value was exceeded at Zalechiki by 8% or during 29 days, Talmaza and Tudora – 12% and 1 %. Downstream DHC, in case of 60-68 % of the days water amplitude exceeded 35 cm at Naslavcea and Unguri and 32% at Soroca. Downstream Dubasari this value is twice lower - 29%.

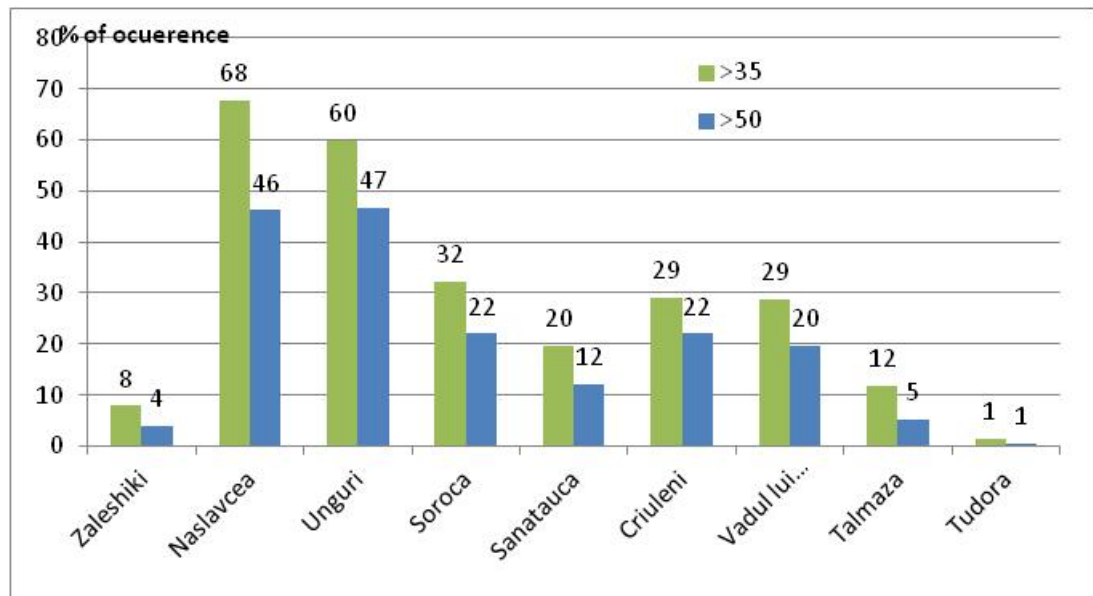


Figure 19. Exceedance of threshold of the water level intraday amplitude