MARKET OBSERVATION FOR DANUBE NAVIGATION: RESULTS IN 2024

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Table of Contents

1 Initial State and Dynamics of the Danube Transport Market 3

1.1 Initial State of the Danube Transport Market 3

1.2 Dynamics of the Transport Market 5

1.2.1 Water Flow and Operating Draught of Vessels 5

1.2.2 Freight Transport (Q1+ Q2+ Q3) of 2024 5

1.2.3 Port cargo turnover (Q1+ Q2+ Q3) of 2024 6

1.2.4 Passenger transport (Q_1+ Q_2+ Q_3) of 2024 6

2 Market Observation for Danube navigation: Fleet and Cargo Traffic, Outcomes in 2024 7

2.1 Navigation Conditions on the Danube River in 2024 7

2.1.1 Navigation Conditions: Overview 7

2.1.2 Water Flow and Operating Draught of Vessels 16

2.2 Observation of Fleet Traffic and Cargo Flows in 2024 16

2.2.1 Passenger Transport 16

2.2.2 Freight Transport 19

2.2.3 Inter-basin transport 32

3 Cargo Turnover of the Danube Ports 34

3.1 Ports in Germany 34

3.2 Ports in Austria 35

3.3 Ports in Slovakia 37

3.4 Ports in Hungary 38

3.5 Ports in Croatia 38

3.6 Ports in Serbia 39

3.7 Ports in Romania 40

3.8 Ports in Bulgaria 42

3.9 Ports in the Republic of Moldova 42

3.10 Ports in Ukraine 43

4 Conclusions 44

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1 Initial State and Dynamics of the Danube Transport Market

1.1 Initial State of the Danube Transport Market

The initial state of the key sectors of the Danube shipping market during the 2024 review period was determined by the overall 2023 results as well as the indicative forecasts of the relative growth of the gross domestic product of the Member States of the European Union and the Eurozone compared to 2023.

The determining factor shaping the initial state of the transport market in 2024 was the consequences of Russia's full-scale military invasion of Ukraine, which started in February 2022. This invasion resulted in additional risks and deformations of certain transport sectors in the Danube shipping market, as well as fluctuating prices for energy resources and raw materials, which caused a partial reorientation of the market.

The Danube Commission, at its 101st Session *(13 June 2024)*, noted with concern that the consequences of the military aggression of the Russian Federation against Ukraine continue to have a serious destructive impact on Danube navigation, violating the fundamental principle enshrined in Article 1 of the Belgrade Convention regarding the Regime of Navigation on the Danube (1948).

In connection with the blockade by Russia of Ukrainian seaports to ensure world food security, the *Ukrainian Grain Corridor*, which involved of the seaports of Odessa, Pivdennyi, and Chernomorsk, was established and is maintained by the Armed Forces of Ukraine. Despite systematic bombing of the port infrastructure by Russia, including adjacent civilian facilities, and targeting of foreign-flagged vessels moored at or en-route to these ports for cargo operations, the total cargo turnover of Ukraine's ports, including those of the Danube cluster, in 2024 amounted to over 97.2 mil. tonnes of cargo, of which over 60.3 mil. tonnes were grain and ore cargoes.

During 2024, Russia has also carried out a number of air attacks on Ukraine's port infrastructure on the Danube, with explosions detected in some cases, and the wreckage of Russian drones found on the territories of neighbouring Danube states.

As a result of these attacks, in particular on the night of 24-25 July, 26-27 September, and 1-2 October 2024, port infrastructure, grain hangars, warehouses, and administrative and civilian buildings were destroyed in the Danube ports of Ukraine. The operation of the Orlivka checkpoint and the Orlivka-Isakcha ferry complex was disrupted. Additionally, there were casualties among the civilian population.

Russian air attacks on critical infrastructure in Ukraine's Danube cluster continued into early 2025. In particular, on 17 and 29 of January 2025, airstrikes were carried out on the territory adjacent to the Danube Port of Kiliya, which resulted in significant damage to the production facilities of the Kiliya shipbuilding and ship repair plant.

Russia's aggressive actions on the Danube River have created conditions of direct security threats not only to the Danube port infrastructure of Ukraine but also to the entire shipping system on the Lower Danube, including the safety of ship crews and personnel.

Despite the existing threats to the safety of navigation on the Lower Danube, the total cargo turnover of the Danube ports in 2023 amounted to 95.1 mil. tonnes, which is 124.3 % higher than in 2022. The largest growth was demonstrated by the Lower Danube ports: Romania - 118.5 %; the Republic of Moldova - 124 %; Ukraine - 194 %.

The significant growth of cargo turnover of the Danube ports of Ukraine, which amounted to 32.021 mil. tonnes by the end of 2023, was mainly due to an increase in exports of agricultural products. Grain cargo accounted for 15.2 mil. tonnes or 47.4% of the total volume, as well as vegetable oil - 2.9 mil. tonnes. Other dry bulk cargo amounted to 4.9 mil. tonnes. The Ukrainian Danube ports together with the port of Constanţa made a significant contribution to global food security and served the import and export needs of Ukraine.

During the current year, the Danube Commission continued its active work aimed at facilitating the export of Ukrainian products from the agricultural sector of the economy, as well as the import of goods needed by Ukraine. This work was carried out within the framework of the *Danube Solidarity Lanes EU - Ukraine* initiative, adopted in May 2022, among the European Union's measures in solidarity with Ukraine. The main focus was on supporting and developing logistics schemes for freight transport which involved the Danube ports of Ukraine, the Republic of Moldova, and Romania, as well as the Danube - Black Sea canal links. The following practical measures were implemented within the framework of this initiative:

- Systematic coordination meetings of the maritime administrations of Ukraine, the Republic of Moldova, and Romania, organized by the European Commission/DG MOVE with the technical assistance of the DC Secretariat;

- Targeted visits to ports and administrations of the Danube-Black Sea Canal links to discuss the removal of unnecessary administrative barriers in ship traffic management systems and implementation of navigation monitoring projects;

- Presenting the current situation in international fora in support of the *Danube Solidarity Lanes EU - Ukraine* initiative, including the presentation of the Director-General of the DC Secretariat at the 13th European Union Strategy for the Danube Region (*13th EUSDR Annual Forum*) held in June 2024, in Vienna.

The work within the *Danube Solidarity Lanes EU-Ukraine* initiative, despite the high activity of the Ukrainian Grain Corridor, is still extremely important. It should be noted that in the structure of cargo turnover of ports of the Ukrainian Danube cluster, along with exports of agricultural products, a significant role is played by the increasing volumes of export of iron ore and of import of other commodities.

1.2 Dynamics of the Transport Market

1.2.1 Water Flow and Operating Draught of Vessels

Snow reserves in the Danube River basin at the beginning of 2024 were estimated to be below the long-term average, while the absence of river freezing and ice phenomena ensured continuous navigation in the first quarter of the reporting year.

The stable water flow throughout the first quarter and into the first half of 2024 allowed vessels to be loaded to a maximum draught of 2.5 m, up to 2.7 m during some periods.

1.2.2 Freight Transport (Q1+ Q2+ Q3) of 2024

The dynamics of the Danube River freight transport market in 2024 were formed in the context of the reorientation of its traditional sectors. This was primarily caused by the negative impact of the Russian aggression in Ukraine on the main industries and the agricultural sector of the economy in the Danube and adjacent basins.

Taking into account the relative stability of navigation conditions and partial reorientation of the market, the volumes of cargo transport according to the data of the main market control points (conditionally characterizing the dynamics of volumes on the Upper, Middle and Lower Danube as well as through the Danube-Black Sea Canal connections) for 9 months (Q_1+ Q_2+ Q_3)[1] in 2024 are as follows:

- cargo traffic volumes recorded at the Jochenstein lock (cross-border connection Germany/Austria, DE/AT) amounted to 2,064 ths. tonnes, which was 124 % of the volume (Q_1+ Q_2+ Q_3) 2023;
- volumes of cargo transport through the Gabčíkovo lock (cross-border connection Hungary/Slovakia, HU/SK) amounted to 3,478 ths. tonnes, which was 144.4% of the volumes (Q_1+ Q_2+ Q_3) 2023;
- volumes of cargo transport through Mohács checkpoint (cross-border traffic Hungary/Croatia/Serbia, HU/HR/RS) amounted to 2,991 ths. tonnes, which was 141.8 % of the volumes (Q_1+ Q_2+ Q_3) 2023;
- transport volumes through the Danube-Black Sea canal in (Q_1+ Q_2+ Q_3) in 2024 amounted to 14.48 mil. tonnes (84.7 % of the same indicator in 2023).

[1] The 9-month period is considered as a generalized preliminary indicator of fleet and port activity, when the influence of both initial market conditions and navigation conditions on the Danube River is most pronounced

1.2.3 Port Cargo Turnover (Q1+ Q2+ Q3) of 2024

In the first 9 months of 2024 (Q_1+ Q_2+ Q_3), port cargo turnover varied multi-directionally (Table 1.1).

Table 1.1. Cargo turnover of the Danube ports in 2020-2024

Ports, ths. tonnes	**2020**	**2021**	**2022**	**2023**	**2023 Q_1+Q_2+Q_3**	**2024 Q_1+Q_2+Q_3**
Germany	3,511	2,999	2,410	2,228	1,712	1,865*
Austria	6,050	6,356	5,363	5,123	3,766	3,102
Slovakia	1,553	1,846	1,934	1,509	1,214*	1,103**
Hungary	6,742	5,715	4,063	3,604	2,748	3,071
Croatia	948	697	582	364	273	258
Serbia	8,164	13,610	12,023	12,031	9,330	9,516
Bulgaria	5,431	7,111	7,104	7,026	5,518	5,395***
Romania	27,307	28,457	24,355	28,857	21,097	18,826
Republic of Moldova	1,185	1,819	2,144	2,668	1,954	1,915***
Ukraine	4,055	5,505	16,505	32,021	24,705	14,181***

* January-August, total cargo turnover on the Bavarian section of the waterway
** Bratislava and Komarno ports
*** The rows on Croatia and Serbia contain the country's Sava transportation volumes as well.
****Data obtained from the maritime administrations of Bulgaria, the Republic of Moldova, and Ukraine

Cargo turnover of the port of Constanța by river vessels amounted to 13,597 ths. tonnes.

It should be noted that during 2024, despite the overall decline in cargo transshipment volumes in the Lower Danube ports, as well as a significant drop in freight rates for grain cargo transport from the Lower Danube ports, the Danube ports of Ukraine have generally maintained stable market positions, which is an indicator of the effectiveness of decisive actions taken by the Government of Ukraine with the support of the European Union and the Danube Commission to organize the export of agricultural products and other cargoes through the ports of Reni, Izmail and Ust-Dunaysk.

1.2.4 Passenger Transport (Q_1+ Q_2+ Q_3) of 2024

The dynamics of passenger transport on conditional lines for 9 months (Q_1+ Q_2+ Q_3) of 2024 are shown in Table 1.2.

Table 1.2. Dynamics of passenger transport [2]

Line/year, ths. people	2020	2021	2022	2023	2023 $Q_1+Q_2+Q_3$	2024 $Q_1+Q_2+Q_3$
Upper Danube (Gabč. - total)	56.0	149.0	469.0	562.0	444.0	449.0
Danube Delta (Mohács - total)	5.2	34.0	74.0	29.0	28.0	7.5

2 Market Observation: Outcomes in 2024, Fleet and Cargo Traffic

2.1 Navigation Conditions on the Danube River in 2024

2.1.1 Navigation Conditions: Overview

In the first quarter of 2024, fairly stable navigation conditions were ensured throughout the Danube River, with water levels maintained above low navigable water level (LNWL) values.

In January, on the Upper Danube (Figure 1), minimum water levels were 100 cm, mean levels were 130 cm, and maximum levels were 290 cm above the same values in January 2023. Maximum levels were observed at the beginning and end of the month, and minimum levels were observed in the middle of the month.

On the Middle Danube (Figure 2), minimum water levels were 135 cm, mean levels - 200 cm, and maximum levels - 160 cm above the same values in January 2023. Maximum levels were observed at the end of the first ten-day period and the end of the month. Minimum levels were observed at the end of the second ten-day period of the month.

On the Lower Danube (Figure 3, 4), minimum water levels were 180 cm, mean levels - 120-130 cm above the same values in January 2023, and maximum levels corresponded to the values in January 2023. Maximum levels were observed in the first ten-day period of the month. Minimum levels were observed at the end of the second and beginning of the third ten-day periods of the month.

In February, on the Upper Danube (Figure 1), minimum water levels were 130 cm, mean levels were 110 cm and maximum levels were 60 cm above the same values in February 2023. Maximum levels were observed at the beginning of the second ten-day period of the month. Minimum levels were observed at the end of the first and second ten-day periods of the month.

[2] Own calculations of the Danube Commission Secretariat based on data from the Gabčíkovo and Mohács control points

On the Middle Danube (Figure 2), minimum water levels were 160 cm, mean levels - 120 cm, and maximum levels - 70 cm above the same values in February 2023. Maximum levels were observed in the second and third ten-day periods. Minimum levels were observed in the first and at the end of the second ten-day periods of the month.

On the Lower Danube (Figure 3, 4), minimum water levels were 120-150 cm, mean levels 10-40 cm above the same values in February 2023, while maximum levels were below by 40-100 cm. Maximum levels were observed in the third decade of the month, and minimum levels were observed in the second ten-day period of the month.

In March, on the Upper Danube (Figure 1), minimum water levels were 80 cm, mean levels - 40 cm above the same values in March 2023, while maximum levels were 30 cm below. Maximum levels were observed in the first and early third decades of the month. Minimum levels were observed at the beginning of the second ten-day period of the month.

On the Middle Danube (Figure 2), minimum water levels were 60 cm, mean levels - 55 cm, and maximum levels - 60 cm above the same values in March 2023. Maximum levels were observed at the beginning of the month. Minimum levels were observed at the beginning of the second ten-day period of the month.

On the Lower Danube (Figure 3, 4), minimum water levels were 10-40 cm, mean levels - 90 cm, and maximum levels - 90 cm below the same values in March 2023. Maximum levels were observed at the beginning of the month and in the third decade of the month. Minimum levels were observed in the first ten-day period of the month and at the end of the month.

In the second quarter of 2024, water levels on the entire Danube were continuously maintained above the LNWL level, while ensuring sufficiently stable navigation conditions.

In April, on the Upper Danube (Figure 1), minimum water levels were observed at the beginning and end of the month and were identical to April 2023 values. Mean and maximum water levels were respectively 30 cm and 60 cm below the similar values of April 2023. Maximum levels were observed in the middle of the month.

On the Middle Danube (Figure 2), minimum water levels were observed at the beginning and end of the month and were 40 cm above the corresponding values of April 2023. Mean water level was 30 cm, and maximum level was 130 cm below the same values of April 2023. Maximum levels were observed at the end of the second and in the first half of the third decade.

On the Lower Danube (Figures 3, 4), minimum water levels were 50-80 cm, and mean and maximum water levels were 130-140 cm below the same values observed in April 2023. Maximum levels were observed at the end of the first and the beginning of the second ten-day periods of the month, and minimum levels – at the end of the second and the beginning of the third ten-day periods.

In May, on the Upper Danube (Figure 1), minimum water levels were identical to the values of May 2023. Mean levels were 40 cm, and maximum levels were 90 cm below the values of May 2023. Maximum levels were observed in the third decade of the month, while minimum levels - in the first and second decades.

On the Middle Danube (Figure 2), minimum water levels were 80 cm below the same values of May 2023, while mean levels were 110 cm and maximum levels were 200 cm below. Maximum levels were observed in the second half of the third decade. Minimum levels were observed in the middle of the second ten-day period of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 50-100 cm below the same values in May 2023, while mean levels were 210-230 cm, and maximum levels were 300-320 cm below. Maximum levels were observed at the beginning of the month. Minimum levels were observed at the beginning of the second ten-day period of the month.

In June, on the Upper Danube (Figure 1), minimum water levels were 90 cm, mean levels were 270 cm, and maximum levels were 480 cm above the same values in June 2023. Maximum levels were observed in the first half of the month. It should be noted that in the first decade, water levels exceeded high navigable water levels (HNWL) values by 10-180 cm, which in some areas caused the interruption of navigation. Minimum levels were observed at the end of the second and beginning of the third ten-day periods of the month.

On the Middle Danube (Figure 2), minimum water levels were above the same values in June 2023, mean levels were 240 cm and maximum levels were 340 cm above the same values in June 2023. Maximum levels were observed at the end of the first and beginning of the second decades of the month, and they exceeded the HNWL values by 10-45 cm. Minimum levels were observed at the beginning and the end of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 50-170 cm, mean water levels were 120-270 cm and maximum water levels were 220-300 cm below the same values in June 2023. Maximum levels were observed in the second half of the month. Minimum levels were observed at the beginning of the first ten-day period of the month.

During the third quarter of 2024, water levels on the Upper and Middle Danube were held above the LNWL level.

On the Lower Danube River, the fall below the LNWL was observed in August and the first two ten-day periods of September. The total number of days of not reaching the LNWL at the Novo Selo gauging station reached 25 days (8-52 cm), and at the Silistra gauging station - 46 days (8-85 cm).

In July on the Upper Danube (Figure 1), minimum water levels were 100 cm, mean levels were 130 cm, and maximum levels were 100 cm above the same values in July 2023. Maximum levels were observed until half of the third decade of the month. Minimum levels were observed at the end of the month.

On the Middle Danube (Figure 2), minimum water levels were 90 cm mean water levels were 140 cm and maximum water levels were 170 cm above in July 2023. The maximum levels were observed until the end of the second ten-day period of the month. Minimum levels were observed at the end of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 30-140 cm, mean levels - 30-220 cm, and maximum levels - 0-230 cm above the same values in July 2023. Maximum levels were observed in the first decade of the month. Minimum levels were observed at the end of the month.

In August, on the Upper Danube (Figure 1), minimum water levels were 40 cm above the same values in August 2023. Mean water levels were 20 cm, and maximum water levels were 160 cm below the same values in August 2023. Maximum levels were observed at the beginning of the third decade of the month. Minimum levels were observed in the first ten-day period and at the end of the month.

On the Middle Danube (Figure 2), minimum water levels were 5 cm, mean levels - 50 cm, and maximum levels - 140 cm below the same values in August 2023. Maximum levels were observed at the beginning of the third decade of the month. Minimum levels were observed in the first ten-day period and at the end of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 10-110 cm, mean levels were 160 cm, and maximum levels were 220 cm below the same values in August 2023. Maximum levels were observed at the beginning of the month. Minimum levels were observed in the third decade of the month.

In September, on the Upper Danube (Figure 1), minimum water levels were 30 cm and mean levels were 20 cm above the same values in September 2023. Maximum water levels in September were below the same values in September 2023 by 20 cm. Maximum levels were observed in the second ten-day period of the month. Minimum levels were observed at the beginning of the month.

On the Middle Danube (Figure 2), minimum water levels were similar in value to the same month of 2023. Maximum levels were observed at the end of the first and beginning of the second decade of the month, when they exceeded the HNWL by 40-230 cm, which in some areas caused the interruption of navigation. Minimum levels were observed in the first ten-day period of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 20-50 cm, mean levels - 40-50 cm, and maximum levels - 130 cm below the same values in September 2023. Maximum levels were observed at the end of the month. Minimum levels were observed in the second decade of the month.

During the fourth quarter of 2024, water levels on the Upper and Middle Danube were consistently above the LNWL.

On the Lower Danube, the drop in levels below the LNWL was observed in late October and early November. The total number of days when the LNWL level was not reached at the Novo Selo gauging station was 2 days (2 cm), and at the Silistra gauging station - 12 days (4-28 cm).

In October, on the Upper Danube (Figure 1), minimum water levels were 95 cm, mean levels were 150 cm, and maximum levels were 160 cm above the same values in October 2023. Maximum levels were observed in the first half of the month. Minimum levels were observed at the end of the month.

On the Middle Danube (Figure 2), minimum water levels were 135 cm, mean levels - 230 cm, and maximum levels - 260 cm above the same values in October 2023. Maximum levels were observed in the first half of the month. Minimum levels were observed at the end of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 215-250 cm, mean levels - 330-335 cm, and maximum levels - 310-350 cm above the same values in October 2023. Maximum levels were observed in the first and second decades of the month. Minimum levels were observed at the end of the month.

In November, on the Upper Danube (Figure 1), minimum water levels corresponded to the same values in November 2023, mean water levels were 115 cm, and maximum levels were 200 cm below the same values in November 2023. Maximum levels were observed at the end of the month. Minimum levels were observed in the third decade of the month.

On the Middle Danube (Figure 2), minimum water levels were 20 cm, mean levels - 145 cm, and maximum levels - 300 cm below the same values in November 2023. Maximum levels were observed at the beginning of the month. Minimum levels were observed at the end of the second ten-day period of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 50 cm, mean levels - 160-230 cm, and maximum levels- 225-300 cm below the same values in November 2023. Maximum levels were observed at the beginning and end of the month. Minimum levels were observed in the third decade of the month.

In December, on the Upper Danube (Figure 1), minimum water levels were 185 cm, mean level - 170 cm, and maximum levels - 225 cm below the same values in December 2023. Maximum levels were observed in the second half of the first ten-day period and the middle of the third ten-day period of the month. Minimum levels were observed at the end of the second ten-day period and the end of the month.

On the Middle Danube (Figure 2), minimum water levels were 120 cm, mean level - 265 cm, and maximum levels - 460 cm below the same values in December 2023. Maximum levels were observed at the beginning of the second ten-day period of the month. Minimum levels were observed in the middle of the first decade, at the end of the second decade, and at the end of the month.

On the Lower Danube (Figures 3, 4), minimum water levels were 330-340 cm, mean levels - 320-330 cm, and maximum levels - 335-350 cm below the same values in December 2023. Maximum levels were observed at the end of the month. Minimum levels were observed at the beginning of the month and the beginning of the second ten-day period of the month.

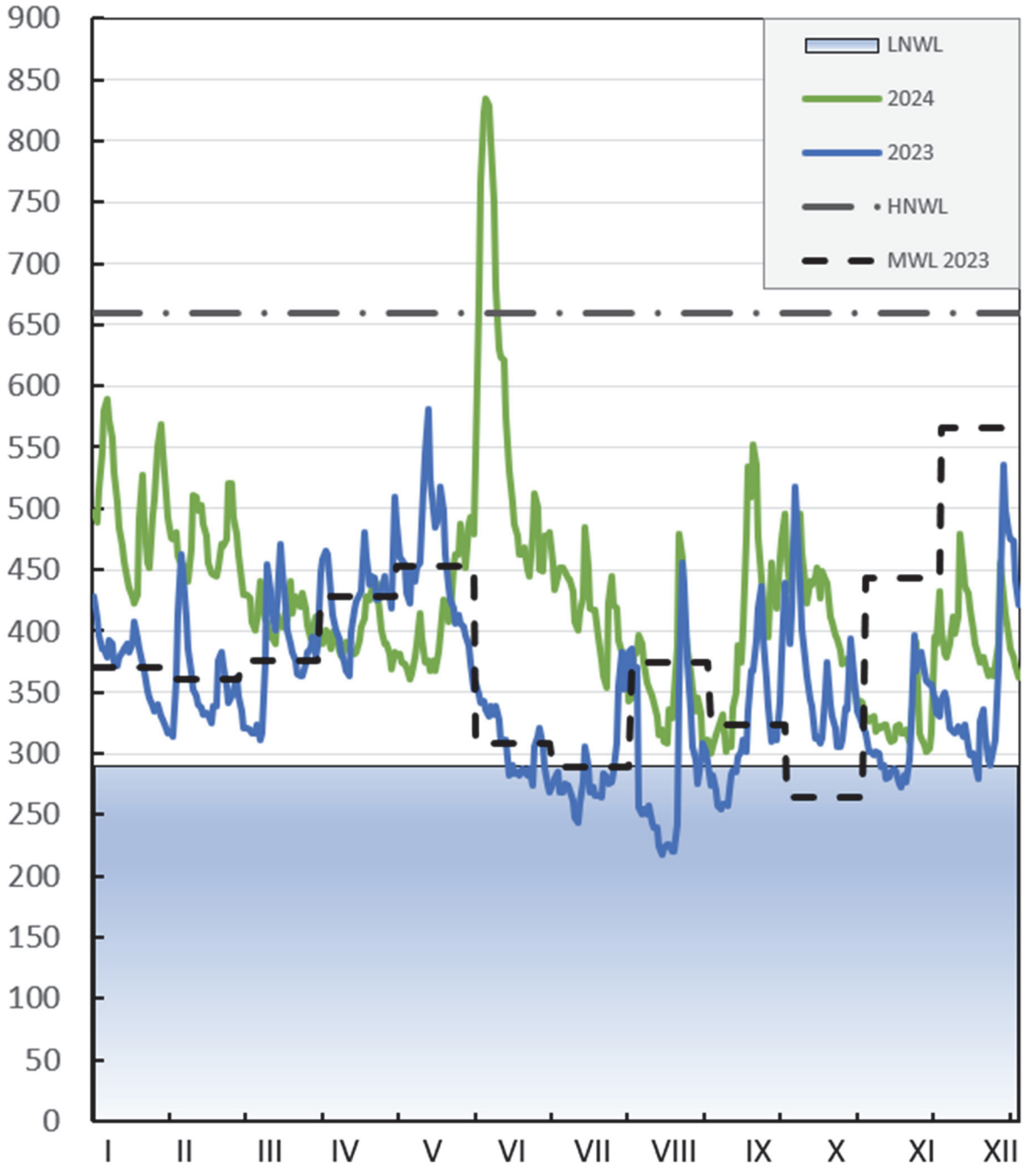

Figure 1. Daily water levels for the Pfelling gauging station (DE), in cm

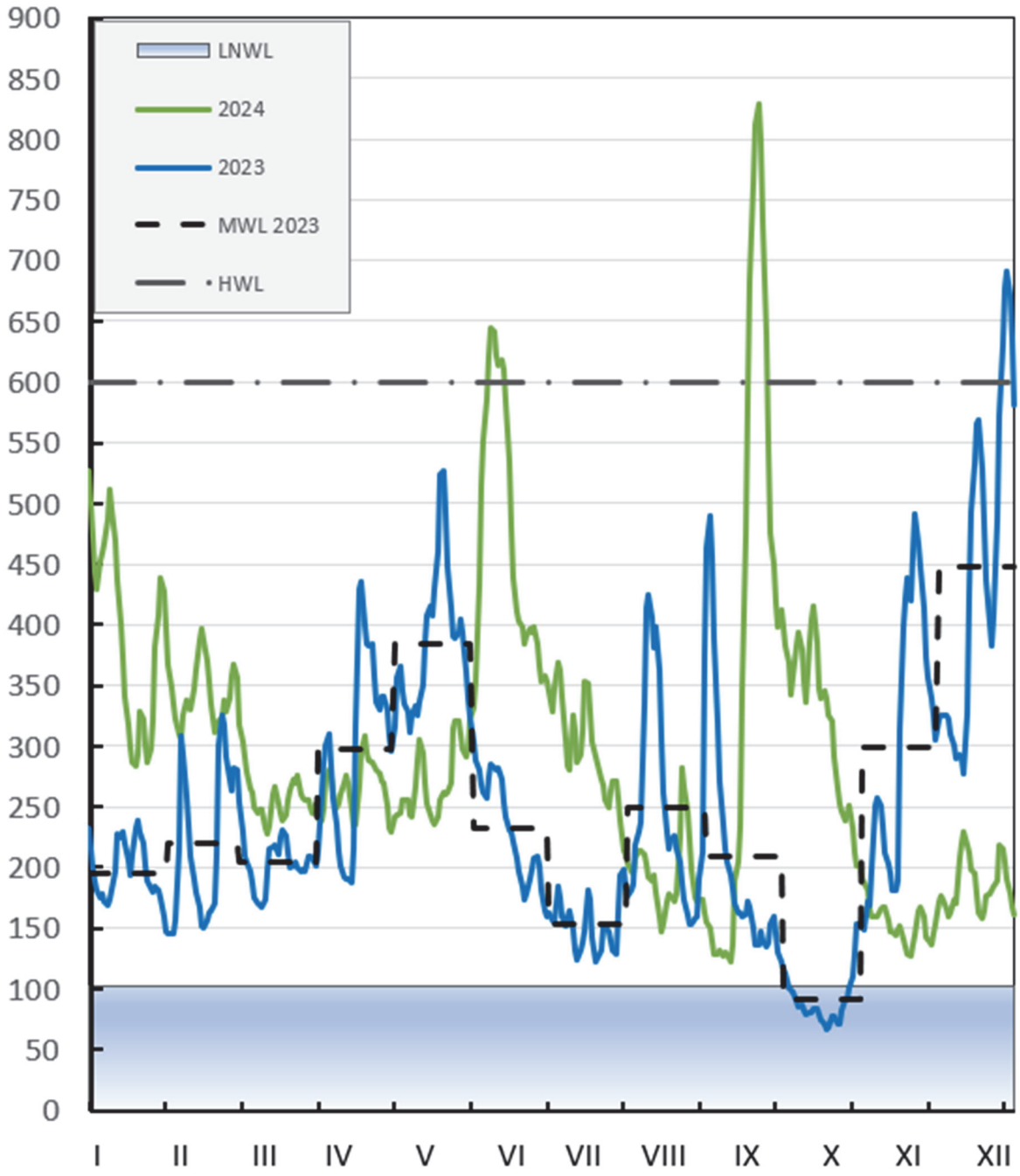

Figure 2. Daily water levels for the Budapest Vigadó gauging station (HU), in cm

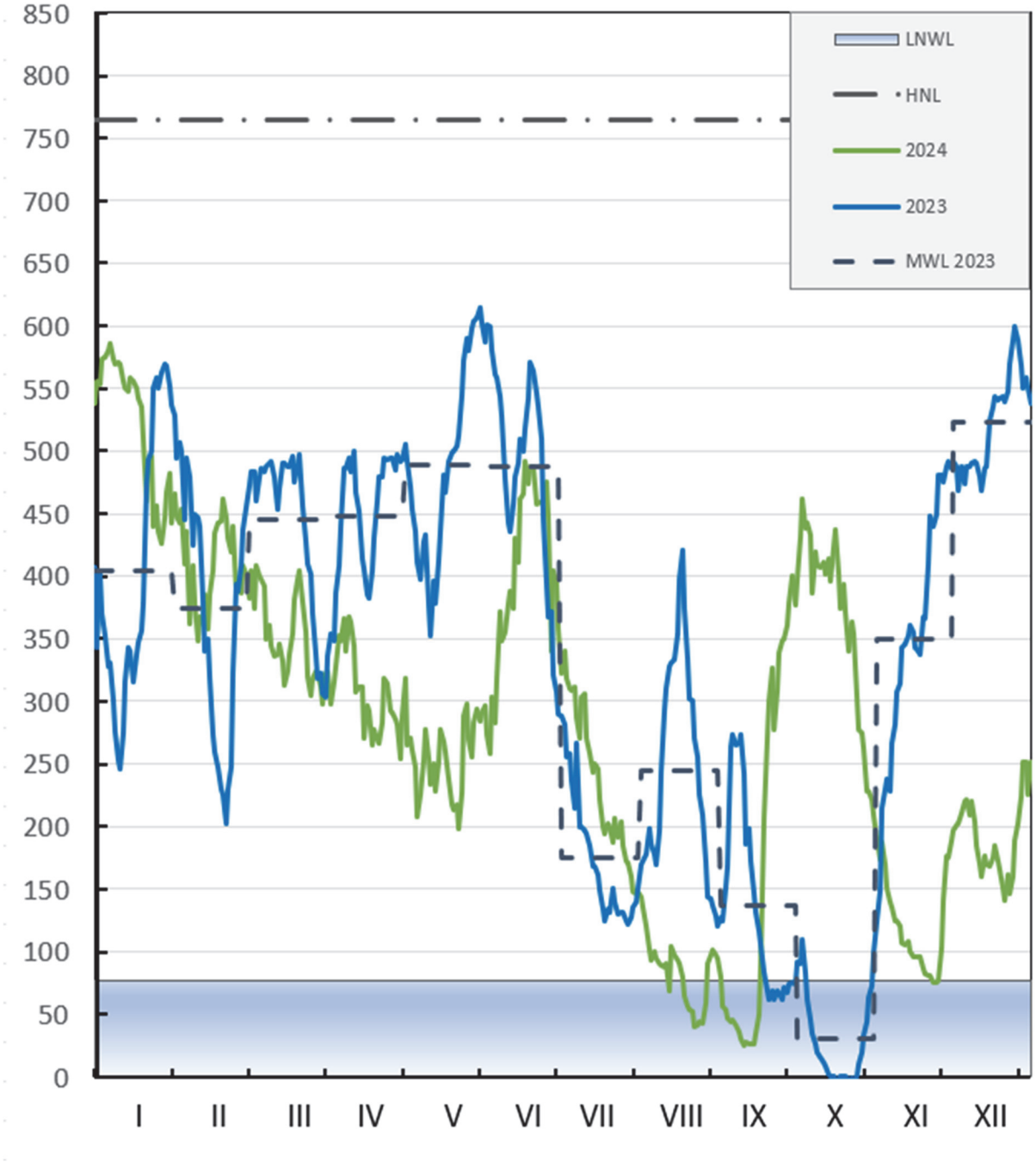

Figure 3. Daily water levels for the Novo Selo gauging station (BG), in cm

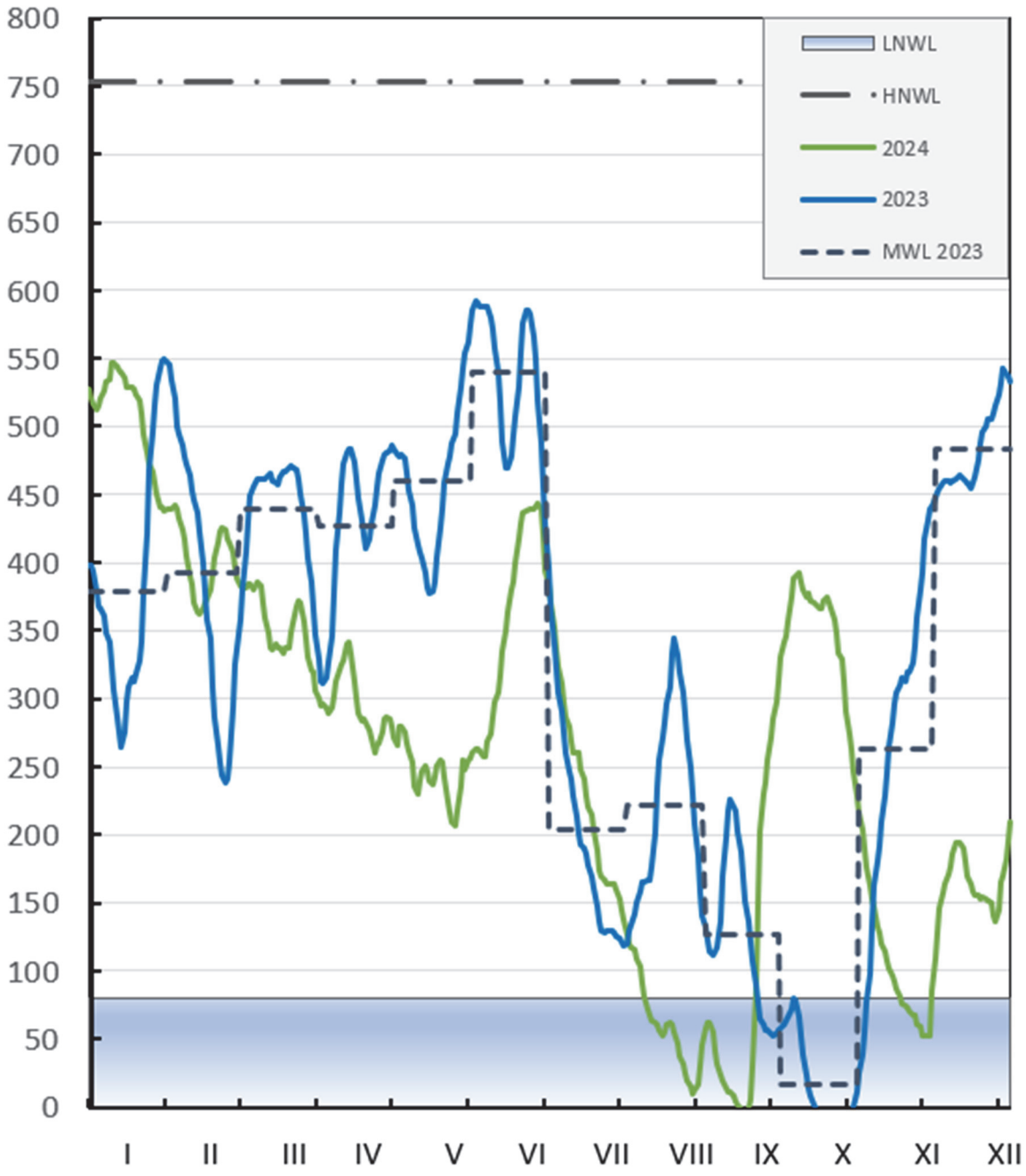

Figure 4. Daily water levels for the Silistra gauging station (BG), in cm

2.1.2 Water Flow and Operating Draught of Vessels

The stable water flow, required for efficient navigation, was ensured throughout the first half of the year and part of the third quarter of 2024, which allowed for vessel loading to a relatively high draught for this navigation period (Table 2.1).

Table 2.1. Draughts of cargo vessels in the 2024 navigation season

Month	Draught in cm, going upstream	Draught in cm, going downstream
January	250 (250*)	220/230 (220/230*)
February	270 (270)	230 (230)
March	270 (270)	230/240 (230/240)
April	270 (270)	230/240 (230/240)
May	270 (270)	230/240 (230/240)
June	270 (270)	230/240 (230/240)
July	250 (270)	220/230 (220/230)
August	200 (190)	180 (170)
September	250 (270)	230/240 (230/240)
October	240 (250)	220/230 (220/230)
November	230 (240)	180 (170)
December	230 (250)	230/240 (230/240)

* Figures for the corresponding period of 2023 are given for comparison

2.2 Observation of Fleet Traffic and Cargo Flows in 2024

2.2.1 Passenger Transport

Transport on the Upper Danube

A relatively stable passenger transport on cruise passenger ships with cabins started in April.

The passenger transport on ships with cabins are "short", lasting 5-7-8 days, voyages Passau - Vienna - Bratislava - Budapest, voyages from/to the ports of Rhine and Main (conventionally - transport on the Upper Danube), as well as to/from the Danube Delta.

Dynamics of passenger transport on conditional lines in 2024 are shown in Table 2.2.

Table 2.2. Passenger transport trends[3]

Lines/year, ths. people	2020	2021	2022	2023	2024
Upper Danube (Gabčíkovo - total)	56.0	149.0	469.0	562.0	610.0
Danube Delta (Mohács - total)	5.2	34.0	74.0	29.0	8.7

Through the Jochenstein lock (cross-border connection Austria/Germany), 395 ship passages were recorded, which is 80% of the amount in 2023.

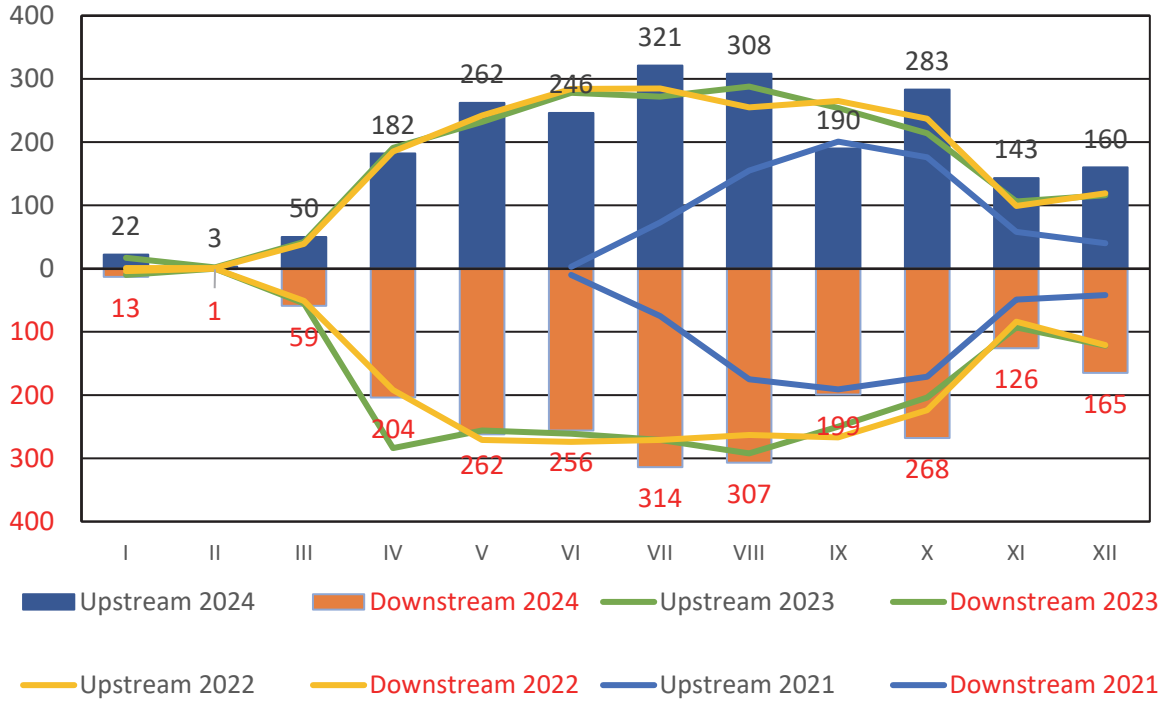

Figure 5. Passages of passenger ships with cabins upstream/downstream the Danube River, through the Gabčíkovo lock, by month

Vessels passing through the Gabčíkovo lock (cross-border connection Hungary/Slovakia, conventionally "Upper Danube") (Figure 5) recorded 4,344 vessel passages, of which 2,170 upstream and 2,174 downstream (in 2019 total vessel passages – 5,141, in 2020 - 557, in 2021 – 1,419, in 2022 – 4,040, in 2023 – 4,030). A total of 609,900 passengers (upstream/downstream) was transported in 2024. The basic distribution of passenger transport volumes on the Upper Danube by flag country in 2019-2024 is shown in Table 2.3.

[3] Own calculations of the Danube Commission Secretariat based on the Gabčíkovo and Mohács data

Table 2.3. Distribution of passenger transport volumes on the Upper Danube by vessels in %, by flag (2019-2024)

Flag/year	**2019**	**2022**	**2023**	**2024**
Germany	18%	17%	16%	12%
Bulgaria	5%	4%	5%	4%
Ukraine	5%	4%	3%	3%
Non-DC member states	69%	73%	75%	76%

A total of 4,344 passenger vessel passages through the Gabčíkovo lock were recorded in 2024:

- vessels of 110 m length: 1,650 (in 2019 - 1,655, in 2020 - 343, in 2021 - 676, in 2022 - 1,601, in 2023 - 1,587) vessel passages;

- vessels of 135 m length: 2,608 (in 2019 - 2,567, in 2020 - 181, in 2021 - 700, in 2022 – 2,331, in 2023 – 2,354) vessel passages, of which 77% of the passages of vessels flying the flags of non-DC states.

The average load in June amounted to vessels of length:

- 110m: 125-130 passengers (130 in 2019);

- 135m: 150-155 passengers (158 in 2019).

Transport on the Middle Danube: (cross-border traffic Hungary/Croatia/Serbia HU/HR/RS - conditionally - to/from the Danube Delta (statistics of the Mohács checkpoint):

- in the first quarter, there were no passenger vessels, except for single passages without passengers;

- in total, 9 upstream and 59 downstream passages were made in 2024 (Figure 6). Accordingly, 8.7 thousand passengers were carried (upstream/downstream) (Table 2.2).

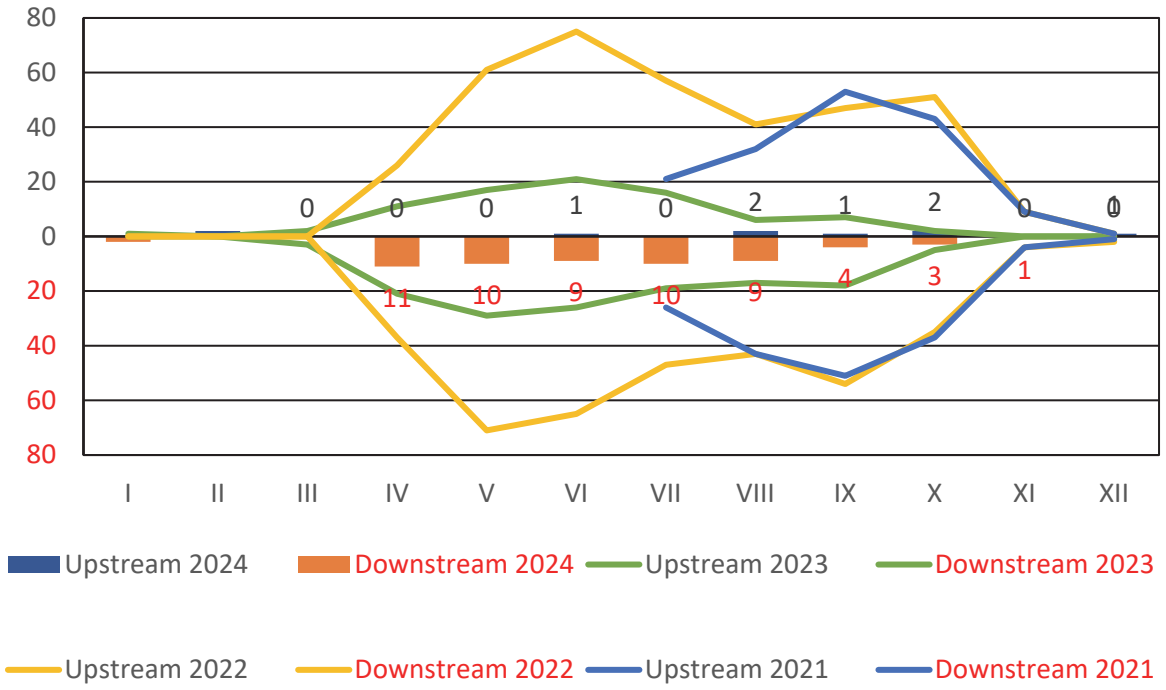

Figure 6. Passages of passenger ships with cabins upstream/downstream the Danube River, through Mohács, by month

2.2.2 Freight Transport

Transport on the Upper Danube

Transport volumes

a) The volume of freight transported via the Jochenstein lock (cross-border connection Germany/Austria, DE/AT) in 2024 was 2,627 ths. tonnes, which is 127 % of the volume in 2023.

b) The volume of registered cargo transported through the Gabčíkovo lock (cross-border connection Hungary/Slovakia, HU/SK) in 2024 amounted to 4,539 thousand t, which is 114 % of the volume in 2023. The upstream transit amounted to about 2,565 thousand t, or 57 % (in 2019 - 63 %, in 2020 - 66 %, in 2021 - 59 %, in 2022 - 55 %, in 2023 - 52 %) of the total volume (Figure 7).

Dry cargo - 3,542 ths. tonnes transported, of which:

- upstream - 2,510 ths. tonnes;
- downstream – 1,291 ths. tonnes, *i.e.,* at a ratio of 1.74:1 (in 2019 - 2.4:1, in 2020 - 2.7:1, in 2021 - 2.4:1, in 2022- 1.8:1, in 2023 - 1.6:1).

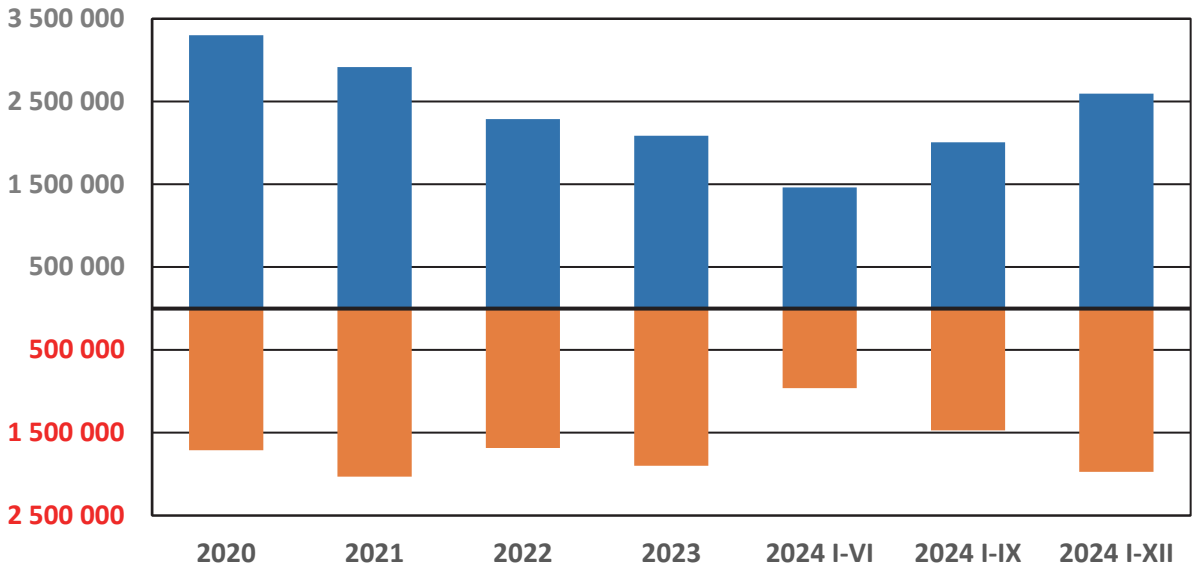

Figure 7. Volumes of cargo transported upstream/downstream the Danube River through the Gabčíkovo lock by year, in tonnes

Liquid cargo - 768 ths. tonnes transported, including:

- upstream - 85 ths. tonnes;
- downstream - 683 thousand, *i.e.* in the ratio of 0.12:1 (in 2019 – 0.33:1, in 2020 – 0.35:1, in 2021 – 0.1:1, in 2022 – 0.14:1, and in 2023 – 0.09:1).

Fleet traffic

Transport by pushed convoys (statistics of the Gabčíkovo lock)

A total of 2,038 ths. tonnes were transported by pushed convoys in 2024, which is about 106% of the volume in 2023 and 45% of the total volume of cargo that passed through the Gabčíkovo lock, including liquid cargo (59% in 2019, 2020 - 49%, in 2021 - 50%, in 2022 - 48%, 2023 - 49%).

a) In terms of transported volumes of dry cargo, pushed convoys transported 1,771 ths. tonnes, of which (Figure 8):
   - upstream - 983 ths. tonnes, which is 43.6% (in 2019 - 56%, in 2020. - 32%, in 2021 - 50%, in 2022 - 46%, in 2023 - 46%) of the volume of dry cargo transported upstream;
   - downstream - 788 ths. tonnes, which is 61% of the volume of dry cargo transported downstream.

A total of 1,048 (1,193 in 2020, 1,193 in 2021, 1,250 in 2021, 1,004 in 2022, 930 in 2023) non-motorized dry cargo barges travelled upstream in pushed convoys, of which 23% (15% in 2019, in 2020 - 6%, in 2021 - 6%, in 2022 - 8%, in 2023 - 14%) in ballast. At the same time, of the 1,029 dry cargo barges traveling in downstream convoys, 19% are in ballast (33% in 2019, in 2020 - 34%, in 2021 - 32%, in 2022 - 17%, in 2023 - 19%).

b) In terms of liquid cargo transport by non-motorized barge-tankers as part of convoys, 268 ths. tonnes were transported, of which:

- upstream - 23 ths. tonnes;
- downstream - 245 ths. tonnes.

A total of 21 loaded and 215 ballasted non-motorized motorized tankers went upstream in the pushed convoys, while 219 loaded and 17 ballasted tankers went downstream.

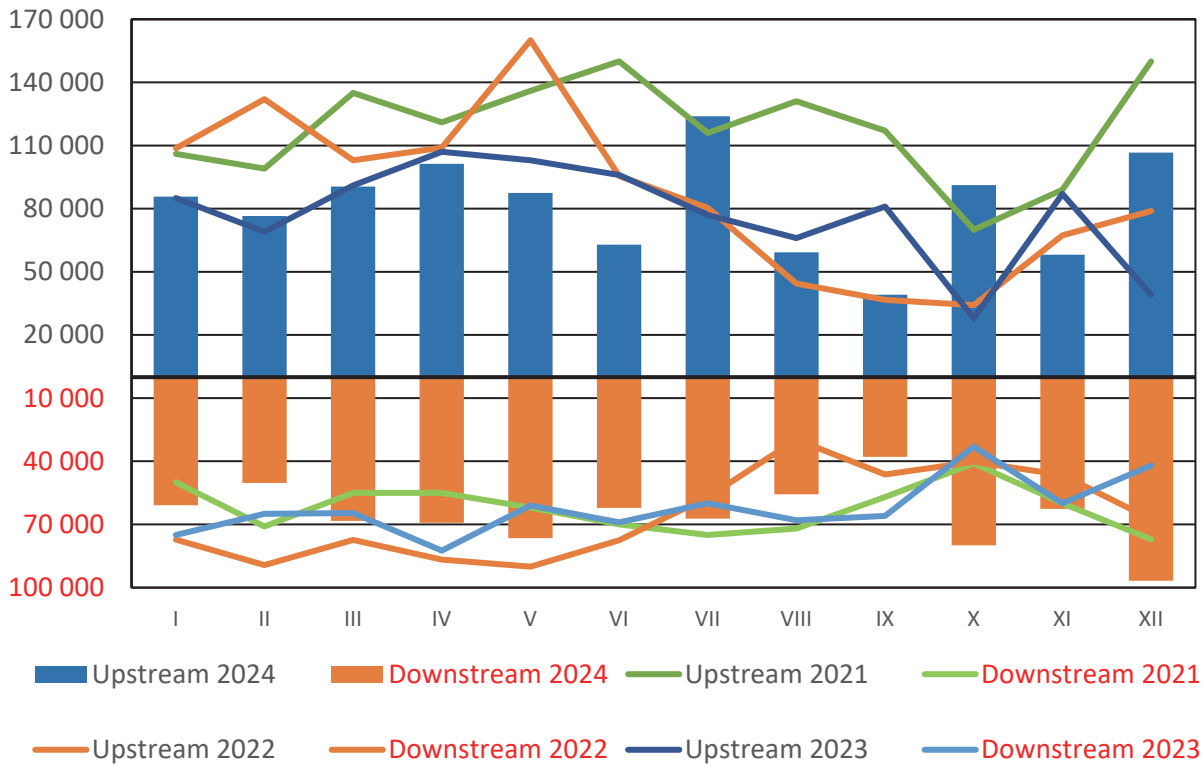

Figure 8. Volumes of cargo transport by non-motorized dry cargo barges upstream/downstream the Danube River, through the Gabčíkovo lock, by month, in tonnes

Transport by motorized vessels

In total, motorized vessels transported about 2,500 ths. tonnes in 2024, which is 55% (41% in 2019, 41% in 2020. - 51%, in 2021 - 51%, in 2022 - 52%, in 2023 - 52%) of the total cargo volume and 122% of the volume in 2023.

a) Motorized dry cargo vessels transported a total of 2,031 ths. tonnes, which was 126% of the volume in 2023, of which:

- upstream - 1,528 ths. tonnes;
- downstream - 503 ths. tonnes.

A total of 1,393 (in 2020 – 1,794, in 2021 – 1,492, in 2022 – 1,454, in 2023 – 1,217) motorized dry cargo vessels (of which 91% are loaded) went up in 2024, 1,370 (in 2020 - 1,875, in 2021 - 1,504, in 2022 - 1,597, in 2023 - 1,334) vessels (of which 40% loaded).

The traffic performance (ratio) of motorized dry cargo vessels corresponds to the data in Table 2.4(a).

Table 2.4(a) Traffic indicators of motorized dry cargo vessels on the Upper Danube

Ratio/year	2019	2020	2021	2022	2023	2024
loaded upstream/ downstream	2.70:1	2.80:1	2.50:1	2.00:1	1.70:1	2.31:1
loaded/ballast upstream	14.00:1	16.00:1	12.00:1	8.60:1	9.90:1	11.00:1
loaded/ballast downstream	0.57:1	0.47:1	0.57:1	0.71:1	0.90:1	0.67:1

2,763 motorized dry-cargo vessels passed through the Gabčíkovo lock, of which:

- 110 m long - 271 loaded units (in 2020 - 276, in 2021 - 330, in 2022 - 289, in 2023 - 343), of which 142 upstream, 129 downstream; which transported a total of 359 ths. tonnes; and 162 units in ballast;

- 135 m long ("big European vessel") - 76 loaded units (50 - up), which carried a total of 148 ths. tonnes, and 36 units in ballast;

- specialized vessels ("Ro-Ro", container ships, etc.) - a total of 113 vessels.

b) Motorized tankers transported a total of 469 ths. tonnes of liquid cargo, including:

- upstream - 31 ths. tonnes;
- downstream - 438 ths. tonnes.

A total of 341 motorized tankers passed upstream in 2024, of which 7% were loaded, and 342 tankers passed downstream, of which 94% were loaded.

The traffic ratios of motorized tankers are consistent with the data in Table 2.4(b).

Table 2.4(b) Traffic indicators of motorized tankers on the Upper Danube

Ratio/year	2019	2020	2021	2022	2023	2024
loaded up/down	0.41:1	0.63:1	0.17:1	0.18:1	0.11:1	0.07:1
loaded/ ballast upstream	0.48:1	0.90:1	0.18:1	0.19:1	0.12:1	0.08:1
loaded/ ballast downstream	3.60:1	2.30:1	9.40:1	8.90:1	8.60:1	17.00:1

The nomenclature of cargo

The features of the market in 2024 in this section of transport (Figure 9) in relation to the corresponding figures in 2023 consist:

a) in the relative stabilization of volumes of upstream transport of iron ore raw materials, as well as downstream transport of steel products;

b) in increasing upstream transport of grain, food cargo, and fodder, and downstream transport of oil products.

The absolute ratio of the main cargo volumes in upstream and downstream movements in this control section (cross-border traffic Hungary/Slovakia) is presented in Tables 2.5 and 2.6.

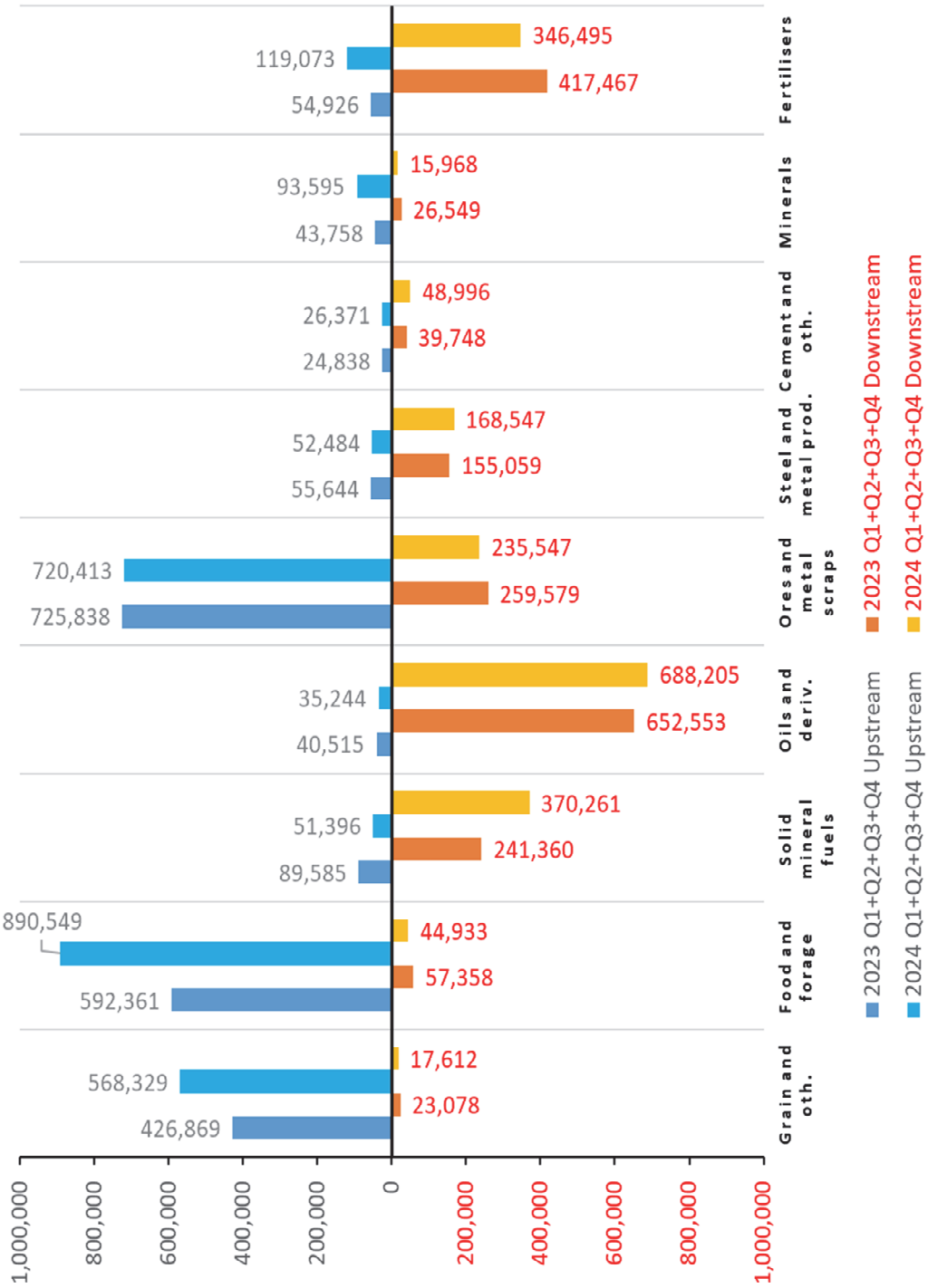

Figure 9. Commodity structure of cargo transport upstream/downstream the Danube River through the Gabčíkovo lock, in tonnes

Table 2.5. Cargo volumes (by nomenclature), transported in cross-border traffic HU/SK: upstream

Year, ths. tonnes / Commodity group	2020	2021	2022	2023	2024
Food and feed cargoes	1,321	879	783	592	890
Iron ore	948	969	735	726	720
Grain cargoes	352	394	416	427	568
Metal products	117	71	101	56	53
Petroleum products	212	87	92	41	35
Fertilizers	75	133	75	55	119

Table 2.6. Cargo volumes (by nomenclature), transported in cross-border traffic HU/SK: downstream

Year, ths. tonnes / Commodity group	2020	2021	2022	2023	2024
Fertilizers	505	465	445	418	347
Petroleum products	578	870	642	653	688
Metal products	97	140	173	155	169

Transport on the Middle Danube

(statistics of the Mohács checkpoint) - cross-border traffic Hungary/Croatia/Serbia (HU/HR/RS)

Transport volumes

The volume of registered cargo transported through the Mohács checkpoint in 2024 was 4,034 ths. tonnes (Figure 10), or 120 % of the volume of cargo transported in 2023, of which upstream transit was 1,900 ths. tonnes, *i.e.* 47 % (in 2019 - 59 %, in 2020. - 42%, in 2021 - 50%, in 2022 - 58%, in 2023 - 43%).

3,419 ths. tonnes of dry cargo were transported, of which:

- upstream – 1,665 ths. tonnes;
- downstream – 1,754 ths. tonnes.

615 ths. tonnes of bulk cargo were transported, including:

- upstream - 235 ths. tonnes;
- downstream - 380 ths. tonnes.

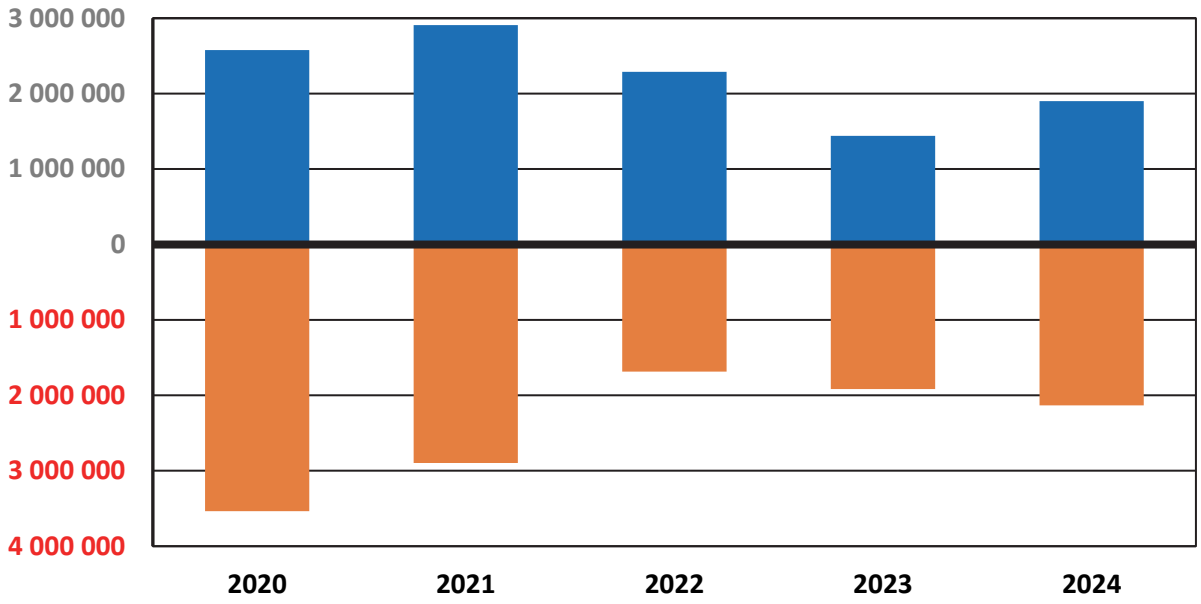

Figure 10. Volumes of cargo transport upstream/downstream the Danube River through Mohács, by years, in tonnes

Fleet traffic

Transport by pushed convoys

In 2024, a total of over 2,724 ths. tonnes were transported by pushed convoys through the Mohács checkpoint, which is 68% of the total cargo volume, including liquid cargo (in 2019 - 80%, in 2020 - 78%, in 2022 - 73%, in 2023 - 70%) - 76%, in 2021 - 78%, in 2022 - 73%, in 2023 - 70%).

a) In terms of volumes of dry cargo transport by pushed convoys, 2,597 ths. tonnes were transported (Figure 11), which is 120% of the volume in 2023, of which:

- upstream - 1,264 ths. tonnes, which is 76% (in 2019 - 80%, in 2020 - 44%, in 2021 - 83%, in 2022 - 78%, in 2023 - 78%) of the volume of dry cargo transported upstream;
- downstream - 1,333 ths. tonnes, which is 76% (in 2019 - 82%, in 2020 - 56%, in 2021 - 85%, in 2022 - 83%, in 2023 - 77%) of the volume of dry cargo transported downstream.

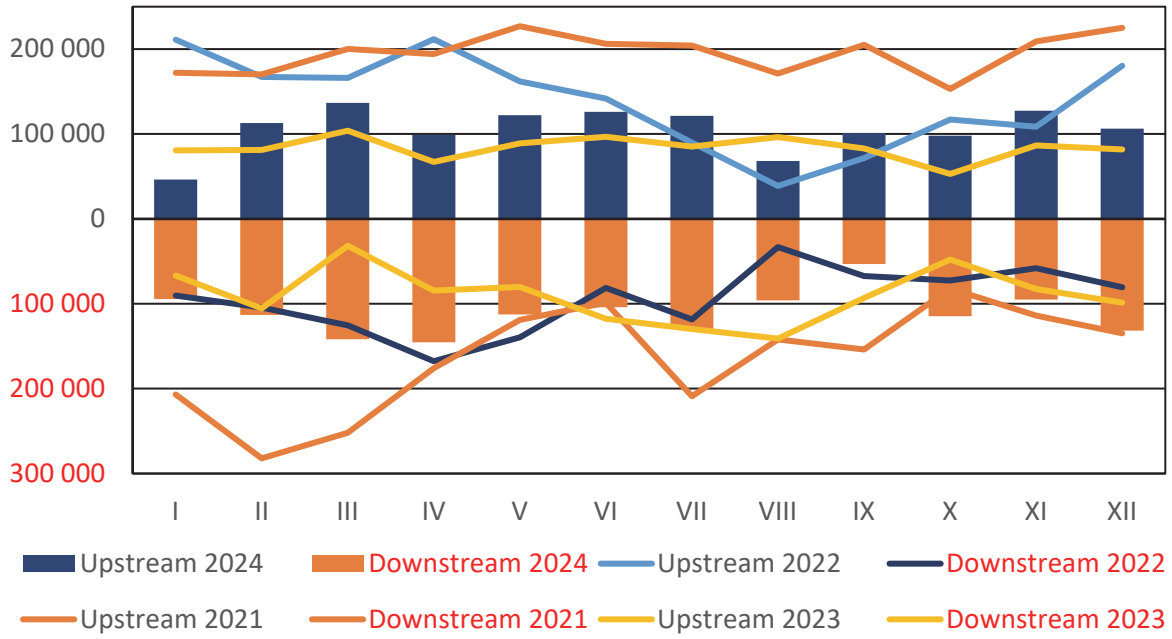

Figure 11. Volumes of dry cargo transport by pushed convoys upstream/downstream the Danube River through Mohács, by month, in tonnes

A total of 1,521 (1,198 in 2023) non-motorized dry cargo barges travelled upstream in pushed convoys in 2024, of which 33% (11% in 2019, 11% in 2020 - 35%, in 2021 - 35%, in 2022 - 19%, in 2023 - 32%) in ballast. At the same time, of the 1,462 (1,201 in 2023) dry cargo barges traveling downstream in convoys, 17% (9% in 2023) of the units went downstream in ballast.

b) In terms of liquid cargo volumes, non-motorized barge-tankers as part of convoys transported 127 ths. tonnes, of which:

- upstream - 31 ths. tonnes;
- downstream - 96 ths. tonnes.

A total of 105 non-motorized tankers, of which 34% were loaded, passed upstream in the pushed convoys; 103 tankers, of which 81% were loaded, passed downstream.

Transport by motorized vessels

A total of 1,309 ths. tonnes were transported by motorized vessels in 2024, which represents 33% (in 2019 - 21%, in 2020 - 24%, in 2021 - 22%, in 2022 - 27%, in 2023 - 31%) of the total volume transported through the Mohács checkpoint, of which:

a) Motorized dry cargo vessels (993 ship passages, of which 67% loaded) transported 822 ths. tonnes, including:

- upstream - 401 ths. tonnes;
- downstream - 421 ths. tonnes.

b) Motorized tankers (a total of 491 ship passages, 71% of them loaded tankers) transported 488 ths. tonnes of liquid cargo (Figure 12), of which:

- upstream - 204 ths. tonnes;
- downstream - 284 ths. tonnes.

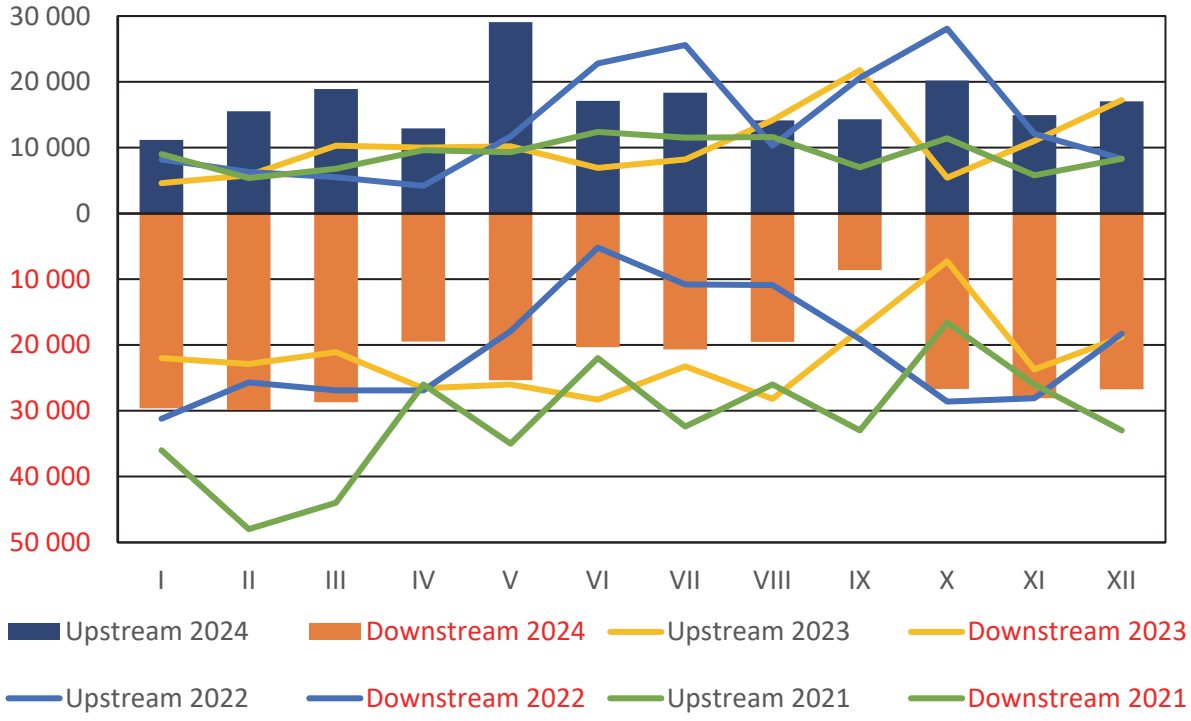

Figure 12. Volumes of cargo transport by motorized tankers upstream/downstream the Danube River through Mohács, by month, in tonnes

Nomenclature of cargo

Market features in 2024 for this transport segment (Figure 13) relative to the corresponding 2023 figures are as follows:

a) relative stabilization of iron ore transport volumes going upstream and a sharp decline in food commodities going downstream;

b) maintaining minimum coal transport volumes going upstream;

c) upstream growth of oil products transport volumes and downstream growth of grain cargo transport volumes;

d) downstream stabilization of steel products transport volumes and upstream/downstream growth of fertilizer transport volumes.

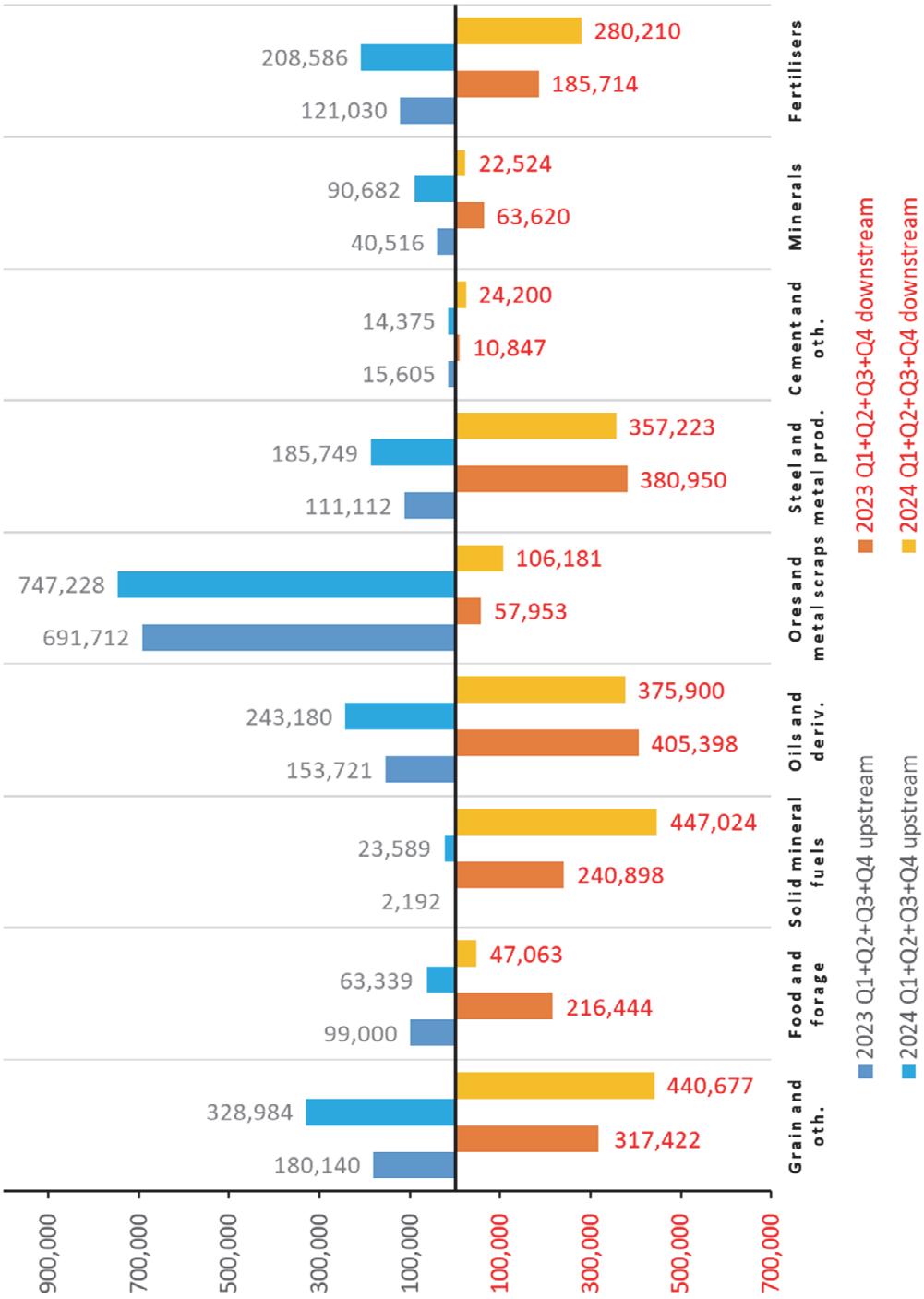

Figure 13. Commodity structure of cargo transport upstream/downstream the Danube River through Mohács, in tonnes

The absolute ratio of the main cargo volumes in upstream and downstream traffic at this checkpoint (cross-border traffic Hungary/Croatia/Serbia, HU/HR/RS) is presented in Tables 2.7 and 2.8.

Table 2.7 Cargo volumes (by nomenclature), transported in cross-border traffic HU/HR/RS: upstream

Year, ths. tonnes / Commodity group	2020	2021	2022	2023	2024
Iron ore	954	991	741	692	747
Coal (coke)	323	281	200	2	24
Fertilizers	436	385	256	121	209
Petroleum products	106	117	252	154	243
Metal products	243	249	205	111	186

Table 2.8 Cargo volumes (by nomenclature), transported in cross-border traffic HU/HR/RS: downstream

Year, ths. tonnes / Commodity group	2020	2021	2022	2023	2024
Grain cargo	1,471	1,002	239	317	441
Petroleum products	528	591	322	405	376
Metal products	295	254	310	381	357
Food and feed	520	219	65	216	47
Fertilizers	364	316	316	186	280

The total cargo balance by nomenclature for the main types of cargo in 2024 is as follows (Tables 2.9 - 2.10).

Table 2.9 Cargo transported through the Gabčíkovo lock

Commodity group	Total	Upstream	Downstream
Grain cargo	12.9%	12.5%	0.4%
Food and feed cargo	20.5%	19.5%	1.0%
Solid fuel	9.2%	1.1%	8.1%
Petroleum products	15.9%	0.8%	15.1%
Iron ore	21%	15.8%	5.2%
Metal products	4.9%	1.2%	3.7%
Cement	1.7%	0.6%	1.1%
Minerals	2.5%	2.1%	0.4%
Natural and artificial fertilizers	10.2%	2.6%	7.6%
Others	1.5%	0.5%	1.0%
Total	**100%**	**56.6%**	**43.4%**

Table 2.10 Cargo transported through the Mohács checkpoint

Commodity group	Total	Upstream	Downstream
Grain cargo	19.2%	8.2%	11.0%
Food and feed cargo	2.8%	1.6%	1.2%
Solid fuel	11.8%	0.6%	11.2%
Petroleum products	15.5%	6.1%	9.4%
Iron ore	21.3%	18.6%	2.7%
Metal products	13.5%	4.6%	8.9%
Cement	1.0%	0.4%	0.6%
Minerals	2.9%	2.3%	0.6%
Natural and artificial fertilizers	12.2%	5.2%	7.0%
Total	**100%**	**47.6%**	**52.4%**

2.2.3 Inter-basin transport

Transport on the Danube-Black Sea Canal

The volume of transport through the Danube-Black Sea Canal in 2024 amounted to 18 mil. tonnes[4], which is 79 % of the same indicator in 2023, of which:

- international transport: 14 mil. tonnes (74% of the 2023);
- domestic transport: 4.5 mil. tonnes (98% of the 2023).

Transport volumes by month through the Danube-Black Sea Canal are shown in Figure 14; the dynamics of transport by year is given in Table 2.11.

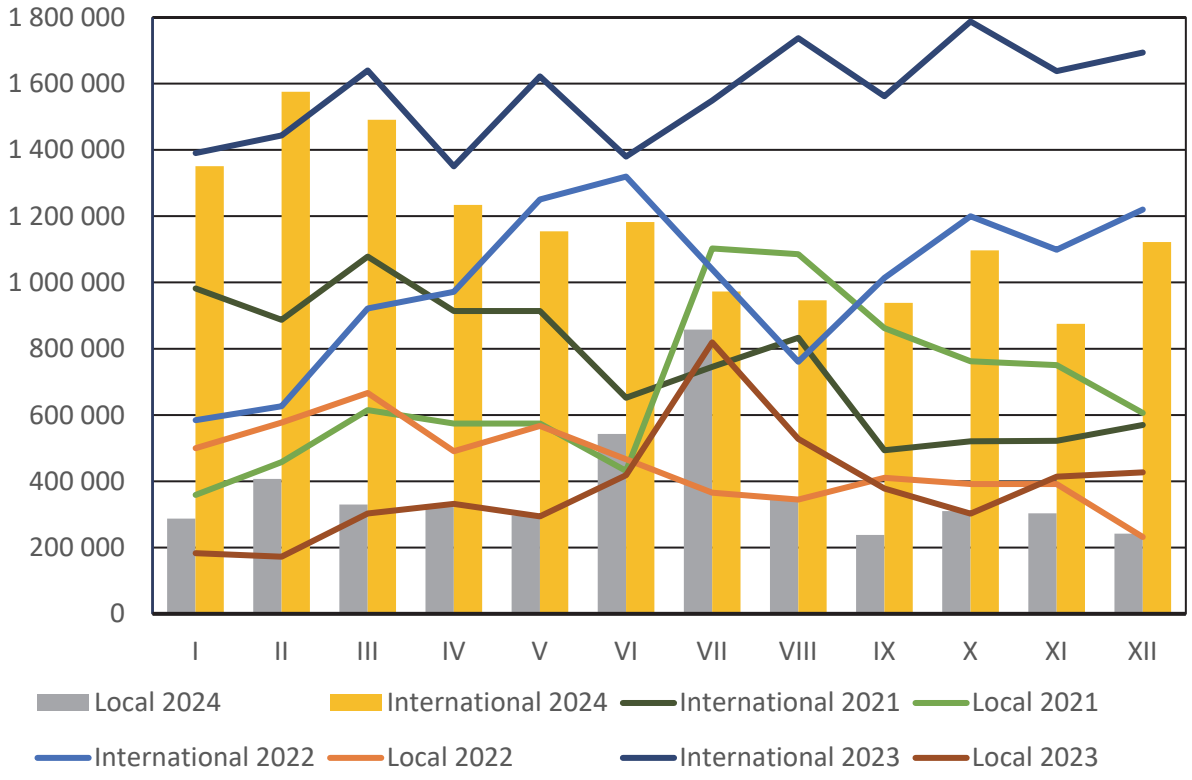

Figure 14. Volumes of international and national cargo transport through the Danube – Black Sea Canal, by month, in tonnes

[4] www.acn.ro

Table 2.11 Volumes of cargo transport through the Danube-Black Sea Canal

Year, mil. tonnes	2019	2020	2021	2022	2023	2024
Total cargo turnover	16.7	16.5	17.3	17.3	23.4	18.4
International transport	8.9	10.6	9.1	12.0	18.8	13.9
Domestic transport	7.9	5.9	8.2	5.3	4.6	4.5

Transport on the Sulina Canal

Transport on the Sulina Canal in 2024[5] amounted to only 9,902 ths. tonnes, *i.e.* 60.2% of the same indicator in 2023 (Table 2.12).

Table 2.12. Cargo transport volumes through the Sulina Canal

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Cargo turnover	5,487	4,549	5,070	10,568	16,446	9,902
Danube – Black Sea	4,331	2,872	3,389	7,217	12,836	3,456
Black Sea - Danube	1,156	1,677	1,681	3,351	3,610	6,446

A total of 3,141 vessels passed through the Sulina Canal in 2024 (4,285 in 2023), of which:

- Upstream (Black Sea to Danube) - 1,444 vessels (in 2023 - 1,625 units);
- Downstream (Danube to Black Sea) - 1.697 vessels (in 2023 - 2.660 units).

[5] www.afdj.ro

3 Cargo Turnover of the Danube Ports

3.1 Ports in Germany

In 2023 the total cargo turnover of Danube ports of Germany[6] was 2,228 ths. tonnes, or 92.4% of the cargo turnover in 2022 (Table 3.1). While, in 2024 the total cargo turnover of Germany was 2,047 ths. tonnes.

At the same time, in 2023, the total traffic on the German Danube section from Kelheim to the Austrian border amounted to 3,070 ths. tonnes[7] . In 2024, this volume reached 3,590 ths. tonnes.

Table 3.1.

Year, ths. tonnes	**2019**	**2020**	**2021**	**2022**	**2023**	**2024***
Cargo turnover	3,274	3,511	2,999	2,410	2,228	2,047

* The sum of the four ports individually represented below plus Deggendorf.

The cargo turnover of individual Danube ports in Germany[8] in 2024 is represented in Table 3.2.

Table 3.2.

Year/ports, ths. tonnes	**Kelheim**	**Regensburg**	**Straubing-Sand**	**Passau**
2019	369	1.387	660	359
2020	362	1.553	661	473
2021	356	1.303	663	251
2022	302	1.083	552	229
2023	252	1.021	516	218
2024	316	942	596	129

[6] 2019-2023: www.statistik.bayern.de, 2024: https://www-genesis.destatis.de/
[7] https://www-genesis.destatis.de/
[8] 2019-2023: http://www.statistik.bayern.de; 2024: https://www-genesis.destatis.de/

The highest cargo volumes in the cargo turnover of Kelheim, Regensburg and Straubing-Sand in 2024 by group[9] are:

agricultural products (group 01)
- Straubing-Sand - 280 ths. tonnes, Regensburg - 368 ths. tonnes, Kelheim - 99 ths. tonnes.

metal ores (group 03)
- Straubing-Sand - 22 ths. tonnes, Regensburg - 46 ths. tonnes, Kelheim - 80 ths. tonnes.

food (group 04)
- Straubing-Sand - 227 ths. tonnes, Regensburg - 165 ths. tonnes, Kelheim - 31 ths. tonnes.

chemicals and products (group 08)
- Straubing-Sand – 62 ths. tonnes, Regensburg - 95 ths. tonnes, Kelheim - 61 ths. tonnes.

fabricated metal products (group 10)
- Regensburg - 88 ths. tonnes, Kelheim - 5 ths. tonnes.

secondary raw materials and other waste (group 14)
- Regensburg - 112 ths. tonnes, Kelheim - 0.5 ths. tonnes.

3.2 Ports in Austria

The total cargo turnover of Austrian ports[10] in 2024 was 5,349 ths. tonnes, *i.e.* 104% of the cargo turnover in 2023 (Table 3.3).

Table 3.3

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Loaded: - export	2,259	2,061	2,425	1,897	2,018	1,942
Unloaded: - import	4,193	3,989	3,931	3,466	2,742	3,023
Cargo turnover, including transport within the country	6,706	6,645	7,112	5,483	5,123	5,349

[9] https://www-genesis.destatis.de/
[10] www.statistik.at

The total volume of cargo transported within the country amounted to 385 ths. tonnes; represents 7% of the total cargo turnover of the country's ports.

The cargo turnover of main Austrian ports in 2024 is shown in Table 3.4.

Table 3.4

Year/ports, ths. tonnes	Vienna	Linz	Krems	Enns
Cargo turnover 2019	952	3,280	305	776
Cargo turnover 2020	787	3,411	249	616
Cargo turnover 2021	927	3,482	286	672
Cargo turnover 2022	583	2,929	298	554
Cargo turnover 2023	633	2,916	196	416
Cargo turnover 2024	683	2,820	246	494
Loaded 2024	576	1,189	49	55
Unloaded 2024	107	1,631	197	439

Largest volumes of cargo sent to the ports of other countries are shown in Table 3.5.

Table 3.5

Year/ country, ths. tonnes	DE	HU	RO	NL	BE	RS
2019	361	784	466	150	200	135
2020	319	731	416	155	153	145
2021	400	896	413	123	257	105
2022	270	589	452	109	177	94
2023	232	642	498	78	219	85
2024	323	578	415	74	245	111

Another noteworthy volume is 114 ths. tonnes that were shipped to the ports of Slovakia.

The largest volumes of cargo received from the ports of other countries are shown in Table 3.6.

Table 3.6

Year/country, ths. tonnes	SK	NL	UA	HU	DE	RO
2019	1,108	539	832	679	285	215
2020	1,245	423	893	784	261	127
2021	1,225	467	847	574	295	244
2022	1,165	374	383	539	249	427
2023	822	278	10	431	265	757
2024	697	296	270	498	218	581

Another noteworthy volume is 222 ths. tonnes that were received from Serbian ports and 209 ths. tonnes that were received from Belgian ports.

3.3 Ports in Slovakia

The total cargo turnover of public ports in Slovakia[11] is determined by the cargo turnover of the Port of Bratislava and Komarno (Table 3.7), which amounted to 1,473 ths. tonnes in 2024, or 98% of the cargo turnover in 2023.

Table 3.7

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Loaded	1,515	1,443	1,674	1,769	1,310	1,316
Unloaded	149	110	172	165	199	157
Cargo turnover	1,664	1,553	1,846	1,934	1,509	1,473

Main cargo volume:

- about 45% - products of agriculture and chemical industry (artificial fertilizers);
- about 40% - fuel and energy raw materials (coal, coke);
- about 13% - metallurgy products.

[11] Port administrations of Bratislava and Komarno

3.4 Ports in Hungary

The total cargo turnover of Hungarian ports[12] in 2024 was 4,019 ths. tonnes, or 112% of the 2023 volume (Table 3.8).

Table 3.8

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Loaded	3,204	4,489	3,109	1,924	2,062	2,385
Unloaded	2,860	2,253	2,606	2,139	1,542	1,633
Cargo turnover	6,064	6,742	5,715	4,063	3,604	4,019

The cargo turnover of the main Hungarian ports is shown in Table 3.9.

Table 3.9

Year/port, ths. tonnes	Baja	Csepel	Győr - Gönyü	Others
2019	505	1,130	225	4,204
2020	845	1,192	280	4,424
2021	581	1,199	267	3,668
2022	306	985	271	2,501
2023	350	889	217	2,149
2024	339	965	248	2,466

3.5 Ports in Croatia

The total cargo turnover of Croatian river ports (incl. Sava ports) [13] in 2024 was 392 ths. tonnes, or 108% of the volume in 2023 (Table 3.10).

Table 3.10

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Loaded (export):	277	393	274	124	65	85
Uploaded (import):	472	463	394	420	272	307
Total (incl. within)	814	948	697	583	364	392

13% of cargo turnover was agricultural products (group 01), 68% - iron ore (group 03), 11% - hard and brown coal (group 02), metal products (group 10) - 2%.

[12] www.ksh.hu
[13] https://dzs.gov.hr

3.6 Ports in Serbia

The total cargo turnover of Serbian ports (incl. Sava ports)[14] in 2024 was 12,816 ths. tonnes, or 107% of the 2023 volume (Table 3.11).

Table 3.11

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Loaded - export	3,593	3,752	3,707	1,918	1,926	3,741
Unloaded - import	5,061	3,207	5,182	4,992	6,193	5,392
Import/export within the country	1,081	1,205	4,721	5,113	3,912	3,683
Cargo turnover	9,735	8,164	13,610	12,023	12,031	12,816

- 35% of cargo volumes are construction materials (gravel and sand);
- 9% - iron ore;
- 13% - grain cargo;
- 19% - crude oil and petroleum products;
- 6% - coal.

Cargo turnover of the main ports in Serbia[15] is presented in Table 3.12.

Table 3.12

Year/ports, ths. tonnes	Pancevo	Smederevo	Belgrade	Novi Sad	Prahovo
2019	1,517	4,040	196	1,413	1,109
2020	2,051	2,612	167	1,632	1,198
2021	935	3,176	206	1,435	1,049
2022	1,589	3,053	112	979	933
2023	1,641	2,823	89	918	1,054
2024	2,222	2,749	101	1,374	1,360

[14] www.stat.gov.rs
[15] Data provided by the Serbian Port Governance Agency

3.7 Ports in Romania

Total cargo turnover of Romania's Danube ports[16] form:

- ports located on the Maritime Danube,
- ports located on the river section of the Danube,
- ports located on the Danube - Black Sea canal and the port of Constanța.

The total cargo turnover of the main Romanian ports located on the maritime section of the Danube River is presented in Table 3.13.

Table 3.13

Year/ports, ths. tonnes	Braila	Tulcea	Galati
Freight turnover - riverboats			
2019	397	1,660	3,077
2020	281	1,213	2,831
2021	512	1,329	3,350
2022	825	479	3,054
2023	364	167	1.956
2024	132	122	3,184
- maritime			
2019	835	15	2,061
2020	327	12	2,425
2021	340	3	2,496
2022	278	10	2,119
2023	162	NA	1,431
2024	134	NA	1,296

Cargo turnover by maritime vessels forms a part of the Sulina Canal transport volume. In 2024, transport through the Sulina Canal amounted to 9,902 ths. tonnes, or 60% of the 2023 volume.

[16] www.insse.ro

The total cargo turnover of Romanian ports, including the Port of Constanţa (17,051 ths. tonnes) by river going vessels, amounted to 23,759 ths. tonnes, or 82% of the 2023 volume (Table 3.14).

Table 3.14

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Loaded:						
– **international transport**	5,609	5,112	5,203	5,641	7,003	6,719
– **domestic transport**	8,190	6,602	7,108	3,857	3,059	3,297
Unloaded:						
– **international transport**	5,674	8,217	7,121	8,900	13,463	9,004
– **domestic transport**	9,001	7,376	9,025	5,957	5,331	4,738
Freight turnover:	28,474	27,307	28,457	24,355	28,857	23,759

Highest cargo volumes by groups in % of cargo turnover:

- metal ores (group 03) - 22%;
- agricultural products (group 01) - 46%;
- chemicals (group 08) - 9%
- coke and refined products (group 07) - 11%
- finished metal products (group 10) - 3%
- hard and brown coal (group 02) - 4%

Structure of cargo turnover by destination in export (loaded):

- to Austria - 705 ths. tonnes;
- to Bulgaria - 601 ths. tonnes;
- to Hungary - 286 ths. tonnes;
- to the Republic of Moldova - 507 ths. tonnes;
- to Serbia - 2,945 ths. tonnes;
- to Ukraine - 1,492 ths. tonnes;

Structure of cargo turnover in import (unloaded):

- from Austria - 246 ths. tonnes;
- from Bulgaria - 966 ths. tonnes;
- from Hungary - 648 ths. tonnes;
- from the Republic of Moldova - 458 ths. tonnes;
- from Serbia - 2,363 ths. tonnes;
- from Ukraine - 4,184 ths. tonnes.

3.8 Ports in Bulgaria

The total cargo turnover of Bulgaria's ports[17], including all terminals and Ro-Ro traffic in 2024, amounted to 7,520 ths. tonnes, which is 107% of the 2023 volume (Table 3.15).

Table 3.15

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Loaded: export	2,485	2,823	3,707	3,354	3,839	3,667
Unloaded: import	1,830	1,799	2,666	2,979	2,215	2,815
Domestic transport	0.07	809	738	771	972	1,038
Cargo turnover	5,385	5,431	7,111	7,104	7,026	7,520

Composition of export:

- bulk cargo - 27%,
- general - 3%,
- liquid - 3%,
- "Ro-Ro" transport - 66%.

Composition of import:

- bulk cargo - 26%,
- general, 14%,
- liquid - 10%,
- "Ro-Ro" transport - 50%.

3.9 Ports in the Republic of Moldova

The total cargo turnover of Giurgiulești port[18] in 2024 was 2,579 ths. tonnes, or 97% of the 2023 volume (Table 3.16).

Table 3.16

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Cargo turnover	1,299	1,185	1,819	2,144	2,668	2,579

40.8% of the port cargo turnover (1,052 ths. tonnes) is export cargo (grain, vegetable oils). Oil products, fertilizers, sand, crushed stone and coal make up 59.2% (1,527 ths. tonnes) of import.

By total cargo nomenclature: grains - 49%, sand and crushed stone - 16%, oil products - 12%, coal - 5%, vegetable oils - 5%.

[17] Data provided by the Bulgarian Maritime Administration

[18] Data provided by the Water Transport Agency of the Republic of Moldova

3.10 Ports in Ukraine

Total cargo turnover of the Danube ports of Ukraine[19], including cargo turnover by sea vessels in 2024, amounted to 17,396 ths. tonnes, or 54% of the volume in 2023 (Table 3.17), of which grain cargo in export - 6,435 ths. tonnes, or 37% of the total cargo turnover.

Table 3.17

Year, ths. tonnes	2019	2020	2021	2022	2023	2024
Cargo turnover	5,629	4,055	5,505	16,505	32,021	17,396

Cargo turnover of the main Danube ports of Ukraine is given in Tables 3.18.

Table 3.18

Year/port, ths. tonnes*	Izmail	Reni	Ust-Dunaisk
2024	13,448	3,431	517
% by 2023	66%	34%	31%

* Data obtained from the Administration of Sea Ports of Ukraine

Table 3.19 Cargo turnover of Ukrainian ports by main types of good

Year/type of goods, ths. tonnes	Cereals	Other bulk goods	Oil (bulk)
2024	6,435	1,871	6,190
2023	15,192	4,883	2,920
% by 2023	42%	38%	212%

Table 3.20. Cargo turnover of Ukrainian Danube ports in export

Type of goods/port, ths. tonnes	Izmail	Reni	Ust-Dunaisk
Cereals	4.989	1.258	188
Other bulk goods	1.197	567	107
Mineral oil prod. (bulk)	5.734	445	11

[19] Data provided by the Administration of Sea Ports of Ukraine .

4 Conclusions

As noted in Section 1, the baseline condition of the main sectors in Danube shipping market by the beginning of 2024 has been determined primarily by the impact of full-scale Russian aggression in Ukraine. During 2024, as well as in the following months of 2025, Russia's aggressive actions on the Danube created conditions of direct security threats not only to Ukraine's Danube port infrastructure, but also to the entire Lower Danube shipping system, including the safety of vessel crews and personnel. The ongoing attacks on the infrastructure of Ukraine's Danube ports have created real threats to the security of neighbouring Danube states and resulted in significant risks for the Danube shipping market, affecting almost all its main sectors and dynamics in 2024.

Of particular concern is the presence of civilian casualties as a result of aerial attacks.

In addition, there are negative environmental impacts caused by fires at industrial facilities, grain storage facilities, and civil infrastructure.

Despite relatively favourable navigational conditions during 2024, there are changes in the absolute values and relative ratios of the nomenclature of cargo in Danube transport. These changes are particularly noticeable in comparison with 2019-2020 (pre-COVID and post-COVID periods), as well as in passenger transport, especially on lines towards the Danube Delta.

The Danube Commission continues to support the European Commission/DG MOVE on coordination activities within the *Danube Solidarity Lanes EU-Ukraine* initiative, adopted in May 2022.

The role and importance of the initiative have not diminished, despite the increased activity of the *Ukrainian Grain Corridor*, formed in the fall of 2023 which include the ports of Odessa, Pivdennyi, and Chernomorsk (ports of Greater Odessa).

Despite a significant drop in freight rates for grain cargo transport from the Lower Danube ports, the Danube ports of Ukraine - Reni, Izmail, and Ust-Dunaysk - generally maintained stable market positions.

In 2024, a total of 8,289.413 tonnes of cereals, soybeans, rapeseeds, sunflower seeds and oil were exported through the Danube ports of Ukraine. In addition, other cargoes, including iron ore exports and mineral oil product imports, were transhipped through these ports.

The development of the Danube Commission's activity within the *Danube Solidarity Lanes EU-Ukraine* initiative is foreseen to continue in the following directions:

- continuous monitoring and improvement of administrative processes to improve the efficiency of cross-border freight flow logistics in the region;
- ensuring the sustainability and constant readiness of Danube navigation as a back-up route to support traffic to/from Ukrainian ports, as well as stabilization of the Danube-Black Sea canal connections;
- elaborating a position on preparing the Danube navigation for transport of cargo necessary for restoration and reconstruction of the energy and transport infrastructure of Ukraine

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