



Volume XXVI 2023

ISSUE no.2

MBNA Publishing House Constanta 2023



Scientific Bulletin of Naval Academy

SBNA PAPER • **OPEN ACCESS**

Russo-Ukrainian war influence on the Danube-Black Sea Channel traffic

To cite this article: C. Alecse, S. Serban, C. A. Safta, Scientific Bulletin of Naval Academy, Vol. XXVI 2023, pg. 171-176.

Submitted: 20.10.2023

Revised: 20.11.2023

Accepted: 15.12.2023

Available online at www.anmb.ro

ISSN: 2392-8956; ISSN-L: 1454-864X

doi: 10.21279/1454-864X-23-I2-021

SBNA© 2023. This work is licensed under the CC BY-NC-SA 4.0 License

Russo-Ukrainian war influence on the Danube-Black Sea Channel traffic

C Alecse¹, P S Șerban¹, C A Safta²

¹ “Mircea cel Bătrân” Naval Academy of Constanța

² National University of Science and Technology Politehnica of Bucharest
mitricioiucristina@yahoo.com

Abstract. National Company Administration of the Navigable Channels provides to users the shipping infrastructure belonging to the domain public of state, in accordance with the legislation in force. The main advantage of the Danube Black Sea Channel is the direct link with Constanta port. The Danube-Black Sea Channel connects the Black Sea with several countries from Central Europe, such as Austria, Hungary, the Czech Republic and Slovakia. The paper presents the evolution of ship traffic on the channel and the Russo-Ukrainian war influence on goods traffic.
Keywords (3–5): navigable channels, Danube – Black Sea Channel, traffic, war influence.

1. Introduction

The general objective of National Company Administration of the Navigable Channels [1] is the efficient administration of the two channels, Danube – Black Sea and Poarta Alba – Midia – Navodari, with the aim of sustainable development of goods traffic and maintaining the functionality of the two channels.

The Danube – Black Sea Channel was commissioned in 1984 and is Class 6 waterway in the European network [2]. Also, it is the last part of the main Trans European water route, Rhine-Main-Danube navigable waterway, which links the North Sea (Rotterdam Port) to the Black Sea (Constanta Port) [3]. The Danube-Black Sea Channel has a length of 64.4 km, a breadth of the waterway of 90 m and a depth of 7 m [4]. The transport capacity on the Danube-Black Sea Channel is based on an annual forecast that corresponds to the loading achieved in the previous year. Thus, in 2020 the forecasted traffic was 33,000 thousand tons of capacity and 35,219 thousand tons was achieved, which represented an excess of 6.73% compared to the forecast. In the following year, 2021, the forecast was 37,000 thousand tons and 36,972 thousand tons of capacity was achieved with a -0.08% non-realization of the forecast [5, 6].

In February 2022, the Russian-Ukrainian war began and had a major impact on the global economy, including traffic on the Danube-Black Sea Channel. The aim of the paper is to present by data the evolution of ship traffic on the channel and the war influence on goods traffic.

2. Ship traffic between 2021 and 2023

As part of the Black Sea Economic Community, Romania is involved in trade relations and the navigable channel Danube-Black Sea is transited annually by thousands of ships carrying goods worth millions of dollars.

In the year 2021 this channel was transited by 5,575 ships with totally 25,088 units, this number had a slight increase in 2022, when the channel was transited by 5,625 ships with 25,739 units and a considerable increase in 2023 when the channel was transited by 7,175 ships with a totally of 32,706

units. In Table 1 and Figure 1 are presented the number of convoys that transited monthly the Danube-Black Sea Channel between 2021 and 2023. The data were provided by the National Company Administration of the Navigable Channels.

From Figure 1 it can be observed that at the beginning of the Russian-Ukrainian war the traffic on the canal was in a slight decrease in 2022 compared to 2021. In September 2022 the traffic on the channel began to increase and in 2023 the growth was with 30.36% more than in 2021 in the numbers of convoys ships.

Because the channel is transited annually by thousands of convoys and the payment depends on capacity tons, an important aspect in the administrative activity on the channel is capacity tons of every convoy. In Table 2 and Figure 2 is presented the capacity in tones of the transited convoys.

Table 1. Transited convoys

Transited convoys total units in 2021		Transited convoys total units in 2022		Transited convoys total units in 2023	
Month		Month		Month	
January	1778	January	1524	January	1994
February	1863	February	1744	February	2169
March	2296	March	2129	March	2661
April	2247	April	1957	April	2253
May	1848	May	2404	May	2704
June	1684	June	2403	June	2652
July	2584	July	2398	July	3330
August	2730	August	2267	August	3218
September	2186	September	2307	September	2741
October	2137	October	2333	October	3432
November	2028	November	2184	November	2893
December	1707	December	2089	December	2659
TOTAL	25088	TOTAL	25739	TOTAL	32706

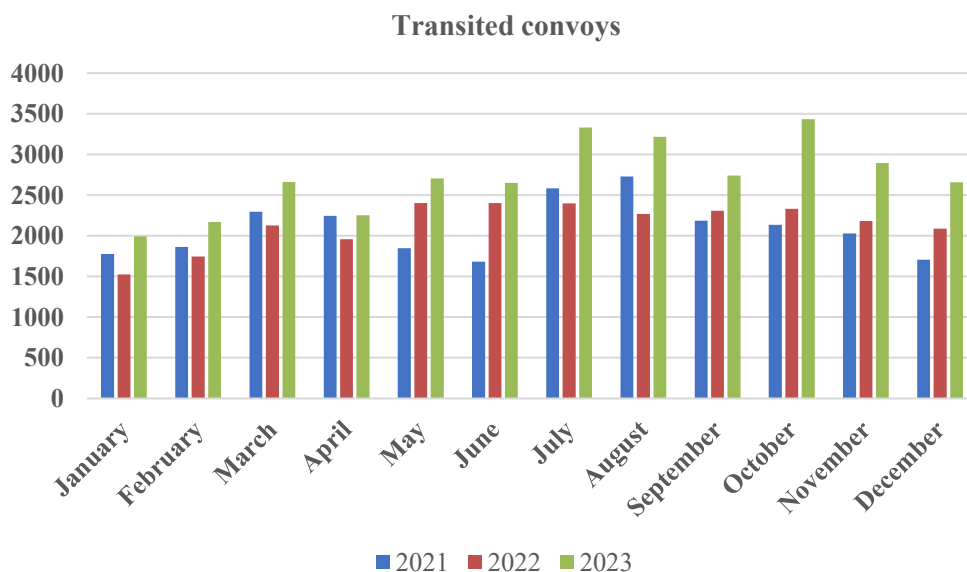
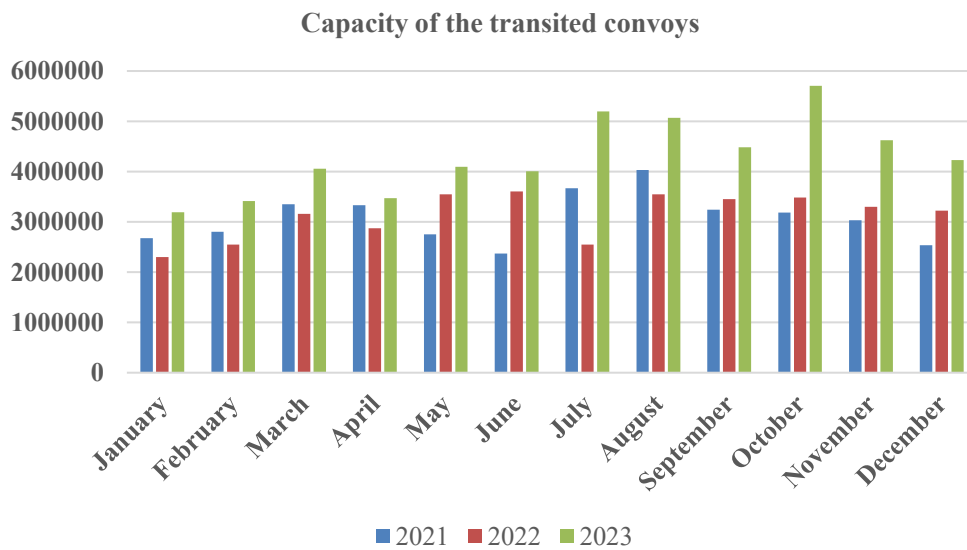


Figure 1. Transited convoys

Table 2. Capacity of the transited convoys

Capacity tons in 2021		Capacity tons in 2022		Capacity tons in 2023	
Month		Month		Month	
January	2675176,84	January	2300073,94	January	3189782,29
February	2799598,42	February	2549341,17	February	3411637,34
March	3350969,40	March	3157059,00	March	4053901,15
April	3329855,50	April	2871684,32	April	3470595,95
May	2753085,60	May	3547831,21	May	4093261,83
June	2367615,69	June	3602933,52	June	4003790,39
July	3669500,66	July	2550337,40	July	5196909,68
August	4031765,28	August	3548675,61	August	5069868,19
September	3244994,67	September	3453167,82	September	4485305,26
October	3187193,34	October	3486555,41	October	5705095,43
November	3034627,77	November	3296547,36	November	4624277,06
December	2536880,39	December	3221404,87	December	4229876,72
TOTAL	36981263,56	TOTAL	38585608,63	TOTAL	51534301,29

**Figure 2. Capacity of the transited convoys****Table 3. Tons of cargo**

Tons of cargo in 2021		Tons of cargo in 2022		Tons of cargo in 2023	
Month		Month		Month	
January	1342101	January	1084458	January	1586372
February	1345295	February	1203301	February	1618450
March	1689154	March	1588472	March	1943094
April	1661199	April	1462426	April	1682353
May	1315356	May	1817804	May	1915292
June	1082218	June	1786506	June	1797669

July	1847863	July	1404925	July	2368467
August	1918443	August	1105437	August	2264931
September	1355626	September	1424011	September	1940372
October	1283138	October	1591258	October	2090008
November	1272628	November	1359725	November	2052536
December	1176453	December	1436773	December	2119385
TOTAL	17289475	TOTAL	17265096	TOTAL	23378931

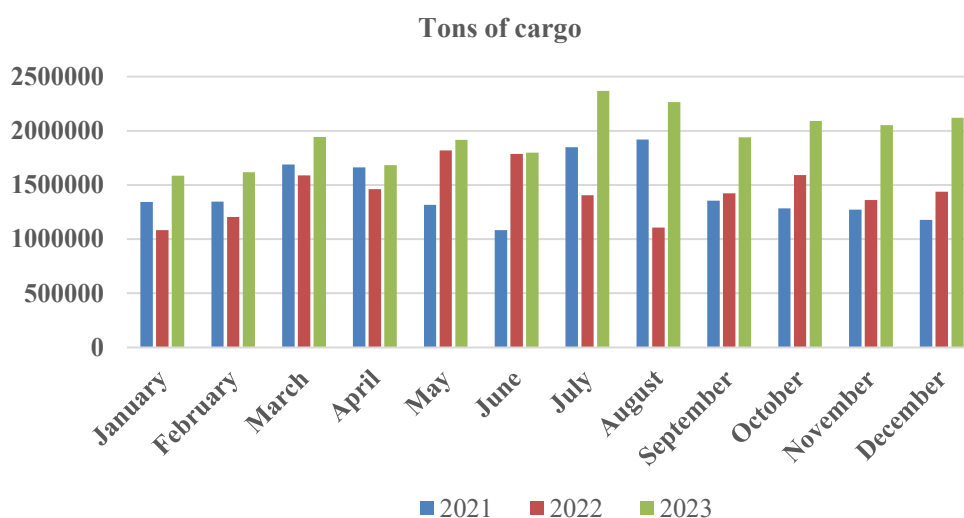


Figure 3. Tons of cargo

Table 4. Tons of external cargo

Tons of external cargo in 2021		Tons of external cargo in 2022		Tons of external cargo in 2023	
Month		Month		Month	
January	992005	January	590644	January	1412906
February	888675	February	629178	February	1461561
March	1073757	March	927685	March	1682681
April	1071689	April	976500	April	1361197
May	757936	May	1250629	May	1627648
June	652506	June	1319796	June	1383549
July	745674	July	1039613	July	1565749
August	835539	August	792905	August	1736205
September	493723	September	1042173	September	1572496
October	523086	October	1212413	October	1796926
November	523284	November	1105409	November	1642390
December	572643	December	1213067	December	1697407
TOTAL	9130517	TOTAL	12100012	TOTAL	18940715

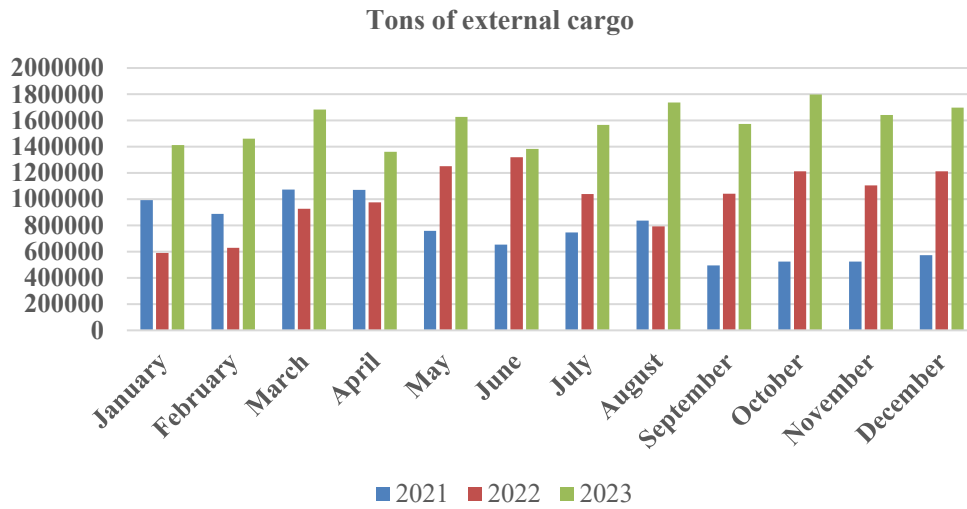


Figure 4. Tons of external cargo

Table 5. Tons of internal cargo

Tons of internal cargo in 2021		Tons of internal cargo in 2022		Tons of internal cargo in 2023	
Month		Month		Month	
January	350096	January	493814	January	173466
February	456620	February	574123	February	156889
March	615397	March	660787	March	260413
April	589510	April	485926	April	321156
May	557420	May	567175	May	287644
June	429712	June	466710	June	414120
July	1102189	July	365312	July	802718
August	1082904	August	312532	August	528726
September	861903	September	381838	September	367876
October	760052	October	378845	October	293082
November	749344	November	254316	November	410146
December	603810	December	223706	December	421978
TOTAL	8158958	TOTAL	5165085	TOTAL	4438217

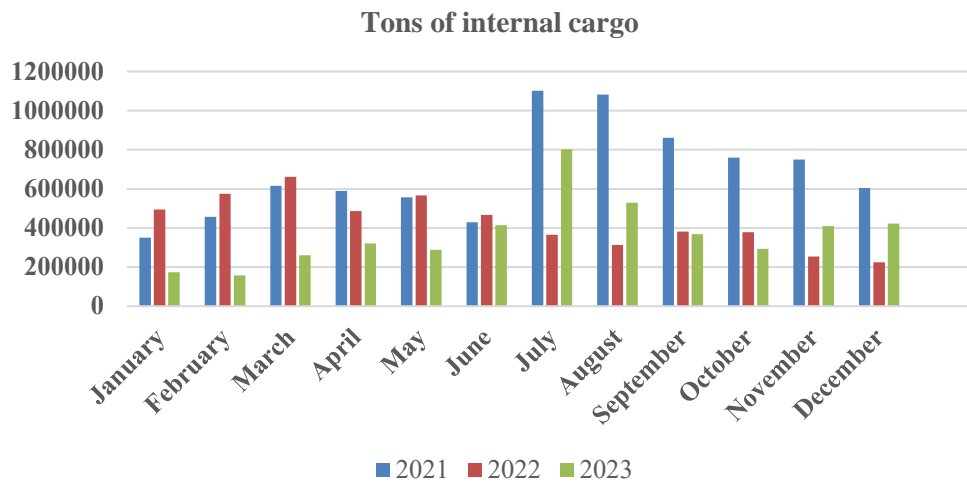


Figure 5. Tons of internal cargo

Table 6. Distribution of goods traffic by destination

Distribution of goods traffic by origin	Percentage 2021	Percentage 2022	Percentage 2023
Romanian	17%	31%	5%
Austrian	0%	9%	0%
Hungary	0%	17%	0%
Serbian	83%	39%	49%
Bulgarian	0%	4%	0%
Ukraine	0%	0%	46%

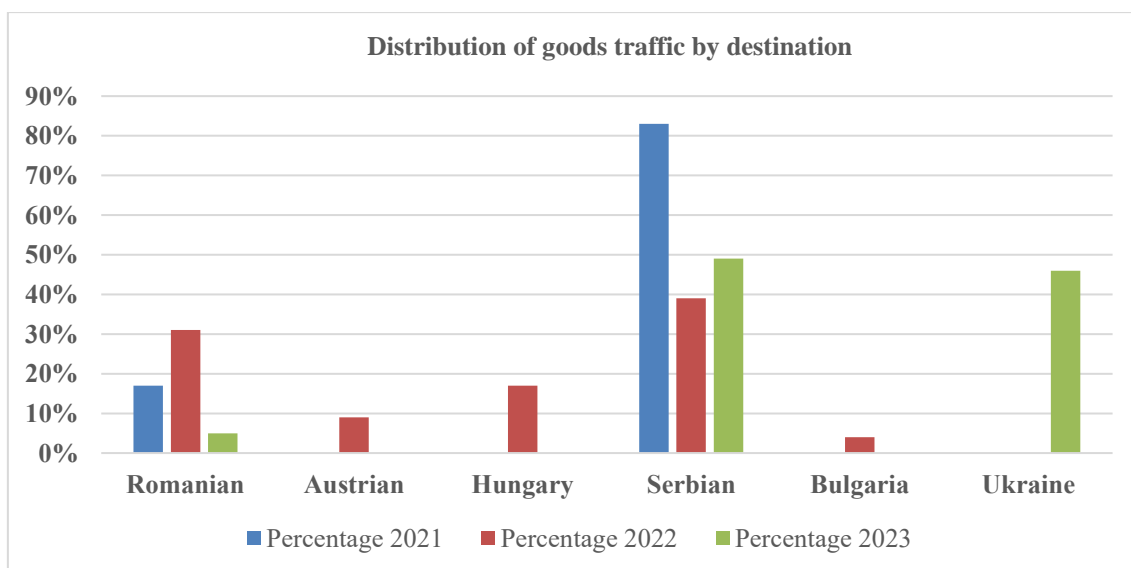


Figure 6. Distribution of goods traffic by destination

In Tables 3 to 5 and Figures 3 to 5 are presented the tons of cargo transported monthly between 2021 and 2023. From the total of 17,289 thousand tons of cargo transported in the year 2021, 9,130 thousand tons of cargo have been representing the external cargo transport and the remaining 8,158 thousand tons of cargo accounted for internal cargo transport. Also, in the year 2022 the total tons of cargo transported was of 17,265 thousand, with 12,100 thousand tons of cargo representing the external cargo transport and the remaining 5,165 thousand tons of cargo accounted for internal cargo transport. In 2023, the total of 23,378 thousand tons of cargo transported was represented by 18,940 thousand tons of external cargo transport and the remaining 4,438 thousand tons of cargo accounted for internal cargo transport.

In Table 6 and Figure 6 are presented the distribution of goods traffic by destination. It could be seen that in 2023 the destinations of the traffic on the Danube-Black Sea Channels were from Ukraine in proportion of 46 % and Serbia 49 %.

3. Conclusions

The beginning of the Russian-Ukrainian war in February 2022 brought many changes in the economic activity in South-Eastern and Eastern Europe. The present work aimed to show how the exploitation activity of the Danube-Black Sea canal is influenced. For this, the loading of the channel was tracked in the analysed period 2021-2023. The following conclusions emerged from the presentation of the data in tables and histograms:

- there was an increase in the number of convoys by 27.06% in 2023 compared to 2022 and by 30.36% in 2023 compared to 2021.
- transport capacity in tons was increasing by 39.35% in 2023 compared to 2021 and by 33.56% in 2023 compared to 2022.
- the capacity in cargo tons (internal and external) increased in 2023 by 35.41% compared to 2022 and by 35.22% compared to 2021.
- even if, the total capacity in cargo tons had an approximately equal increase in 2023 compared to 2022, respectively 2021, the doubling of the capacity in cargo tons for the year 2023 compared to 2021 is noteworthy.

Indeed, a growing trend in the activity of transporting goods on the canal is observed, but if we analyse the distribution of goods by destination, a strong change of destinations is noted in 2023 compared to previous years, which underlines a discontinuity of traffic on Trans European waterway Rhine-Meuse-Danube Channels.

References

- [1] <https://www.acn.ro>
- [2] Turnock, D., *The Danube-Black Sea Canal and its impact on Southern Romania*. GeoJournal **12**, 65–79 (1986). <https://doi.org/10.1007/BF00213023>
- [3] Săgeată, R., *River and sea transports in Romania in the European union strategy for the Danube region perspective*, Rev. Roum. Géogr./Rom. Journ. Geogr., 56, (2), p. 157–166, 2012, București.
- [4] Paruse M., *Maintenance works Danube-Black Sea Canal and Northern Branch Poarta Albă Midia Canal*, www.danubecommission.org, 2023 martie
- [5] ***, Raport de activitate 2020 Compania Națională Administrația Canalelor Navigabile S.A., <https://www.acn.ro/index.php/ro/scurta-prezentare/rapoarte-si-studii>
- [6] ***, Raport de activitate 2021 Compania Națională Administrația Canalelor Navigabile S.A., <https://www.acn.ro/index.php/ro/scurta-prezentare/rapoarte-si-studii>
- [7] ***, Raport de activitate 2022 Compania Națională Administrația Canalelor Navigabile S.A., <https://www.acn.ro/index.php/ro/scurta-prezentare/rapoarte-si-studii>