

19



Key data on Danube navigation 2019¹

Transport volumes

8.5 million tons (+18.2%)	<ul style="list-style-type: none"> • Import: 4.2 million tons (+10.5%) • Export: 2.3 million tons (+27.1%) • Transit: 1.8 million tons (+33.2%) • Domestic: 0.3 million tons (–8.3%)
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Transport performance

8.4 billion tkm (+20.7%)	• Within Austria: 1.7 billion tkm (+15.2%)
8,094 transportations (+6.2%)	• Outside Austria: 6.7 billion tkm (+22.2%)

Waterside transshipment at Austrian ports and transshipment sites

7.0 million tons (+13.6%)	<ul style="list-style-type: none"> • Ores and metal waste: 2.0 million tons (+2.3%) • Petroleum products: 1.6 million tons (+5.9%) • Agricultural and forestry products: 1.0 million tons (+51.6%) • Metal products: 0.7 million tons (–3.6%) • Crude and manufactured minerals, building materials: 0.7 million tons (+20.2%) • Fertilisers: 0.7 million tons (+69.8%) • Other goods: 0.3 million tons (–0.1%)
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Vessel units locked through Austrian Danube locks

98,234 vessel units ² (+9.5%)	<ul style="list-style-type: none"> • Freight transport: 45,915 units (+7.8%) • Passenger transport: 52,319 units (+11.0%)
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Passenger transport (including estimation)

1.4 million passengers (+9.5%)	<ul style="list-style-type: none"> • Liner services: 740,000 passengers (+5.7%) • River cruises: 535,000 passengers (+15.1%) • Non-scheduled services: 105,000 passengers (+10.5%)
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Accidents

36 traffic accidents with damage	<ul style="list-style-type: none"> • Personal injuries: 1 death, 0 serious injured, 1 slightly injured • Damage to property: 9 ship to ship, 2 grounding incidents, 22 incidents with damage to riverbanks and facilities, 3 other incidents, 0 ship sunk
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Availability of the waterway

365 days	• Closures due to high water: 0 days
15 year average: 357 days	• Closures due to ice: 0 days

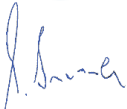
¹ Changes from 2018 are given as percentages in brackets.

² Convoys and individual vessels

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Harnessing economic opportunities Consistent modernisation of navigation

A handwritten signature in blue ink, appearing to read 'M. Brunner'.

MAGNUS BRUNNER

State Secretary in the Federal Ministry
for Climate Action, Environment, Energy,
Mobility, Innovation and Technology

The Danube has satisfied, as a space for leisure and a natural habitat, the longing for recreation, untouched nature and a uniquely idyllic river landscape since time immemorial. Apart from the varied interests in the river, many innovative transport concepts are focusing on the many different opportunities of using the Danube as a waterway, given the increasing importance of alternative, green transport systems. In order to ensure the responsible, continued development of the unique diversity of uses, the Danube Action Programme started by turning the integral components of navigation, environment and high water protection into a well-functioning mechanism. Working together with viadonau, the Ministry for Climate Action ensures that this mechanism now works like clockwork and that solutions are implemented in line with all the varied interests in the river.

In this regard, promoting green navigation is one of the key priorities and an important investment in a sustainable future for the European transport network. As the transport mode with the most favourable greenhouse gas balance, inland navigation already possesses a vital advantage. Now it is crucial to continue building on this foundation by giving the river the infrastructural framework it needs to occupy an even clearer position as a highly efficient alternative within the national and international transport chains in tomorrow's world – from the use of more environmentally friendly fuels such as liquefied natural gas (LNG) and digital waterway information systems, to connections with shore-side electricity grips to ensure optimised power supply at landings. By engaging in these activities, we will strengthen the economic factor of waterways, increase the energy efficiency and reliability of inland navigation and in doing so underline once again that this segment has many strong arguments in the discussion on sustainable transport solutions.

Strengthening the positive trend

Positioning waterway for bright future

The route and its transport are an inseparable unit. Improved coordination will incrementally increase the safety, reliability and sustainability of cargo deliveries and other transport services. This applies also and especially to the Danube. So what is the secret behind professional waterway management? Here at viadonau, we have given a clear and confident answer to this question for many years: pinpoint, proactive and ecologically sustainable actions. By adhering to these principles, we improve waterway quality and guarantee its use, even in difficult circumstances. Our absolute motto in this regard: Taking a holistic approach to working with the river – for the environment, for economy and for safety.

Economic success is particularly important in order to raise awareness for the river and its efficiency as a transport route. The excellent fairway conditions on the Danube and the resurgent faith in the reliability of a perfectly maintained waterway within the business community after 2018 gave the transport and logistics sector an enormous boost in 2019 and strongly highlighted the available potential for the river economy. Around 8.5 million tons of transported cargo and approximately 7 million tons of port transshipment send an unmistakable message. These successes confirm the attractiveness of the river as an alternative transport route and encourage the business community to rethink its environmental focus, a factor that is more important today than ever before. To make this signal even more visible, we intend to continue developing and modernising the waterway every day and to ensure that it occupies an ideal position as a transport option for a future world in which green alternatives are prioritised.

In addition, a large number of internal projects defined our activities in 2019. For example, ensuring the digital accessibility of viadonau's online content was an important element in achieving equal opportunities. Initial planning also began on numerous infrastructural projects, which are scheduled for the next few years (including shore-side power supply for cabin ships and redesign of the Carnuntum service centre in Bad Deutsch-Altenburg). We are convinced, after all, that an organisation can only operate efficiently and sustainably in its external dealing if it has built a robust internal foundation as well.



A handwritten signature in black ink, reading "Hans-Peter Hasenbichler". The script is fluid and cursive.

HANS-PETER HASENBICHLER
Managing Director
of viadonau

FIGURES DATA FACTS

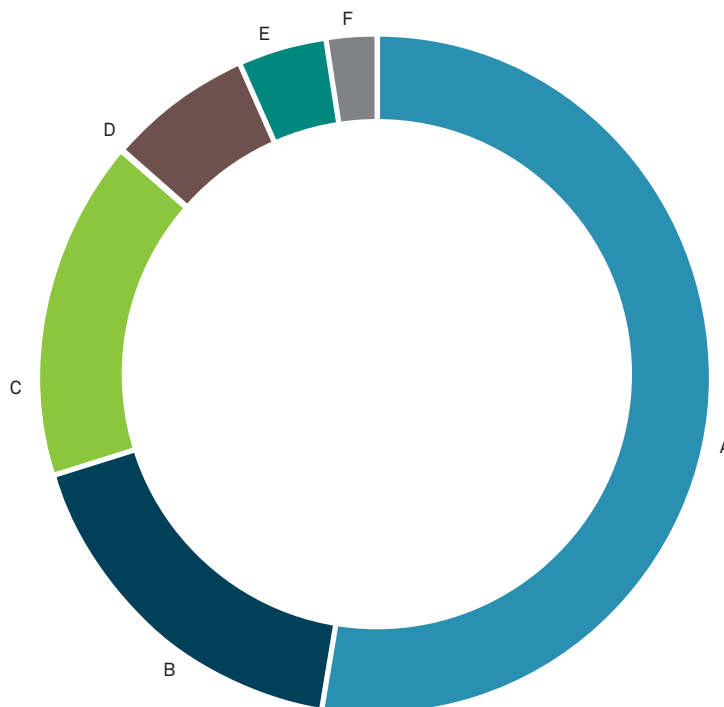
Costs per core tasks and impact scope viadonau 2019

Costs of core tasks

F
Other
2.2%
839 949 Euros

E
Real estate
4.2%
1,577,556 Euros

D
Development and innovation
7.0%
2,606,292 Euros

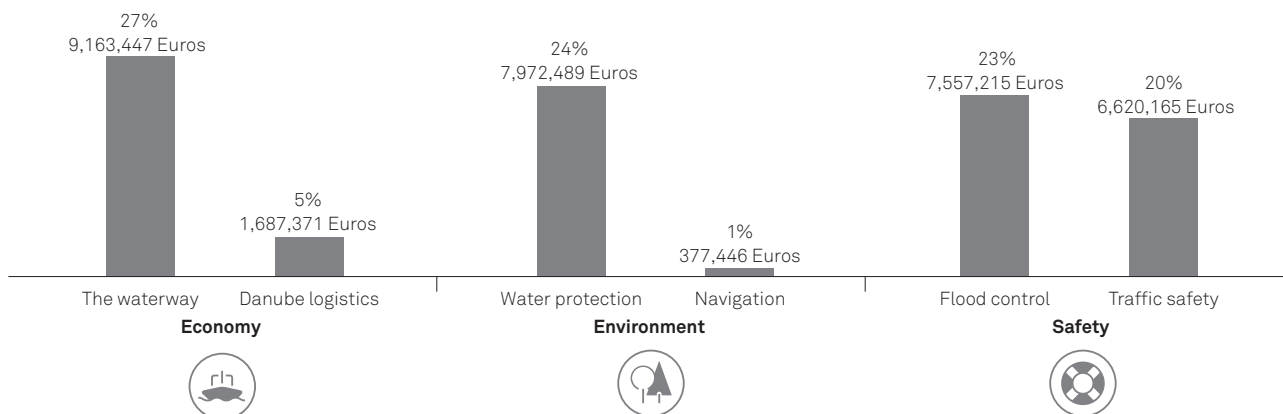


A
Infrastructure management
52.5%
19,678,662 Euros

B
Traffic management
17.7%
6,644,528 Euros

C
Flood control (excl. DHK)
16.4%
6,141,709 Euros

Costs per impact scope



BALANCE SHEET VIADONAU

Resurgent Danube trend

Lots of navigation and even more nature

The business community regained its trust in the inland navigation sector due to the favourable fairway conditions, combined with the usual high standards of waterway management. A strong rise in freight transports of around 20% to 8.5 million tons and growth of approximately 10% to roughly 98,000 locked-through vessel units confirm the resurgent strength of the Danube as a highly efficient transport route and confirm that the river has remained an extremely popular destination for excursions. With the successful implementation of numerous large flood protection and nature projects, viadonau also turned 2019 into a resounding success in regard to safety and environment along the Danube.

In early 2019, viadonau dredged a 40,000 m³ gravel heap at the Fischea estuary in preparation for the Austrian-Slovakian Interreg project Alpine-Carpathian River Corridor. viadonau then proceeded to revitalise the Fischea estuary under the project management of the Danube-Auen National Park in autumn and winter. Objective of the bilateral project: Protection and improvement of habitat connectivity for aquatic creatures in the border region. A gravel bank covered with willow was converted into an island at the Wolfsthal section in 2019, also on the Austrian-Slovakian border line. The channel now also carries Danube water even at average water levels and is available as a high-quality fish habitat that is protected from wave action.

The LIFE+ project 'Restoration of the Lower Morava Floodplains' aimed to create more space for nature and endangered species as well. Since 2017, harmful restrictions have been removed along the Morava and estuaries have been redesigned in a natural style. In total, this created a seven-kilometre long body of flowing water. Around 115,000 m³ of sediments were removed for this purpose. Conducted in partnership with the WWF and the Lower Austrian Fisheries Association, the project was brought to a successful conclusion in autumn 2019.

In June and September, viadonau and exhibition partners like the Austrian Danube Ports (IGÖD) and the Steyr Department of Logistics at the Upper Austria University of Applied Sciences talked shop with German and French contacts at the transport logistic fair in Munich and the Smart Rivers conference in Lyon. The opportunities and potential of inland navigation and innovative solutions for digitalisation, climate protection and strengthening the economic factor of waterway transport were presented once again on the international stage at the biennial major events.

Since 2017, viadonau has been completing a general overhaul of the Morava Field dam high water protection system, owned by Donauhochwasserschutz-Konkurrenz (DHK). The extensive completion of state-of-the-art high water protection in summer 2019 means flood safety for about 30,000 citizens in Vienna and Lower Austria. Construction work on the Morava-Thaya high water protection was completed in autumn. Around 75 kilometres of dams north of Rabensburg once again provide ideal protection.



“We cooperate at international level to create targeted strategies for waste prevention in and along the Danube and at the same time are committed to the continuous improvement of waste management infrastructure for inland navigation.”

JULIA KNEIFEL
Project Manager Communication &
Knowledge Management

Freight transport on the Austrian Danube 2015–2019





8,511,553 t

2019

2018

7,202,368 t

2017

9,619,520 t

2016

9,071,478 t

2015

8,599,354 t

Minimum continuously available fairway depths on the free-flowing stretches of the Danube 2019

96.2%
above 2.5 m

Wachau

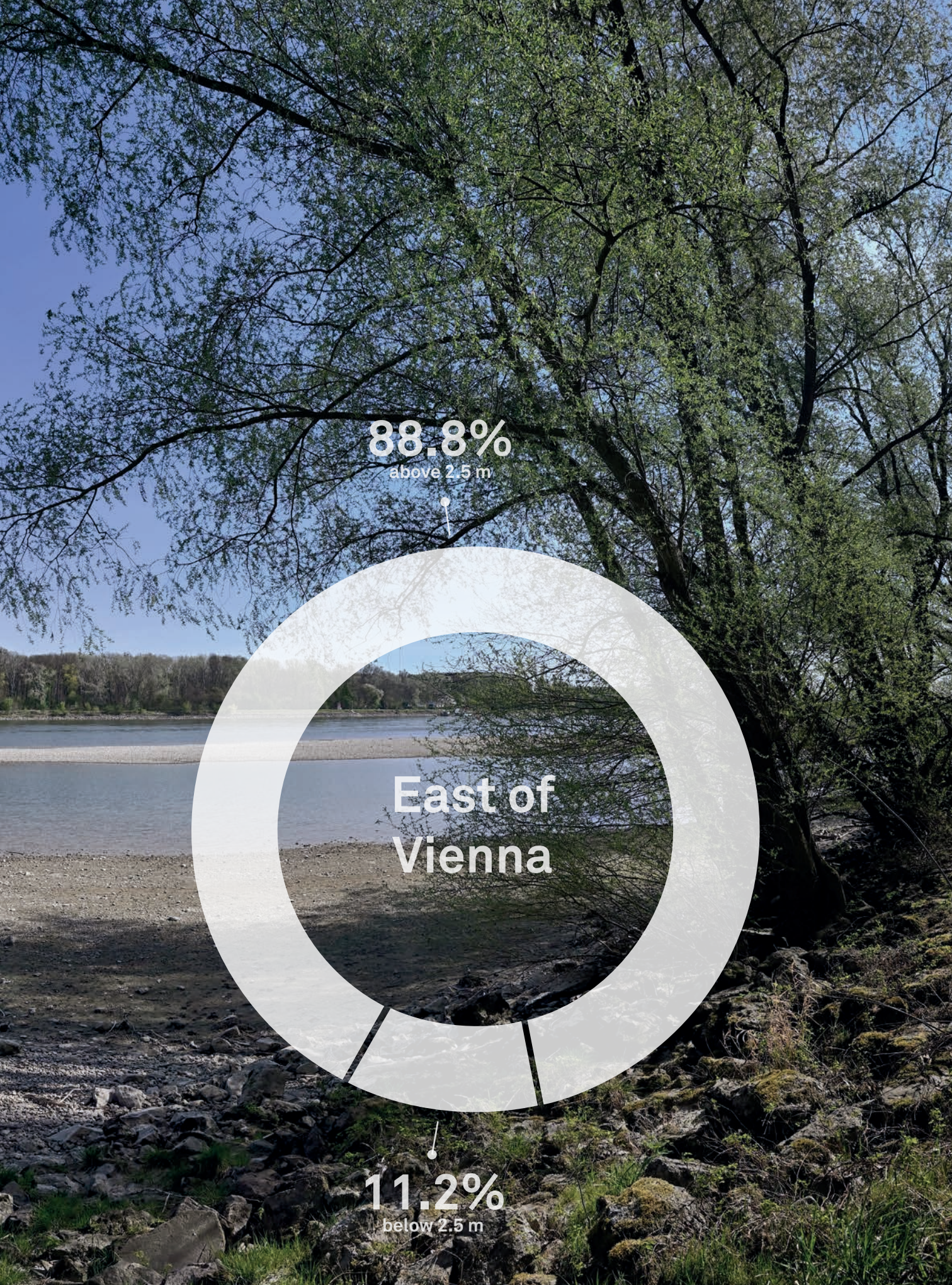
3.8%
below 2.5 m



88.8%
above 2.5 m

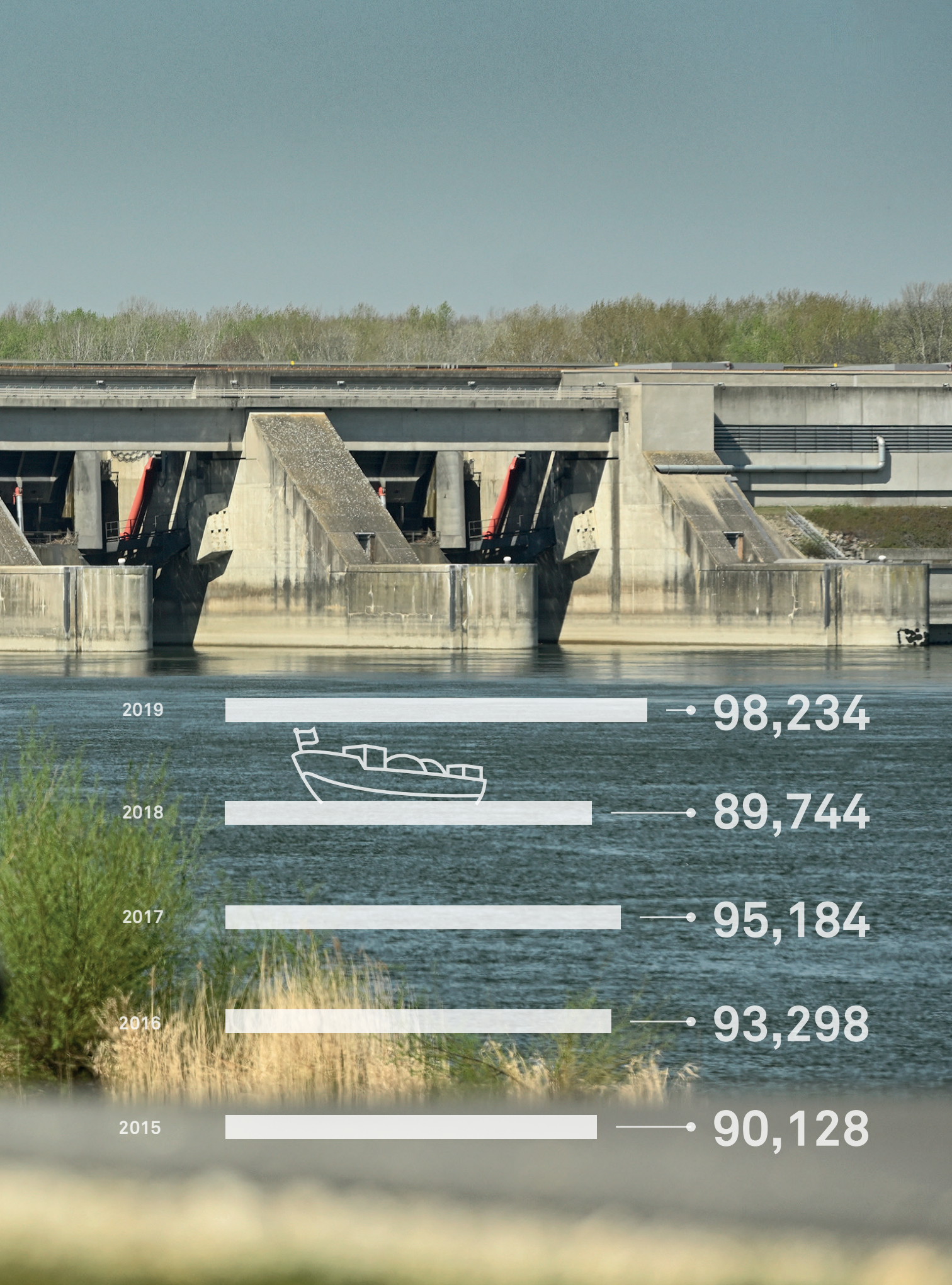
**East of
Vienna**

11.2%
below 2.5 m



Locked-through vessel units
2015–2019





CUSTOMER SATISFACTION: INFRASTRUCTURE

Top mark in the Danube region

Proactive maintenance

- Users rate viadonau as the number one provider of high-quality waterway services in the Danube region
- Proactive maintenance combined with targeted hydraulic engineering measures are the key to success

For viadonau, the ongoing monitoring of customer satisfaction is an important indicator of effective service provision. That is why annual customer surveys are carried out among commercial waterway users (freight and passenger shipping), and their feedback is analysed in order to further improve the services provided by viadonau.

The customer survey assesses, among other things, the quality of the maintenance of the fairway in the Austrian section of the Danube, i.e. maintenance dredging operations carried out by viadonau. For the current customer survey conducted in winter 2019/20, feedback was received from 42 members of the navigation sector in total (+48.0% compared to the last survey). 62.5% of the responses were from ship captains, 25.0% from ship owners and 12.5% from others – with freight transport accounting for a 38.5%, passenger transport for 46.1% and others for 15.4%.

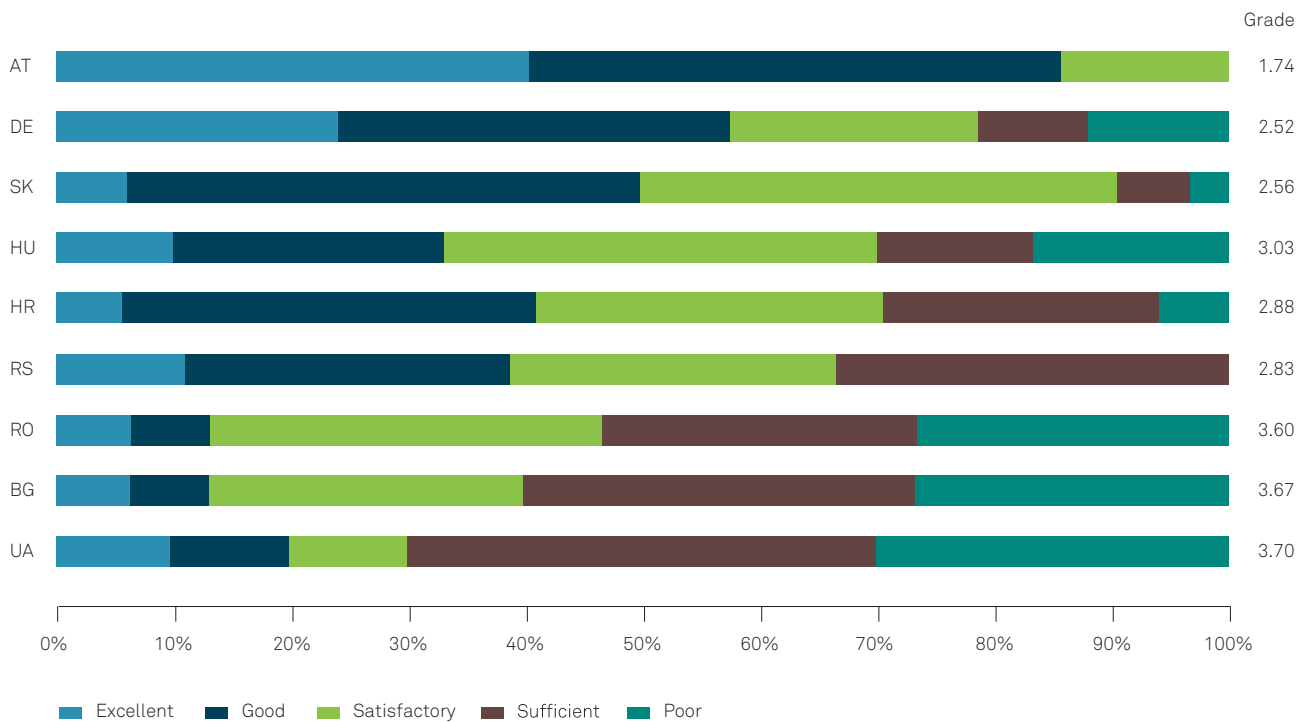
In the 2019/20 survey, the quality of maintenance of the Austrian section of the Danube was rated with an average grade of 1.74 according to a school grading system from 1 to 5. From the waterway users' perspective, viadonau is the top-rated waterway infrastructure operator of all of the ten Danube riparian states, as in the years before. The chart on the opposite side illustrates the detailed results of the current customer survey.

viadonau believes that the once again excellent results in Austria can be attributed to continuous maintenance dredging work, along with the hydraulic engineering improvements made in recent years. viadonau pursues a proactive maintenance philosophy: aggradation at crucial shallow sections of the river is removed by dredging before the start of any potential low water period. This ensures that navigation has the required minimum loading depth of 2.5 metres, even in low water periods.

The customer survey also assesses the range of public landings (public berths owned by the federal government). Prompted not least by the results of surveys in recent years, viadonau has recognised a need for action and has already carried out or initiated several projects for the refurbishment and upgrading of these landings. For instance, 2019 saw refurbishment of the two federal landings Thebner Straßl and Petronell on the free flowing section east of Vienna. Applications for upgrading and refurbishment of the dry cargo landing Linz Mitte (southern part) and refurbishment of the Untere Donaulände Linz were also submitted to the competent authorities for approval.

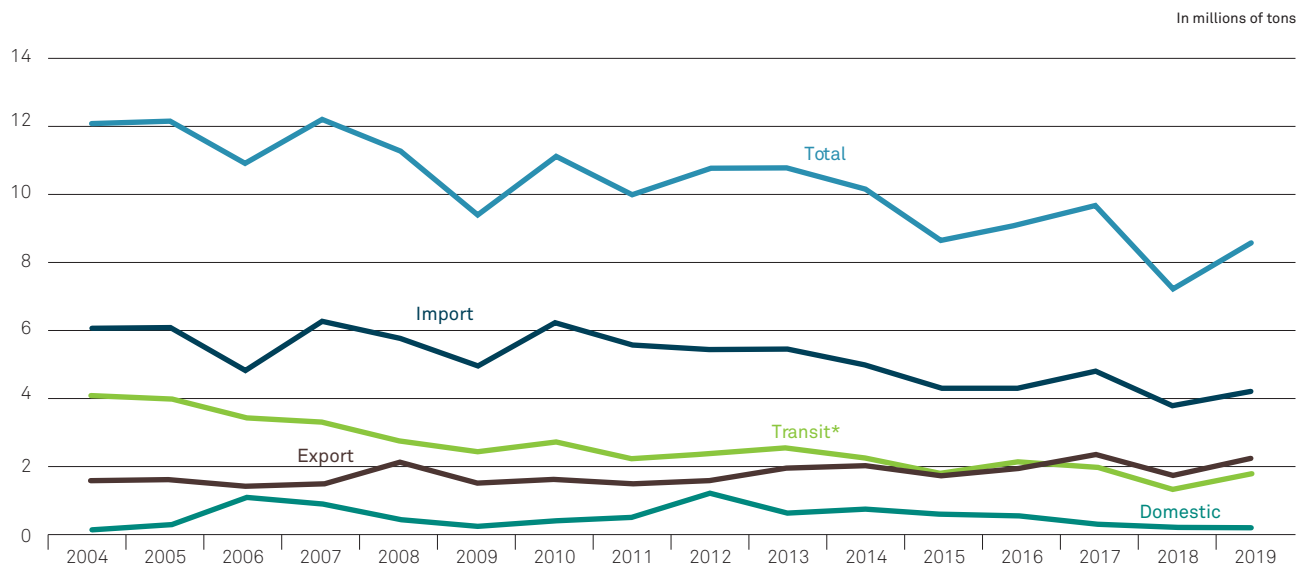
FIGURES DATA FACTS

Waterway infrastructure quality in the Danube countries 2019



FIGURES DATA FACTS

Freight traffic on the Austrian Danube 2004–2019



Transport volumes in tons	Import	Export	Transit*	Domestic	Total
2019	4,193,338	2,258,611	1,805,896	253,708	8,511,553
2018	3,793,364	1,776,694	1,355,563	276,747	7,202,368
2017	4,822,231	2,380,773	2,027,367	389,148	9,619,520
2016	4,299,854	1,975,592	2,187,190	608,842	9,071,478
2015	4,325,020	1,763,975	1,830,024	680,335	8,599,354

* There are no complete records for transit data in the years 2004 and 2005 due to an absence of legal basis. Under-coverage of transit since June 2005; values extrapolated by Statistics Austria since 2005.

Source: Statistics Austria, adapted by viadonau

TRANSPORT VOLUMES

Increase in volume by 18.2%

Strongest growth with 33.2% in transit

The significantly improved fairway conditions in 2019 compared to 2018 led to a recovery in total transport volume by 18.2% (to over 8.5 million tons, which is approximately on a par with the 2015 level). The total transport performance on the Austrian Danube section (the product of transport volume and distance travelled) even rose by 20.7% to approximately 8.4 billion ton-kilometres, compared to last year.

Import continued to dominate, accounting for 4.2 million tons or a share of 49.3% in the total transport volume on the Austrian Danube. Export took second place with 2.3 million tons, even coming ahead of transit transport with 1.8 million tons – a trend that has now persisted for the third year in succession.

The domestic sector still accounts for the lowest proportion of transports in Austria, with 0.3 million tons or 3.0%.

With a rise of 33.2%, the transit sector recorded the strongest recovery, while exports also grew by 27.1% and imports by a respectable 10.5%. Only domestic transports remained impervious to this trend, reporting a decline of 8.3%.

Cross-border freight traffic (the sum of exports, imports and transit) rose by 19.2% to 8.3 million tons, compared to 2018. This volume outstripped purely domestic traffic by a factor of approximately 30, which illustrates the extraordinary significance of international freight transport on the roughly 351 kilometre long Austrian section of the Danube.

The importance of cross-border freight navigation is also evident in a comparison of the relative shares accounted for by domestic and foreign transport in the overall transport performance: while the domestic share in 2019 was 1.7 billion ton-kilometres, the foreign share was 6.7 billion ton-kilometres, or roughly four times as much.

- Total transport volume: 8.5 million tons
- Recovery in the transport segments of import, export and transit

PORT TRANSHIPMENT

Rise in waterside transhipment

Strongest growth in Enns

- Waterside transhipment increased at all Austrian Danube ports
- The voestalpine industrial port is still Austria's most important Danube port
- Second-highest growth in waterside transhipment at the ports of Linz AG

Analysis of waterside port transhipment in 2019 reveals a significant increase compared to the previous year. The rise in transhipment volume, which is evident at all Austrian Danube ports and transhipment sites, is attributable to the increased transport volume over the reporting year.

In 2019, almost 7 million tons were transhipped at the Austrian Danube ports and transhipment sites in total, which is equivalent to an increase of 13.6% compared to the low water year 2018. Broken down by individual ports, the increase in transhipment volumes ranged between 3.2% and 61.2%.

As in the previous years, the industrial port of voestalpine AG in Linz was the undisputed leader among Austria's ports and transhipment sites, accounting for 38.7% of total transhipment volumes. In 2019, almost 2.7 million tons were transhipped in total at this port, representing a moderate increase of 3.2% compared to 2018.

The Port of Vienna, which includes the ports of Freudenau, Lobau and Albern, reported a 17.8% increase in transhipment volume compared to 2018. It rose to second place in the ranking, narrowly ahead of the other ports and transhipment sites, registering a transhipment volume of over 1.2 million tons and a share of 17.6% of total transhipment volumes.

Grouped together, the other ports and transhipment sites (Aschach, the heavy goods port of Linz, Pöchlarn, Pischelsdorf, Korneuburg) accounted for more than 1.2 million tons of transhipment volume and also 17.6% of total waterside port transhipment, placing this group in third place. Transhipment volumes rose by 11.0% in a year-on-year comparison.

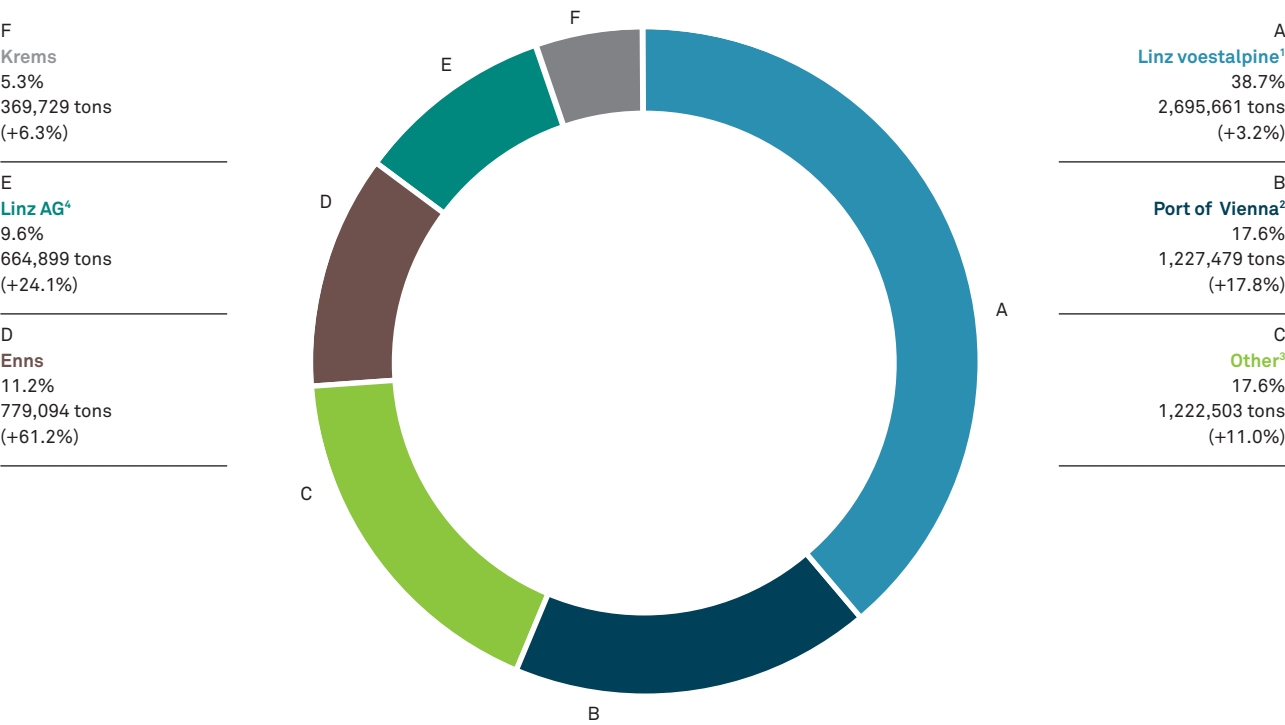
The Port of Enns climbed to fourth place with a share of 11.2% of total transhipment volumes at Austrian ports and transhipment sites. Viewed in quantitative terms, the port handled around 0.8 million tons in 2019. The increase in transhipment volume compared to the previous year is remarkable – the Port of Enns recorded the strongest growth of 61.2%.

The transhipment volume at the ports of Linz AG (commercial and oil port) rose by 24.1%, the second largest leap. In total, the two ports transhipped almost 0.7 million tons.

The Port of Krems reported a transhipment volume of around 0.4 million tons, which corresponds to an increase of 6.3% compared to the previous year.

FIGURES DATA FACTS

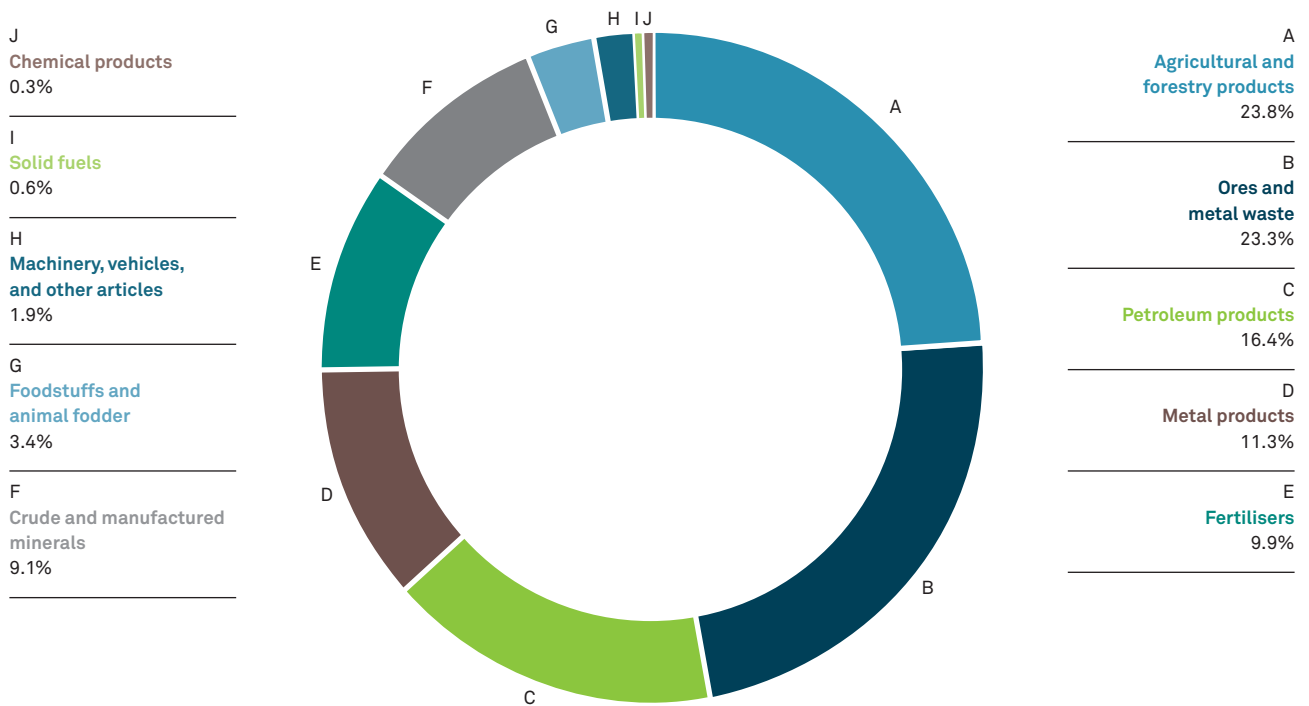
Waterside transhipment at Austrian Danube ports and transhipment sites 2019



¹ Including waterside transhipment at the facilities of Industrie Logistik Linz GmbH.
² The three ports of Freudenuau, Albern and Lobau (oil port) and the two transhipment sites Lagerhaus and Zwischenbrücken have been grouped to compile the total turnover figures for the Port of Vienna.
³ Other ports and transhipment sites include: Aschach, Schwerlasthafen Linz, Pöchlarn, Pischelsdorf, Korneuburg.
⁴ Data from both the commercial port and the oil port in Linz have been grouped to compile the total turnover figures for the Port of Linz.

FIGURES DATA FACTS

Transport volumes by commodity groups on the Austrian Danube 2019



Goods classification according to NST/R*	Domestic	Import	Export	Transit	Total 2019	Change
Agricultural and forestry products	5,142	870,284	135,694	1,018,033	2,029,152	+63.0%
Foodstuffs and animal fodder	–	181,799	44,817	60,333	286,949	+5.2%
Solid fuels	162	49,919	–	3,738	53,819	–48.6%
Petroleum products	185,282	557,347	637,221	11,565	1,391,415	+7.0%
Ores and metal waste	–	1,949,922	15,157	15,383	1,980,462	+3.1%
Metal products	9,565	190,020	530,969	233,338	963,892	–4.5%
Crude and manufactured minerals, building materials	51,635	307,768	289,971	129,262	778,637	+31.0%
Fertilisers	–	68,458	584,863	186,158	839,479	+59.9%
Chemical products	1,100	–	924	27,114	29,138	+10.6%
Machinery, vehicles and other articles	822	17,822	18,995	120,972	158,612	–22.6%
Total	253,708	4,193,339	2,258,611	1,805,896	8,511,553	+18.2%

* NNST/R = Standard Goods Classification for Transport Statistics/revised.

Source: Statistics Austria, adapted by viadonau

COMMODITY GROUPS

Agricultural products in the lead

Overall rise in transport volume

2019 saw a clear trend reversal in transport volumes after the low water year in 2018: the total volume of commodity groups transported on the Austrian Danube rose to about 8.5 million tons. This was equivalent to growth of 18.2% compared to 2018.

Agricultural and forestry products in particular reported an eye-catching change: with over 2 million tons and a remarkable increase of 63.0% compared to the previous year, this commodity group was the largest category for the first time. Vigorous transit and export traffic, which experienced growth of 76.0% and 70.2% respectively, are among the principal reasons for this considerable rise in transport volumes. Imports also rose by 49.1%.

With a slight increase of 3.1% and a volume of almost 2 million tons, ores and metal waste fell for the first time to second place behind agricultural products. As in previous years, the import share played a very dominant role in 2019, accounting for 98.5% of total volumes in this commodity group. In addition, small quantities of ores and metal waste (15,383 tons) featured again in transit transports for the first time in five years.

Petroleum products came third in the ranking of transport volumes. A transport volume of just under 1.4 million tons was observed for this commodity group, representing an increase of 7.0%. Export and transit transports were the reason for this slight rise, experiencing growth rates of 18.6% and 12.0% respectively.

Transports of metal products reported a small drop in a year-on-year comparison (-4.5%). This is due to the reduced transport volumes in import, export and transit traffic, which fell by 10.6%, 3.8% and 4.0% respectively. Domestic traffic dropped precipitously, namely by a remarkable 467%.

Fertilisers recorded the second strongest growth year-on-year. In total, the transport volume of this commodity group amounted to around 0.8 million tons and showed a growth rate of 59.9%. The rise in transport volumes for crude and manufactured minerals was 31.0%.

Foodstuffs and animal fodder followed the general trend and, at 5.2%, posted an increase in transport volumes. In contrast, transport volumes for machinery, vehicles and other articles fell by 22.6%, which is due to the shrinking volume of exports and transit.

At 48.6%, solid fuels suffered the strongest decline in transported volumes. Although the chemical products followed the general trend and showed a rising transport volume with a growth rate of 10.6%, they remained the smallest commodity group transported on the Austrian Danube, as in previous years.

- Agricultural and forestry products experience the strongest growth, followed by fertilisers
- Ores and mineral waste only second largest commodity group for the first time
- Largest drop for solid fuels

PASSENGER TRANSPORT

Strong rise in passenger numbers

Nine new river cruise ships



“Acting on behalf of the Ministry for Climate Action, viadonau supports the implementation of shore-side electricity for inland vessels at berths. It is a meaningful and sustainable modernisation project that will make passengers, crews, locals and the environment ‘breathe a sigh of relief’.”

DENIZA STAEWA
Project Manager Transport Development

Following last year’s decline, passenger transport on the Austrian section of the Danube reported a considerable increase in 2019. Approximately 1,380,000 passengers were carried in total, 9.5% more than in 2018.

The number of river cruises continued to increase in 2019, again breaking last year’s record with around 535,000 passengers (+15.1% compared to 2018). Overall, nine new vessels were used on the Austrian section, whereby the number of operational cabin vessels rose to 192 (+5.5%). They completed a total of 5,958 trips (+14.6%). The transport capacity of river cruises increased to 40,435 passenger seats (+9.3%) – 211 passenger seats per vessel on average – due to the continued growth in fleet size.

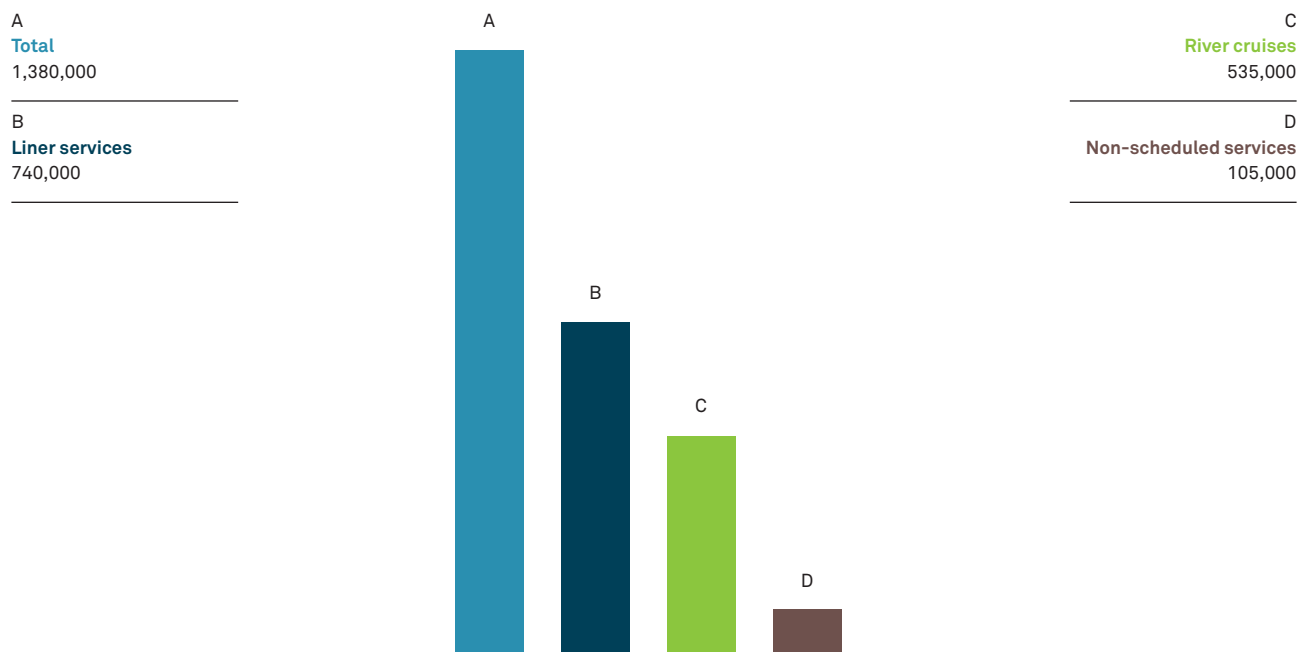
Liner services carried around 740,000 passengers (+5.7%) in 2019. DDSG Blue Danube Schifffahrt GmbH reported a total of 277,900 passengers (+2.1%) on its liner services in the Wachau region and Vienna. The two Twin City Liners transported 159,305 passengers (+7.8%) between Vienna and Bratislava, and 46,631 passengers (+12.8%) used the services of Donau-Schifffahrts-Gesellschaft mbH (formerly Donau Touristik). Last year, Fähre Dürnstein GmbH & Co. KG reported 20,651 passengers on its Danube taxis in the Wachau region.

Non-scheduled services accounted for 105,000 passengers (+10.5%) in 2019. DDSG Blue Danube Schifffahrt GmbH carried 47,900 passengers (+2.4%) on its themed, special and charter cruises, and 13,703 passengers (+28.3%) took the non-scheduled services of the MS Kaiserin Elisabeth owned by Donau-Schifffahrts-Gesellschaft mbH. Donauschifffahrt Ardagger GmbH reported 6,033 passengers (+8.8%) on its MS Donaunixe and MS Maria, while approximately 5,500 persons (+87.7%) used the MS Stadt Wien owned by the Wilhelm Stift GmbH shipping company.

Passenger numbers are not reported separately for companies that carried fewer than 5,000 passengers on liner or non-scheduled services in 2019. No statistics are available for other companies operating liner and non-scheduled services on the Austrian section of the Danube during the reporting period.

FIGURES DATA FACTS

Passengers on the Austrian Danube 2019¹



Dockings and passengers at passenger ports in Vienna ²	Dockings ships	% to previous year	Passengers processed	% to previous year
2019	7,549	-0.7	785,171	+10.7
2018	7,606	+1.6	709,185	+2.1
2017	7,484	+2.0	694,848	+3.9
2016	7,337	+7.8	668,805	+6.6
2015	6,805	-1.6	627,194	+4.6

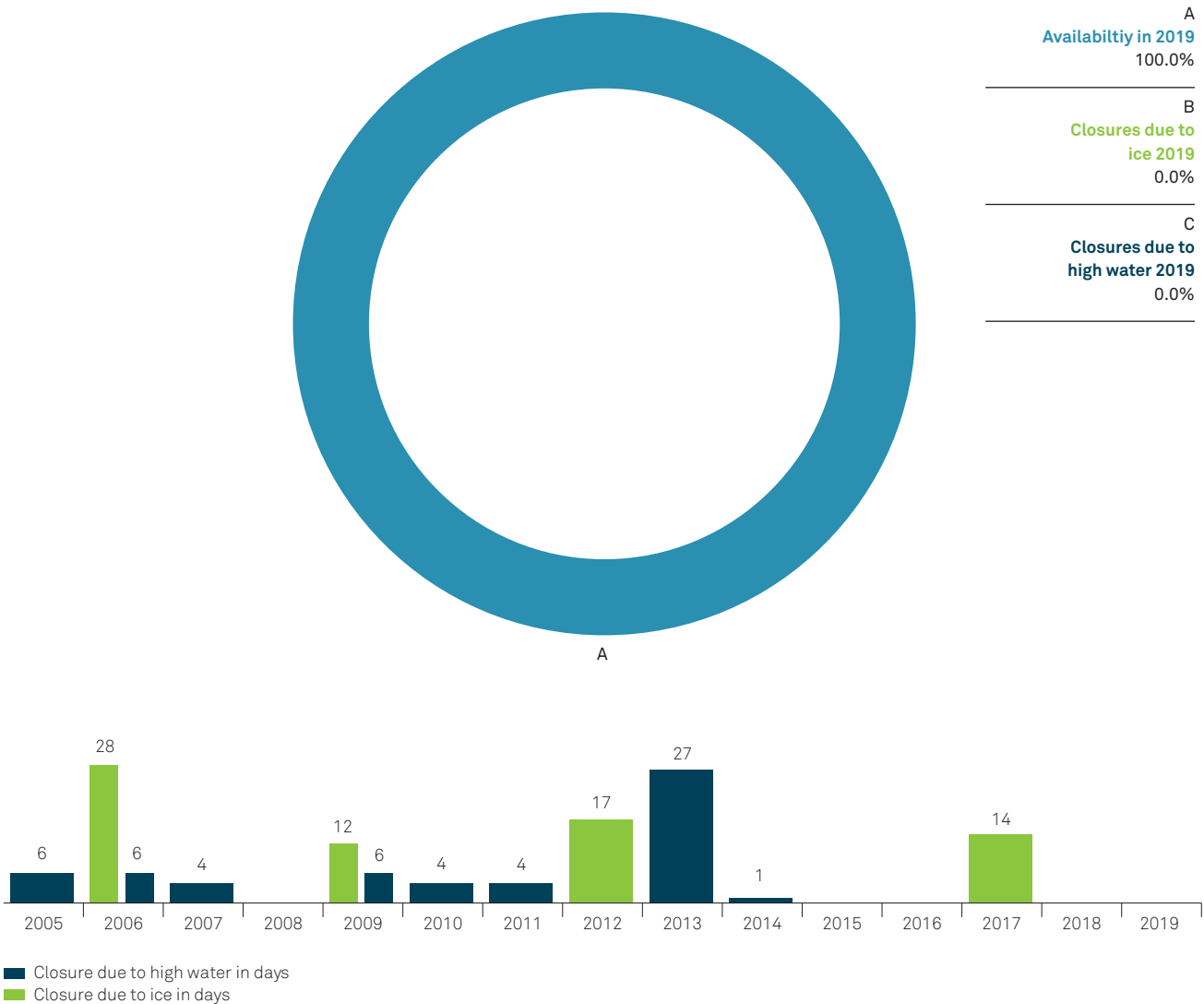
¹ Due to the fact that passenger traffic on the Danube ceased to be statistically compiled in Austria in 2003 (because of a change in legal basis), the above figures include additional estimates in passenger numbers on liner services and non-scheduled traffic, based on an assumed average capacity utilisation of 40% on passenger ships. The calculation of the total number of passengers on cabin vessels is based on the number of trips these ships made through the locks at Aschach and Freudenau, with an assumed average capacity utilisation of 75%, whereby a deduction of 30% for double counting has been estimated.

² Landing stages at Handelskai, Danube Canal and Nussdorf, including cabin vessels and the Twin City Liners.

Sources: 1 Wiener Bootstaxi, Ahoi Wachau – Ahoi Reichl Geith OG, Brigitte Wilhelm, Central Danube Region Marketing & Development GmbH, DDSG Blue Danube Schifffahrt GmbH, Donauschifffahrt Ardagger GmbH, Donauschifffahrt Wurm & Noé GmbH & Co. OHG, Donau-Taxi Wachau – Fähre Dürnstein GmbH & Co. KG, DSGL – Donau-Schifffahrts-Gesellschaft mbH, Event-Schifffahrt Haider e. U., Genuss-Schifffahrt GmbH/Donauparadies Gierlinger, MAHART PassNave Ltd., Motorboottaxi Wachau, Motoryacht Wachau, Naufahrt Wolfgang Speckner, Nostalgie Tours – Video & Consulting GesmbH, ÖGEG Österreichische Gesellschaft für Eisenbahngeschichte GmbH, Schifffahrtsunternehmen Wilhelm Stift GmbH, Schiffmühle Orth an der Donau, Slovak Shipping and Ports – Passenger Shipping JSC (SPaP-LOD, a. s.), viadonau, WGD Donau Oberösterreich Tourismus GmbH, Wiener Donauraum Länden und Ufer Betriebs- und Entwicklungs GmbH, Wikingerabenteuer – Koblmüller Alois

FIGURES DATA FACTS

Navigational closures due to high water and ice 2005 to 2019



Sources: Supreme Navigation Authority within the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, viadonau.

AVAILABILITY OF WATERWAY

Danube navigable all year round in 2019

No closures due to high water or ice

Over a 15-year annual average from 2005 to 2019, the availability of the Austrian section of the Danube waterway was 97.6%, or 357 days per year. During this period, four closures due to ice were recorded with an average duration of just under 18 days, while the waterway had to be closed in eight of these years due to high water with an average duration of around seven days.

No official closures due to ice or high water were recorded for the Austrian section of the Danube in 2019. The availability of the waterway was therefore 365 days or 100% of the year. Only on one single day in the month of May did the water levels at the Wildungsmauer gauge reach the highest navigable water level, which meant that an official high-water closure was not necessary.

Weather-related closures can be imposed by the relevant authorities on the Austrian section of the Danube waterway in extreme situations, such as high water or ice. While closures due to ice are normally confined to the winter months of January and February, high water levels tend to occur during the spring or summer months.

Apart from closures due to high water and ice, official closures of the waterway can also occur due to traffic accidents, water pollution, construction work or events. In 2019, closures of this kind lasted for 42.7 hours in total and were ordered on 16 days of the year. The average duration of a closure was around 2.7 hours. Total lock closures (the parallel closure of both lock chambers) included in the above figures accounted for a duration of 17.0 hours and affected three of the ten lock facilities on the Austrian Danube section. The longest closures were due to several bridge construction sites around the city of Linz.

- Long-term availability of the Danube at 97.6%
- No closure days in 2019 due to ice or high water

LOAD FACTOR

Typical fairway conditions over the year

Average load factor at 59.9%

- Considerably improved fairway conditions compared to last year
- 8,094 transportations
- Highest average load factor of 71.6% in March

Fairways conditions over 2019 proceeded largely in accordance with the typical patterns for the Wildungsmauer gauge of reference.

The spring months showed peaks with a daily average water level of up to 587 cm, mainly due to the melting of snow in the Alpine region. On the other hand, the daily average troughs were as low as 136 cm due to the paucity of rainfall in the autumn months.

It follows, therefore, that the fairway conditions were more favourable than last year. The average daily mean value at the Wildungsmauer gauge of reference was 272 cm, 36 cm higher than in 2018. In addition, 2019 experienced just 31 days with daily mean values equal to or less than the low navigable water level (LNWL) (2018: 92 days).

Due to this significant year-on-year improvement in the general navigational conditions, the number of transportations* rose to 8,094 (2018: 7,622 loaded vessel journeys), in line with an increase in transport volumes. The average load factor also climbed to 59.9% (2018: 55.5%).

The higher water levels in March, May and June led to the greatest average load factors of 71.6% in March and 69.8% in June. The less favourable fairway conditions in October caused the lowest recorded load factor of just 49.5% in this month.

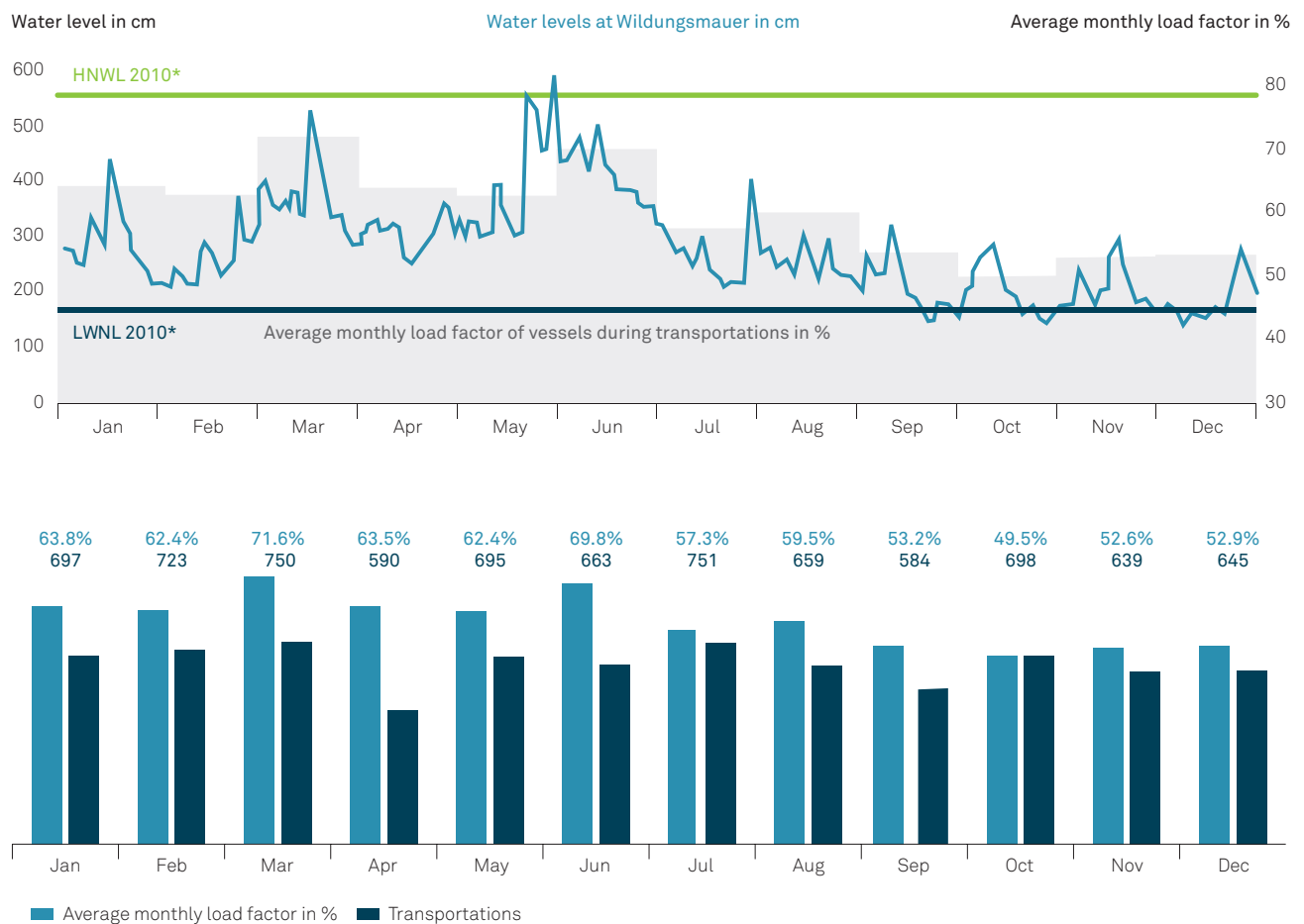
Due to the high average load factor, just 750 transportations carried more than 0.9 million tons in the favourable month of March, the highest monthly volume of cargo in 2019. In contrast, the low load factor meant that 698 transportations were required to transport just under 0.6 million tons in the unfavourable month of October.

The average monthly load factor was significantly more balanced than in the previous year, which also reflects the more typical and even fairway conditions in 2019.

* Loaded vessel journeys were determined until the 2018 reporting year (counted without partial unloading or additional loading). Due to the switch to European requirements for statistical indicators, transportations will be counted from the 2019 reporting year, whereby each unloading or loading operation represents a new transportation. Comparisons between the different counting methods (loaded vessel journeys versus transportations) over five trial months indicated only slight deviations in the findings (approx. 1% higher values for transportations, cf. Statistics Austria). Hence, this report assumes that the values for transportations in 2019 are comparable with the statistics for loaded journeys in 2018.

FIGURES DATA FACTS

Water levels and resulting load factors of cargo vessels in 2019 using the Wildungsmauer gauge of reference



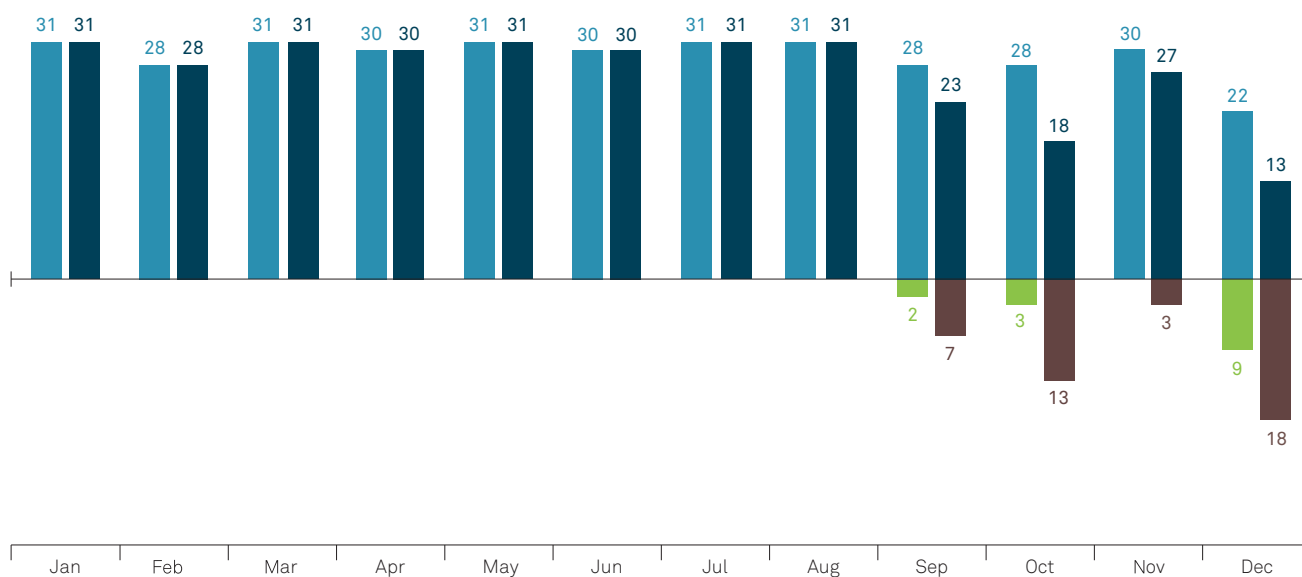
* LWNL 2010 (low navigable water level): This water level exceeded on 94.0% of days in a year during ice-free periods with reference to a 30-year observation period (1981–2010). The current LWNL value for the water gauge Wildungsmauer is 162 cm.

HNWL 2010 (highest navigable water level): This value represents the water level corresponding to the discharge exceeded on 1.0% of days in a year with reference to a 30-year observation period (1981–2010). At Wildungsmauer, the highest navigable water level is currently 564 cm.

Source: Statistics Austria, adapted by viadonau

FIGURES DATA FACTS

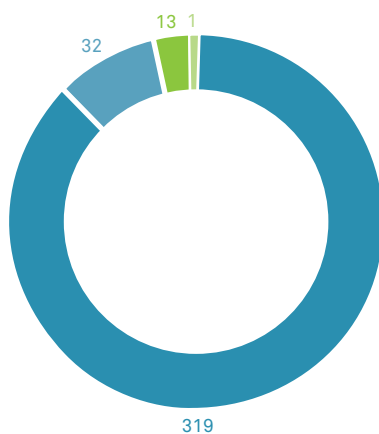
Minimum continuously* available fairway depths in days on the free-flowing stretches of the Danube 2019



Wachau
Kienstock gauge of reference;
Minimum fairway depths in days

■ Above 2,5 m
■ Below 2,5 m

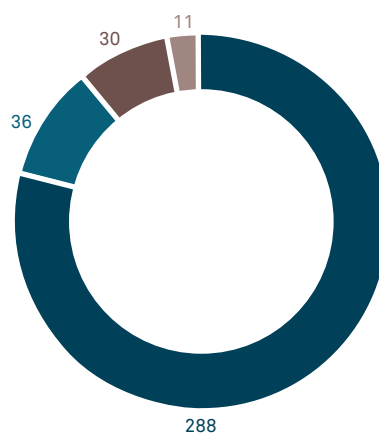
■ ≥ 27 dm
■ 26 + 25 dm
■ 24 + 23 dm
■ 22 + 21 dm



East of Vienna
Wildungsmauer gauge of reference;
Minimum fairway depths in days

■ Above 2,5 m
■ Below 2,5 m

■ ≥ 27 dm
■ 26 + 25 dm
■ 24 + 23 dm
■ 22 + 21 dm



* Based on the fairway width required for a four-unit pushed convoy travelling downstream without encountering other vessels. Fairway width depends on the river bend radii involved.

Source: viadonau

FAIRWAY DEPTHS

2.5 m for nine continuous months

Low water in the fourth quarter

The Danube enjoyed good fairway conditions from a hydrological perspective during the first three quarters of 2019, with a discharge at times considerably above mean water level. Water levels fell below the mean water mark from the beginning of August, and even dropped to beneath the low water mark for some days from the end of September. For instance, daily mean values of below the 2010 low navigable water level were recorded on four days towards the end of September, on eleven days in October and on 15 days in December. In November, however, the water level remained consistently above the low water mark. This means that low water was recorded on 30 days in 2019 (8.2% of the year).

With the exception of nine days, water depths of more than 2.5 m in the fairway's deep channel were continuously available in the two free-flowing stretches of the Austrian Danube (Wachau and east of Vienna) during the first three quarters of 2019. In total, minimum fairway depths of 2.5 m were available in the deep channel of the Wachau region on 351 days or 96.2% of the year (+15.6% compared to 2018). Minimum fairway depths of 2.5 m were guaranteed in the free-flowing stretch east of Vienna on 324 days or 88.8% of the year (+19.8%).

For the proactive removal of aggradation from the main shallow sections along the Austrian section of the Danube waterway, 13 maintenance dredgings were carried out in the fairway in 2019, which involved the removal of roughly 113,000 cubic metres of sediment. Roughly 87% of the total cubic volume had to be removed in the stretch east of Vienna.

The minimum available fairway depths for the two free-flowing sections of the Austrian Danube were determined from all hydrographical surveys of the riverbed published by viadonau in 2019. They were evaluated in combination with the respective gauge hydrographs (mean daily water levels at the Kienstock and Wildungsmauer gauges of reference). The reference was the continuous availability of a deep channel inside the fairway, representing the required fairway width for a four-unit pushed convoy travelling downstream without encountering other vessels.



“With our pinpoint waterway management, we bolster confidence in the waterway and implement selected measures to maintain the excellent quality of the most environmentally friendly mode of transport.”

KLAUS HUBER
Project Manager Waterway Management

TRANSPORT DENSITY

Ratio of flows of cargo unchanged

Noticeable break in Linz

- Transport volumes carried upstream almost twice as high as the volume carried downstream
- Accounting for 6.6 million tons, the section between the Slovakian border and Vienna records the highest cargo volume
- 22,941 tons per day

Although 18.2% more goods were transported by inland vessel in 2019 compared to the previous year, the ratio of cargo flows remained unchanged.

As in previous years, imports of 4.2 million tons dominated the composition of the volumes transported on the Austrian Danube, followed by exports of 2.3 million tons, and transit traffic of 1.8 million tons. Accounting for 0.1 million tons, domestic traffic again contributed the lowest share to transport volumes.

The upstream flow of cargo, i.e. in an East-West direction (5.6 million tons) accounted for twice the flow of cargo downstream, i.e. in a West-East direction (2.8 million tons), which again emphasised its greater importance. The volume of imports from the East (3.3 million tons) in particular was the key factor in this trend.

The greater significance of the flow of cargo upstream is also reflected in transit traffic. While 1.5 million tons of cargo were shipped in an East-West direction in 2019, only 0.3 million tons crossed Austria in the opposite direction.

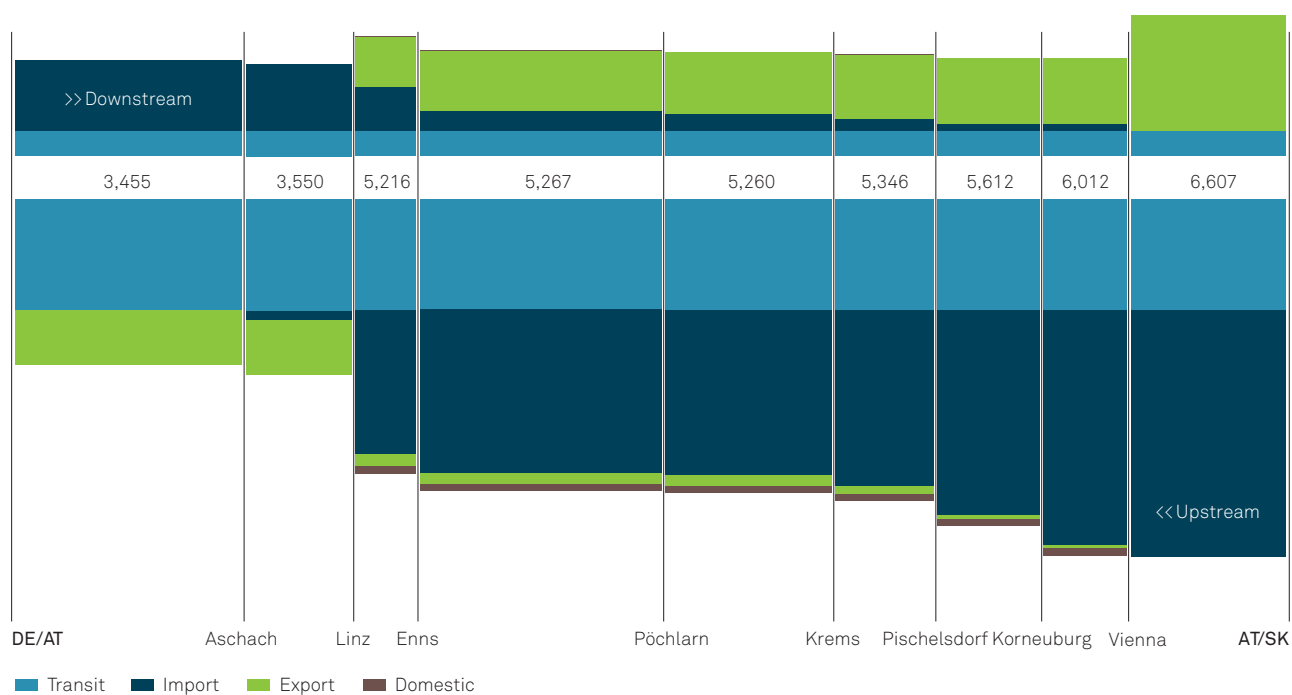
A direct comparison of the volumes of cargo shipped via the Slovakian-Austrian and the Austrian-German border clearly shows the greater importance of eastbound cross-border traffic compared to westbound traffic. Accounting for 6.6 million tons, the volume transported across the eastern border was almost twice as high as the equivalent number for the western border (3.5 million tons).

These 6.6 million tons also meant that in 2019, the approximately 46-kilometre section of the Danube from the Slovakian-Austrian border to Vienna was once again the section on which the largest volume of cargo was moved.

Linz still represents a clear break from the pattern of traffic density. This is primarily due to the 2.1 million tons of imported cargo, mainly from the East. In addition, 1.2 million tons of cargo were exported in Linz during 2019, principally towards the East. Converted to a single day, an average of 22,941 tons of cargo were transported on the roughly 351 kilometre stretch of the Austrian Danube, corresponding to the load carried by 918 lorries (25 net tons per vehicle) or 574 railway wagons (40 net tons per wagon).

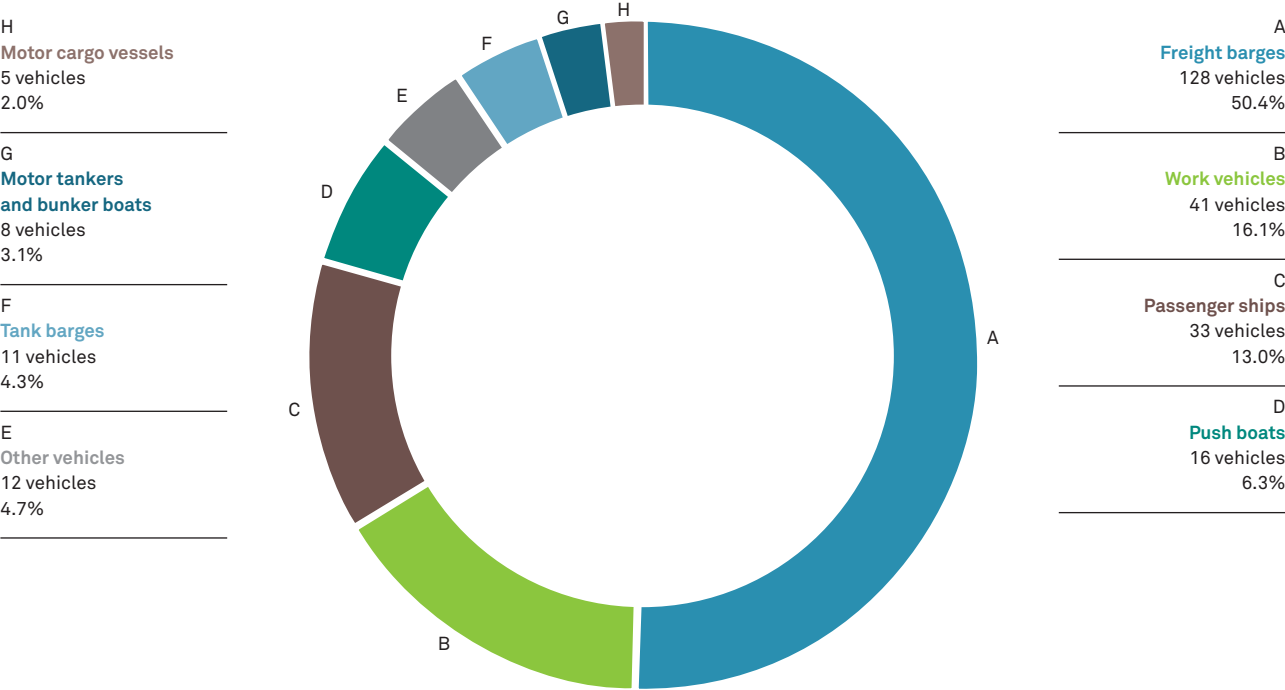
FIGURES DATA FACTS

Density of freight traffic on the Austrian Danube 2019



FIGURES DATA FACTS

Overview of the Austrian Danube fleet* according to vehicle type 2019



* The Austrian Danube fleet includes vehicles of category 1 according to Section 3 of the Vessel Technology Regulation (Schiffstechnikverordnung), which is defined as follows: "a vehicle whose length (L) is 20 m or more or whose product of length (L), breadth (B) and draught (D) is 100 m³ or more, or which is intended to carry more than 12 passengers (passenger vessels), a floating device or a tug or push boat which is intended to tow, push or tow coupled vessels of this kind."

Sources: Register of inland vessels, Vienna; Supreme Navigation Authority within the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology; viadonau.

AUSTRIAN DANUBE FLEET

First survey of Austrian Danube fleet

Freight barges strongest group

The first survey of the Austrian Danube fleet was conducted for 2019; it indicates that there are 254 vehicles with an average age of 42 years. The Danube fleet includes approved vessels of category 1 according to Section 3 of the Vessel Technology Regulation, which are registered in Austria and intended for use on the Danube. Vehicle categorisation takes place according to the vehicle types defined in UNECE Recommendation 28.

Slightly over half of the vehicles can be assigned to the category of non-motorised freight barges (128 vehicles or 50.4%). On average, their age is 38 years, their length 67.7 m, their breadth 10.0 m, their draught 2.5 m and their loading capacity is 1,382.4 tons.

Accounting for 41 units, the second largest category (or 16.1%) consists of work vehicles such as construction site vehicles and floating devices with an average age of 44 years.

Third place went to passenger ships with 33 vehicles or 13.0% of the Austrian Danube fleet. These are mainly day-trip vessels. Only one cruise vessel with 164 passenger beds is registered in Austria. The passenger vessels have an average age of 44 years and a transport capacity of 257 persons.

16 push boats are registered in Austria (6.3% of all vehicles). On average, their age is 46 years, their length 31.4 m, their breadth 8.7 m, their draught 1.5 m and their engine power 1,047 kW.

Another twelve vehicles (4.7%) are grouped under the category "Other vehicles". They include four RoRo ferries, sports boats over 20 m and also a tugboat.

In the group of tank barges, eleven units are registered in Austria (4.3%). On average, their age is 31 years, their length 78.1 m, their breadth 10.4 m, their draught 2.8 m and their loading capacity is 1,641.3 tons.

The Austrian Danube fleet also includes eight motor tankers or bunker boats (3.1%) with an average age of 59 years, an average loading capacity of 495.3 tons and an engine power of 424 kW.

Finally, five motor cargo vessels are also registered in Austria. On average, their age is 32 years, their length 74.6 m, their breadth 10.3 m, their draught 2.4 m, their loading capacity is 1,426.4 tons and their engine power is 864 kW.

- In 2019, the Austrian Danube fleet comprised 254 vehicles with an average age of 42 years
- Freight barges the most frequent vehicle group with 50.4%
- Work vehicles come second, accounting for 16.1%, followed by passenger ships and day-trip vessels with 13.0%

LOCKED-THROUGH VESSEL UNITS

98,000 units locked through

Rise in freight and passenger transport



“Operating the locks along the Danube keep the waterway’s heart beating strongly. Our customers agree: Our reliable and competent professionals ensure that around 98,000 vessel units travel safely.”

SUSANNE REINOLD
Lock Supervision Freudenau

A total of 98,234 passenger and cargo vessel units, travelling both upstream and downstream, were locked through the nine Austrian lock facilities in 2019 (excluding the Jochenstein power station on the Austrian-German border). Included in this number were 30,364 motor cargo vessels and motor tankers (+12.8% compared to 2018), 15,551 pushers (−0.8%) and 52,319 passenger vessels (+11.0%). A total of 35,552 cargo and tank lighters or barges (+1.9%) were also locked through as part of coupled and pushed convoys. Taking all types of vessels and convoys into consideration, the total number of locked-through vessel units in freight and passenger transport showed an increase of 9.5% compared to 2018.

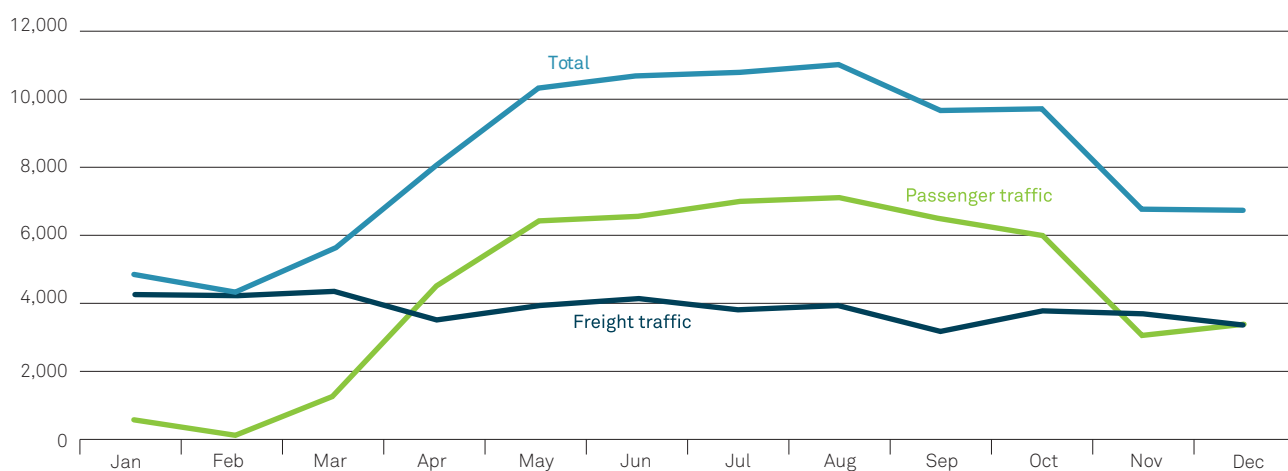
Freight transport on the Austrian Danube saw a significant increase in locked-through vessel units (+7.8% or 3,318 units). There was another substantial increase in passenger transport (+11.0% or 5,172 vessel units). In 2019, freight transport had a share of 46.7% of total shipping volumes (−0.8%), with passenger traffic accounting for the remaining 53.3% (+0.8%).

In relation to 2019 as a whole, the average number of vessels passing through an individual Austrian Danube lock facility amounted to 10,915 convoys and individual vessels (+943 vessel units). This is equivalent to 910 vessel movements per month (+79) or 30 per day. As in previous years, the highest volume of vessels was once again recorded at the Freudenau lock in Vienna with 13,464 vessel units (+12.5%), followed by the Greifenstein lock with 11,681 units. Aschach lock recorded the smallest number of locked-through vessels with 9,457 units.

In addition to commercial freight and passenger vessel units, 9,642 (−12.9%) small sports and leisure crafts also passed through lock facilities on the Austrian Danube in 2019, together with a further 2,010 vessels, which included public authority and rescue crafts.

FIGURES DATA FACTS

Vessel units in freight and passenger transport locked through Austrian Danube locks in 2019*



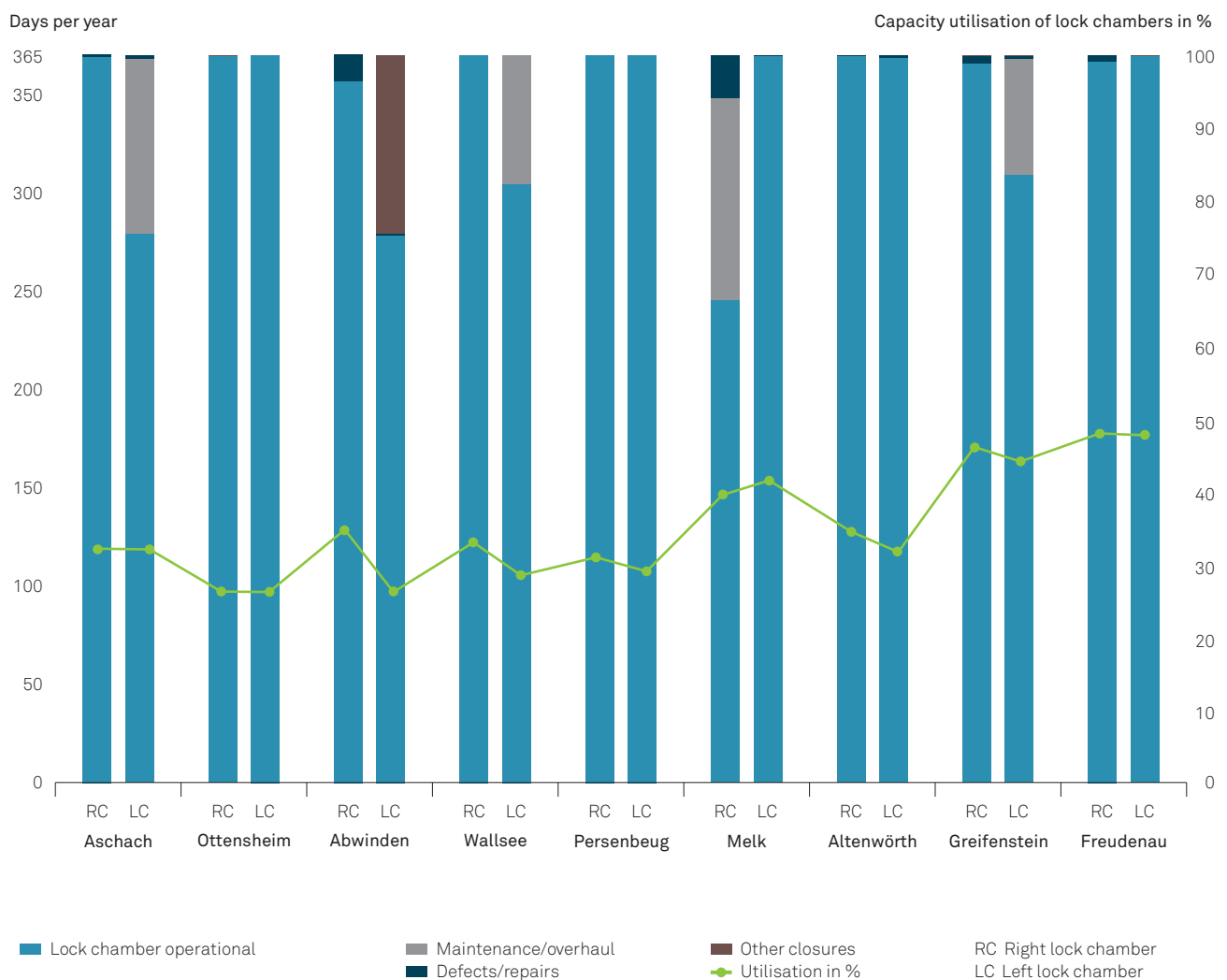
	Freight traffic	% to previous year	Passenger traffic	% to previous year	Total	% to previous year
2019	45,915	+7.8	52,319	+11.0	98,234	+9.5
2018	42,597	-16.7	47,147	+7.1	89,744	-5.7
2017	51,164	-0.9	44,020	+5.6	95,184	+2.0
2016	51,603	+1.6	41,695	+6.0	93,298	+3.5
2015	50,781	-18.7	39,347	+1.6	90,128	-10.9

* Vessel units in freight transport include convoys (pushers, motor cargo vessels or motor tankers with cargo and tank lighters or barges) and individual vessels (motor cargo vessels and motor tankers or individual pushers and tugs). The passenger vessels are day-trip vessels and cabin vessels.

Source: viadonau

FIGURES DATA FACTS

Availability of Austrian Danube locks 2019



AVAILABILITY OF LOCK CHAMBERS

99.8% continuous availability

Mean chamber utilisation around 35%

As the nine Austrian Danube locks are large-scale technical installations, they need to be serviced and maintained at regular intervals to ensure operational functionality and safety and thus also the capacity of waterway traffic flow. These so-called lock overhauls, along with necessary large-scale repairs, accounted for approximately 70% of all closure days of the 18 lock chambers in 2019. The average duration of overhauls carried out in the winter half year 2018/19 and completed by the spring of 2019 was 165 days per chamber.

Other reasons for lock closures included periodic repairs caused by technical defects and damage to lock facilities caused by vessels during the year. These accounted for approximately 28% of all closure days; an accident in the Abwinden lock and the necessary repair measures was responsible for two thirds of this number. In addition, approximately 2% of closure days were attributed to scheduled modification or maintenance work, dredging in and around lock facilities and surveying. There were no lock closures due to ice or high water in 2019.

The 18 lock chambers on the Austrian Danube were continuously available on almost 365 days (99.8%) in 2019. Five short-term, complete closures of the Greifenstein lock were necessary due to major conversion work from April to October, the busiest months for passenger, sports and leisure navigation. They lasted for 2.6 hours on average. Only two lock chambers were out of operation simultaneously in the low-traffic months of November to March. This was caused by necessary work during overhaul of the chambers. The work lasted for 2.1 hours on average.

Capacity utilisation of the individual lock chambers averaged at around 35% in 2019. The spread of utilisation differs quite widely from a geographical perspective. As in previous years, the Freudenu lock reported the highest average utilisation of about 48%, while the Ottensheim lock recorded the lowest utilisation of about 27%. In this regard, the degree of lock chamber utilisation corresponds to its “occupancy time”, i.e. the entire period from the entry of the first to the exit of the last jointly locked-through vessel, assuming 24/7 availability of the lock chambers and taking into account the lock closures.

- 99.8% continuous availability of the Austrian locks in 2019
- Lock overhauls are carried out during the low-traffic period from November to March in order to avoid waiting times

WAITING TIMES AT LOCKS

Only 9.4% of vessels experienced delays Average waiting time 33 minutes

- No waiting times at locks for 90.6% of all commercial freight and passenger vessel units in 2019
- 33 minutes average waiting time for 9.4% of all locked-through vessel units

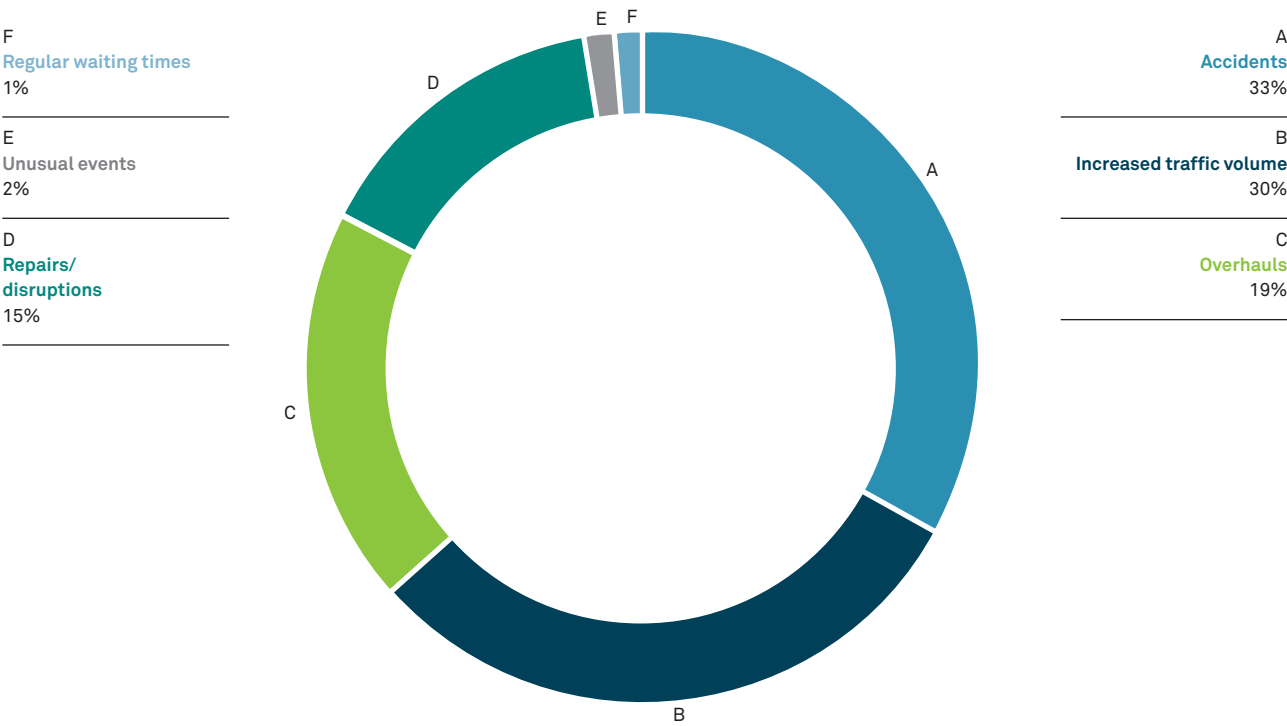
In 2019, an average of 9.4% of all vessel units (commercial freight and passenger vessels) on the Austrian section of the Danube were required to wait at the nine lock facilities; the mean waiting time for these 9.4% was 33 minutes over the entire year.

Lock availability and traffic volumes are the principal factors that influence waiting times. Around 67% of the waiting times incurred can be attributed to the unavailability of lock chambers due to overhauls, repairs/disruptions and damage to structures by vessels. The remaining roughly 33% are primarily caused by traffic circumstances, unusual events and regular operations.

A detailed consideration of the evaluation reveals the following situation. Most (about 33%) of the waiting times were due to damage to the left lock chamber in Abwinden, which was caused by a vessel during high season and that necessitated closure. Approximately 30% of the waiting times were the result of increased traffic volumes. This includes situations in which more vessels are waiting at a lock than can be accommodated in one chamber. About one fifth (approx. 19%) of the waiting times were caused by overhaul of the lock chambers in Melk and Aschach during the winter season. Approximately 15% of the waiting times were due to repairs and closures for dredging and surveying during the year. Failure of the control system in the Struden section contributed around 2% of the waiting times for vessels, while the lock attendants themselves were directly responsible for only about 1% of the waiting times.

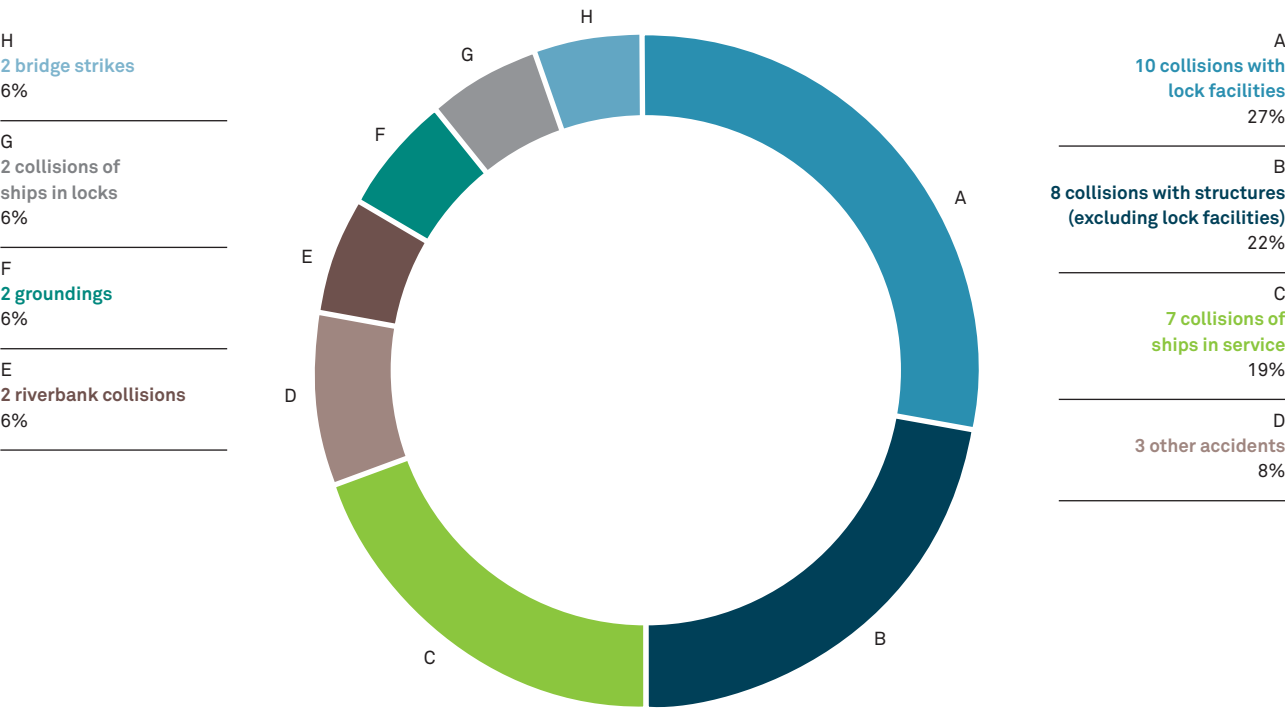
FIGURES DATA FACTS

Causes of waiting times at Austrian Danube locks 2019



FIGURES DATA FACTS

Traffic accidents according to type of damage on the Austrian Danube 2019



ACCIDENTS

Number of accidents rises again

Collisions are the most frequent type

Despite a three-fold increase in the number of accidents between 2018 and 2019, Danube navigation remains an unbeatably safe transport mode, compared to land transportation by road or rail. A total of 36 accidents involving commercial passenger ships, freight vessels or convoys resulting in damage to property and/or personal injury occurred during the course of 2019 on the Austrian section of the Danube. 21 accidents with cargo vessels were recorded, while another 17 incidents resulted in damage to passenger ships.

Broken down according to accident types, nine incidents were vessel collisions. Seven cases involved vessels colliding with each other while in service and two cases involved vessel collisions within the confines of a lock facility. Another ten incidents were collisions with the lock facilities. There were also eight collisions with other structures. Two accidents respectively involved a vessel running aground (due to excessive loading depths, insufficient water depth or navigating outside the fairway), colliding with the riverbanks or with a bridge. Another three accidents were caused by wave impact.

Two persons were injured during accidents in freight and passenger traffic on the Austrian Danube section in 2019. One sailor went overboard and drowned during a collision between a pushed convoy and a bridge. Another person sustained a slight injury during a collision between a pushed convoy and a passenger vessel. A further two accidents resulted in water pollution, one of which also led to a cargo spill.

Most of the accidents in 2019 occurred on the impounded sections of the Danube. A total of 13 accidents were recorded here, including four collisions with structures, three vessel collisions, two bridge collisions, two collisions with the riverbank, one grounding and one case of property damage caused by wave impact. Twelve accidents occurred in the area of lock facilities (whilst being locked-through or in either the headwater and tailwater area of the lock), including ten collisions with lock facilities and two ship collisions. Four accidents occurred on the free-flowing section of the Danube east of Vienna. There were another seven accidents on the free-flowing section of the river between Melk and Krems (Wachau).

Sports and recreational boating, which is not included in the accidents described above (except in the case of collisions with commercial freight and passenger vessels), recorded no accidents involving damage on the Austrian section of the Danube in 2019.

- Collisions with locks and other structures are the most frequent types of accident in 2019
- Personal damage: one fatality, one slightly injured
- Cargo vessels were involved in 21 accidents, passenger vessels in 17

MODAL SPLIT

Road still in lead position

Danube's share increases to 9%

- Slight increase in transport volumes along the Danube corridor
- Danube holds the greatest share of the modal split for imports across the eastern border

In 2019, about 90.6 million tons of cross-border freight traffic were transported in the Austrian Danube corridor by the three transport modes of road, rail and the Danube waterway. This represented a slight increase compared to last year (+1.3%).

The 19.2% increase in the volume of cross-border cargo transported on the Danube compared to 2018 correlates with a rise in the Danube share of the modal split from around 8 to approximately 9%. This is positively affected by the significantly improved fairway conditions on the Danube in a year-on-year comparison.

Despite a drop to 63%, road transport remains the dominant factor in the modal split. The share held by rail transport remained unchanged at around 28%.

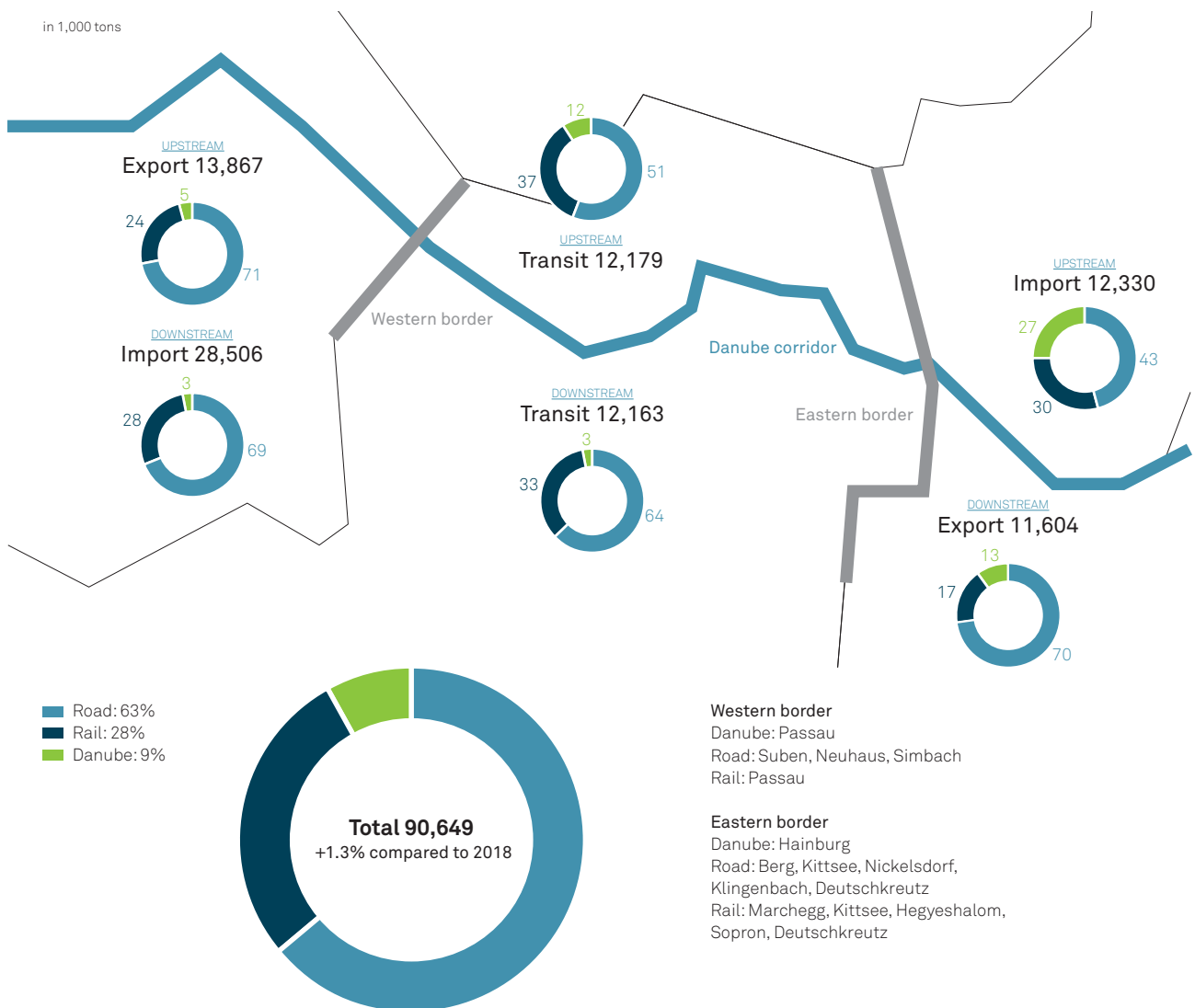
The Danube again secured the highest share of the modal split with about 27% of the volumes imported via the eastern border of the Austrian Danube corridor, which illustrates the undiminished importance of imports from the East for the freight navigation sector in Austria. At only about 3% each, the Danube accounted for the lowest shares of the modal split in terms of imports crossing the western border and the volumes of downstream transits.

In 2019, the Danube was able to increase its share of the modal split across all transport sectors, with the highest increases compared to 2018 being achieved in upstream transit (from around 9% to around 12%) and in exports across the eastern border (from around 10% to around 13%). The waterway managed to increase its share by at least a respectable 1% in all other transport areas and ratios.

The following figures emphasise the greater significance to the transport sector of the western border compared to the eastern border of the Austrian Danube corridor: while 66.7 million tons were transported across the western border by all transport modes in 2019, the volume transported across the eastern border only reached 48.3 million tons.

FIGURES DATA FACTS

Cross-border freight traffic in the Austrian Danube corridor 2019

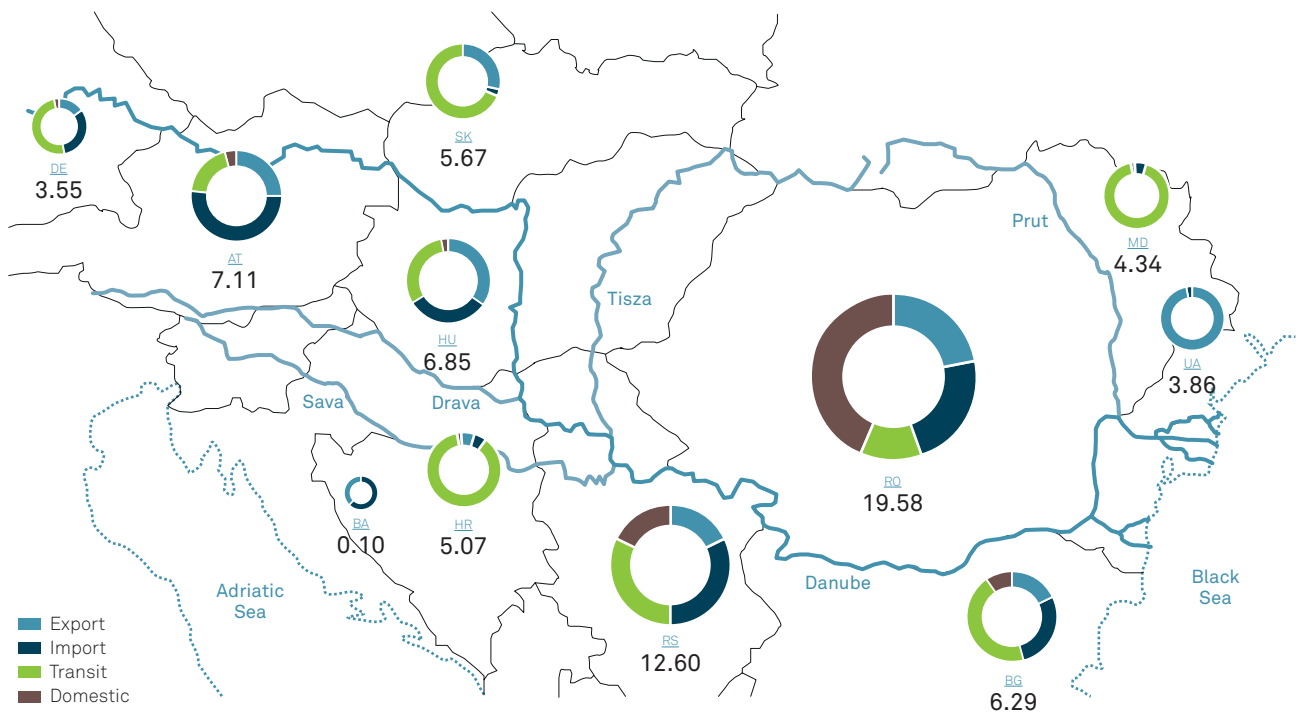


As no official data are available yet, the figures for the transportation mode of rail include projections for the fourth quarter. The figures for road transport were extrapolated for the whole year based on provisional foreign trade statistics.

Source: Austrian Institute for Spatial Planning (ÖIR), adapted by viadonau

FIGURES DATA FACTS

Freight transport on the entire Danube 2018



In millions of tons	DE	AT	SK	HU	HR	BA	RS	RO	BG	MD	UA
Export	0.52	1.90	1.48	2.41	0.28	0.04	2.39	4.28	1.15	0.05	3.71
Import	1.15	3.73	0.11	2.09	0.25	0.06	4.27	4.44	1.50	0.42	0.15
Transit	1.72	1.20	4.05	2.17	4.47	0.00	3.76	2.79	2.79	3.87	0.00
Domestic	0.16	0.28	0.03	0.18	0.07	0.00	2.18	8.07	0.85	0.00	0.01
Total	3.55	7.11	5.67	6.85	5.07	0.10	12.60	19.58	6.29	4.34	3.86

FREIGHT TRANSPORT ON THE ENTIRE DANUBE 2018

35.8 million tons in the Danube region

Drop of 8.9% compared to 2017

The latest figures available for transport volumes in the Danube region date from 2018. In total, 35.8 million tons of cargo were transported between Kelheim and the Black Sea, a decline of 8.9% compared to 2017.

With regard to the individual Danube riparian countries, it becomes evident that the countries along the Upper Danube and partly along the Middle Danube have experienced declining transport volumes, whereas the countries as of Serbia recorded a rise in transport volumes.

Although it is not a riparian state of the Danube (but connected to the Danube by the Sava), Bosnia-Herzegovina suffered a 61.5% decline in transport volume, the largest dip of all states in the Danube region. Germany experienced the second most severe drop, namely 37.0% (regions of Upper Palatinate and Lower Bavaria).

Transport volumes in Austria fell by 24.9%, to 7.1 million tons. The strong downward trend in volumes transported on the Upper and Middle Danube is mainly due to the exceptionally unfavourable and prolonged low water period of 2018.

Nonetheless, a consideration of the countries bordering the Lower Danube reveals that this low water period had far less or even no impact on transport volumes. Recording a total volume of 19.6 million tons, Romania was able to increase its transport volume by around 0.5 million tons or 2.4% compared to 2017 and therefore remained the country with the largest transport volume in the Danube region.

Accounting for 12.6 million tons of cargo transports, Serbia remained in second place in 2018 and also achieved a slight increase in its transport volumes compared to 2017 (+1.1%).

A country-by-country analysis of the individual transport sectors shows the considerable importance of export traffic for Ukraine (96.0% of the total volume) and transit traffic for Moldova (89.2% of the total volume), Croatia (88.0%) and Slovakia (71.4%). The ratios between the various traffic segments are more balanced in the other countries.

In 2018, 14.1 million tons of goods were transported via the Danube-Black Sea Canal, the connection between the Danube and the Constanța seaport on the Black Sea, which is equivalent to an increase of 2.5% compared to 2017. 4.4 million tons of cargo were shipped on the Sulina arm, the middle of the three main arms of the Danube Delta, in 2018, improving on the 2017 figures by 3.1%.

- Declining transport volumes on the Upper and Middle Danube, increasing transport volumes in Serbia and on the Lower Danube
- The highest transport volume was in Romania, at 19.6 million tons
- 14.1 million tons of cargo on the Danube-Black Sea Canal

FAIRWAY CONDITIONS ALONG THE ENTIRE DANUBE

Fairway conditions slightly improved in several critical sectors

- Unfavourable fairway conditions in the second half of 2019 due to low water levels
- Fairway conditions on the Lower Danube were improved slightly, compared to previous years

Fairway conditions were very favourable in the first seven months of 2019 along the entire Danube. From January until mid-July minimum fairway depths were mostly exceeded on all parts of the Danube; water levels remained above low navigable water level (LNWL) for the entire period. Only on the Lower Danube (at the Romanian critical sector Cochirleni), some days with fairway depths below 2.5 m occurred in January, due to lower water levels in winter. In the beginning of August water levels dropped rapidly and remained below or just slightly above low navigable water level until the end of the year, resulting in fairway depths below 2.5 m at several critical locations, particularly on the Central and Lower Danube.

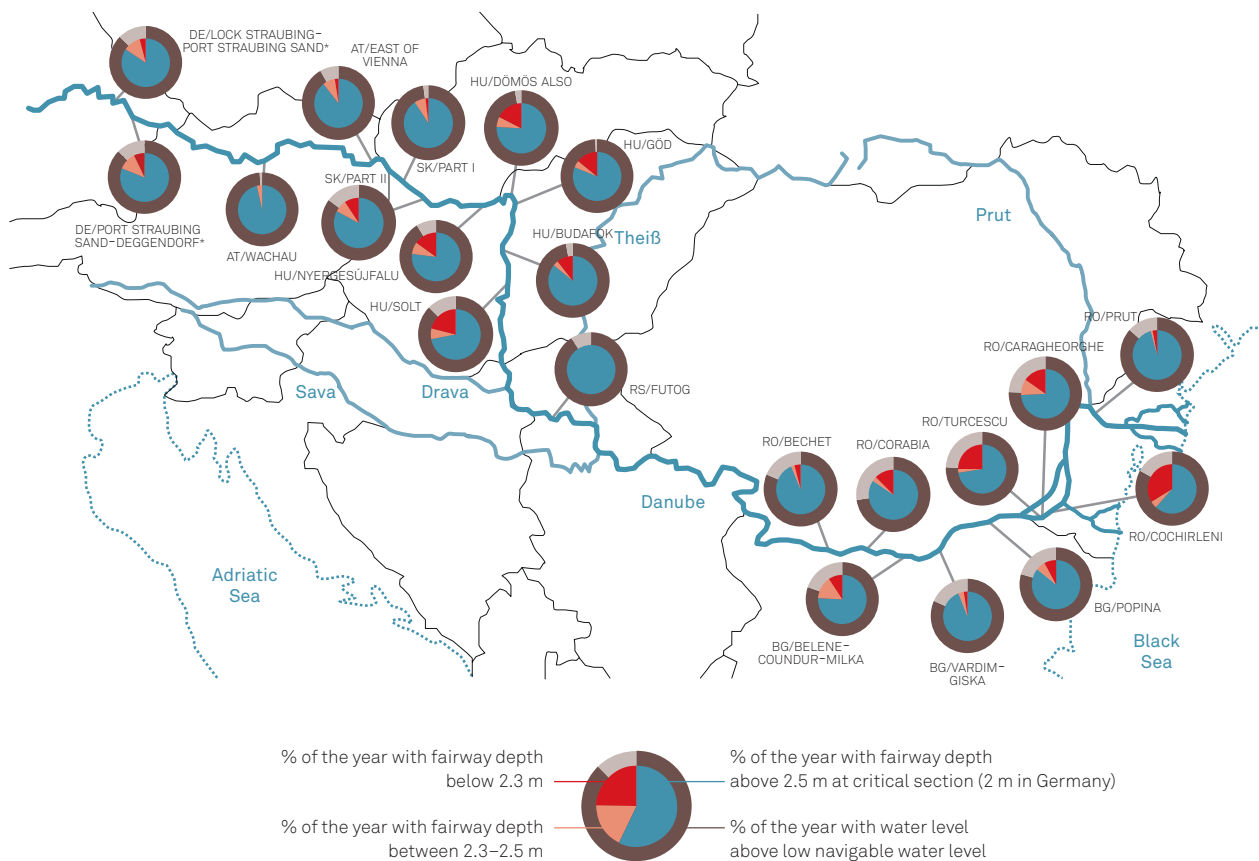
Nevertheless, extensive maintenance dredging and modifications of the fairway channel at least prolonged the period of stable fairway conditions and significantly improved fairway availability during the low water season in summer, especially on the Lower Danube. In Romania and Bulgaria dredging works were carried out in several critical sectors in 2019, amongst others in Bechet (RO), Caragheorghe (RO), Cochirleni (RO), Vardim (BG) and Belene (BG). The most critical location was again Cochirleni (RO), where the minimum fairway depth of 2.5 m was not achieved for 93 days. The „Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries“ adopted in 2014 and the FAIRway Danube project – both coordinated by viadonau – are essential elements in the joint effort to achieve optimal fairway conditions along the entire Danube.

The chart provides a status overview of the most important critical locations on the Danube in 2019. For each critical location, the diagram illustrates the situation regarding fairway availability (inner circle) in relation to reference water levels (outer circle). The maintenance target is to provide fairway depths of 2.5 m on at least as many days per year as the daily average water level exceeds the low navigable water level (LNWL). In the diagram, this situation corresponds to the inner blue circle segment covering the outer dark brown circle. In 2019, this maintenance target was achieved only at some critical shallow sections along the Danube.

It is also important to include depths of just under 2.5 m when interpreting the status of critical sections. These allow slightly restricted navigability, although a depth of 2.5 m is not reached. On some sections of the fairway depths of 2.4 m or 2.3 m (light-red colour in the inner circle) were available on several days.

FIGURES DATA FACTS

Fairway conditions at critical locations along the Danube 2019



* In the free flowing section between Straubing and Vilshofen a fairway depth of 2.5 m is neither developable nor maintainable. In this section the objective is to maintain the fairway depth of 2 m related to Low Navigable Water Level. Depicted values in Germany therefore refer to 2 m fairway depth.

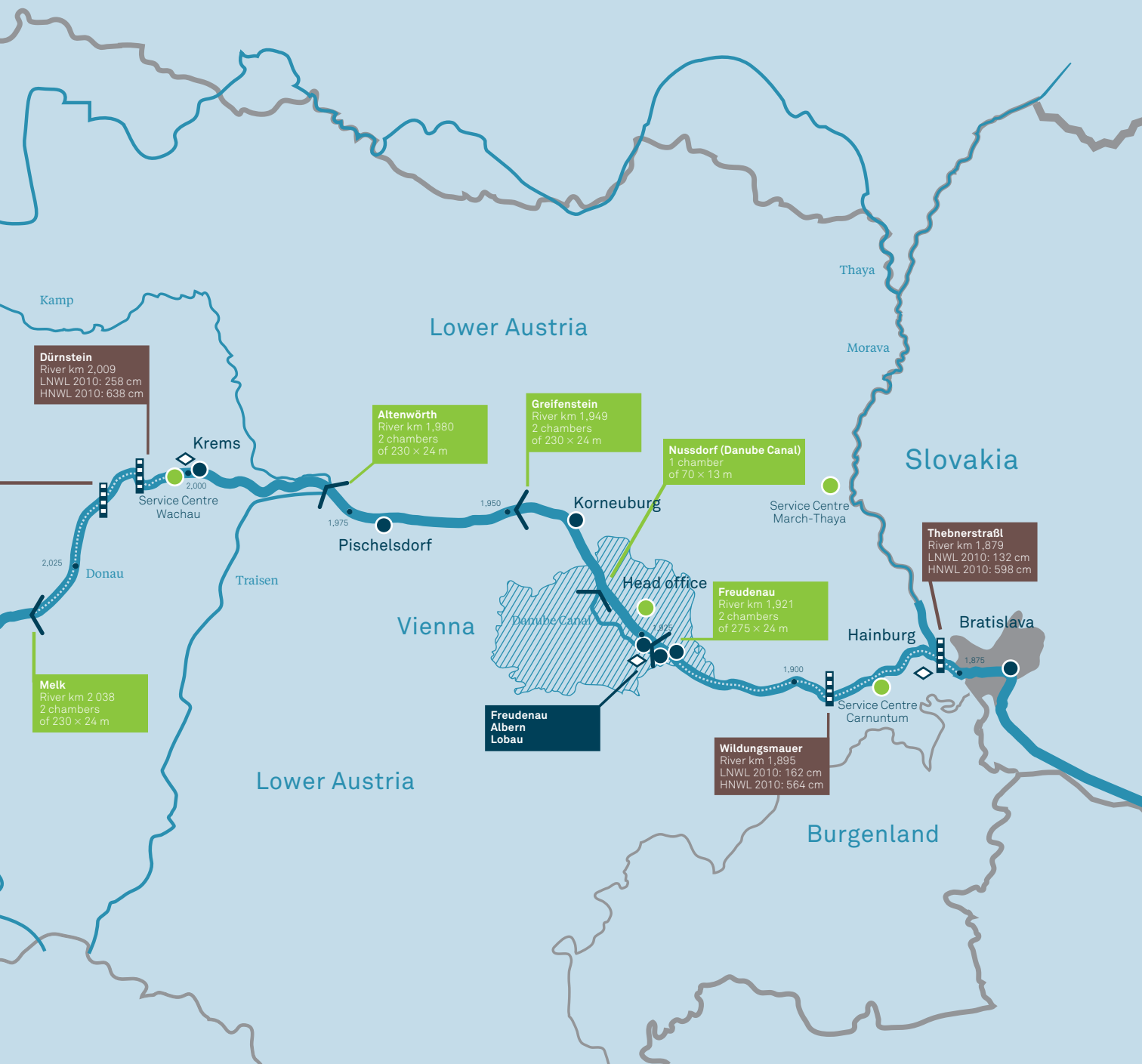
For a detailed interpretation of the chart, reference is made to the "Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries" and the National Action Plan Update May 2020. Individual framework conditions at critical sections need to be taken into account. The severity of the critical sections, along with reasons for failing to meet the maintenance targets, differ and may change over the course of time.

Sources: "Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries" and the National Action Plan Update May 2020, which have been prepared within the framework of the EU Danube Region Strategy (www.navigaton.danube-region.eu) and the FAIRway Danube project. Chart adapted by viadonau.



The Austrian section of the Danube

- | | | | |
|--|-------------------------|--|------------------------------------|
| | Waterway | | Navigation surveillance |
| | Free-flowing stretch | | viadonau Service Centre |
| | Lock | | LNWL Low navigable water level |
| | Important water gauge | | HNWL Highest navigable water level |
| | Port/transshipment site | | |



Imprint

A project within the scope of the BMK Action Programme for the Danube until 2022

Publisher

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Print

Print Alliance HAV Produktions GmbH
2540 Bad Vöslau
www.printalliance.at

© viaddonau 2020



printed according to the Austrian Ecolabel
criteria for printed matter (UZ 24),
Print Alliance HAV Produktions GmbH, UW-Nr. 715

