

# Proactive waterway management Presentation and discussion of activities planned in Austria

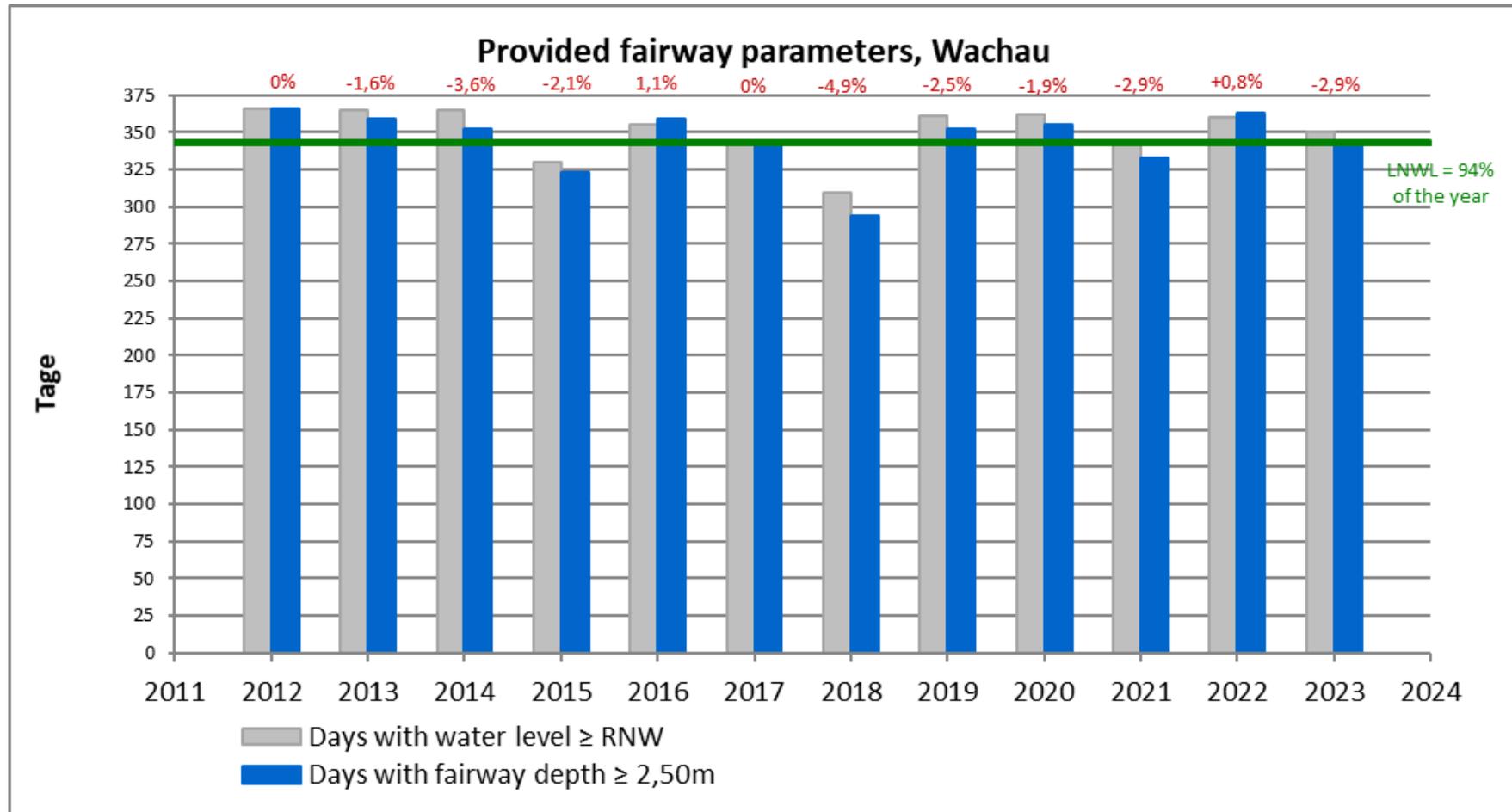


Simon Hartl, Head of Team Waterway Management, viadonau  
Danube Commission, Expert Meeting on Hydrotechnical Issues  
29 February 2024

# Status of main critical sections in 2020-2023

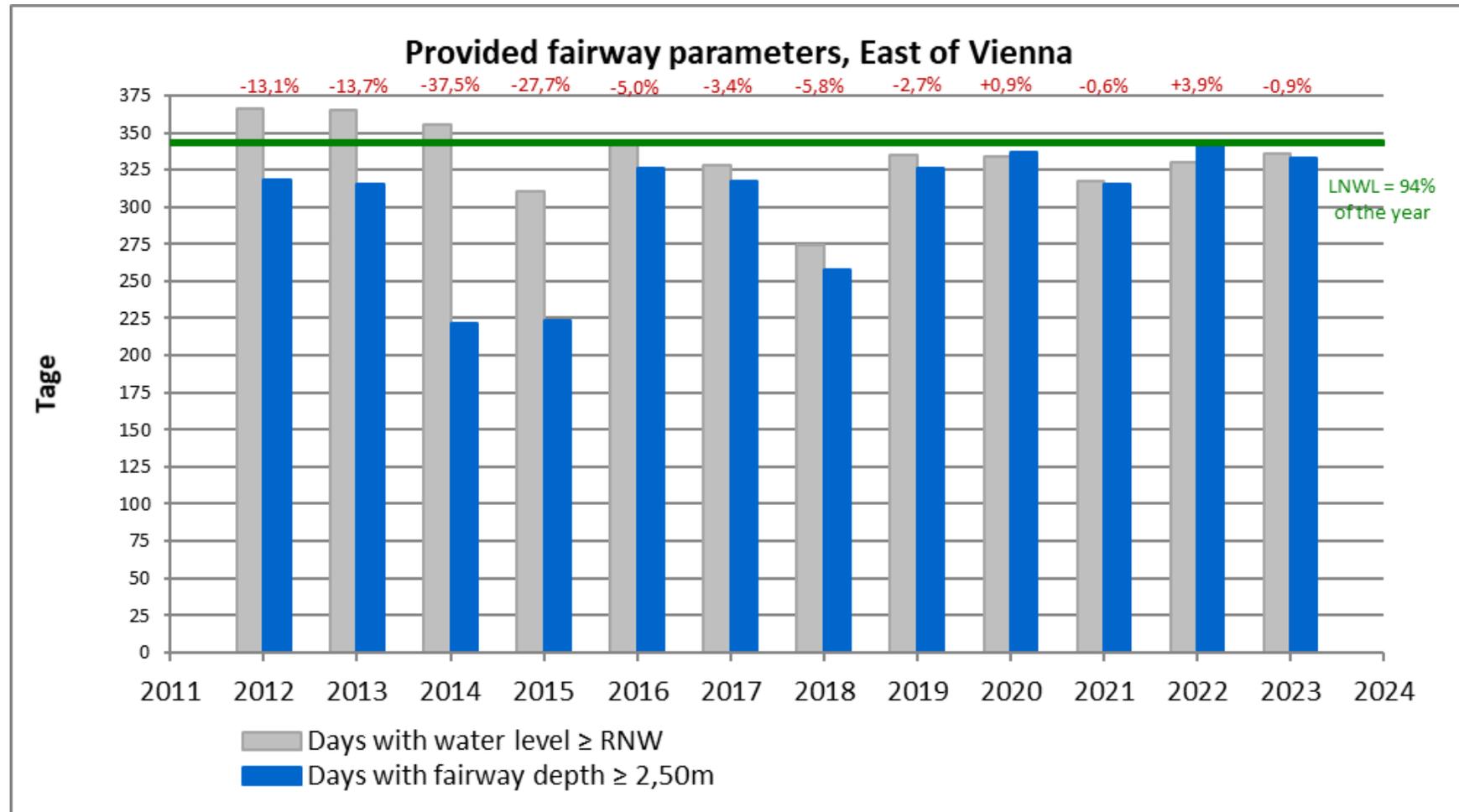
# Status of main critical sections in 2020-2023

- Free-flowing section Wachau (340 days  $\geq$  2,50m fairway depth)



# Status of main critical sections in 2020-2023

- Free-flowing section East of Vienna (333 days  $\geq$  2,50m fairway depth)



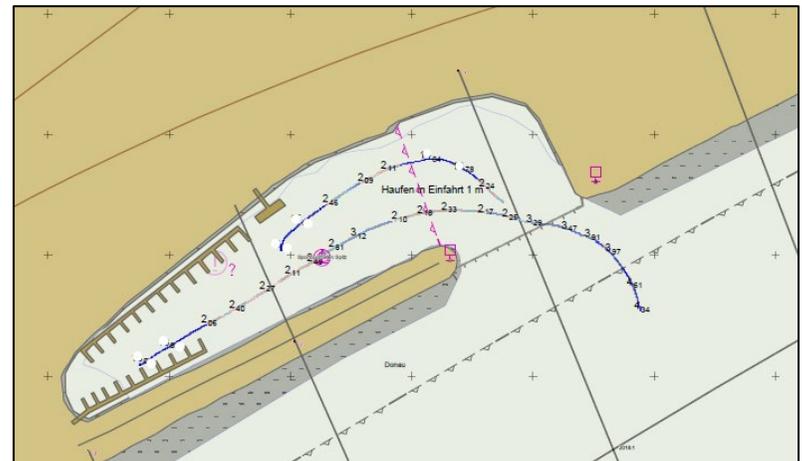
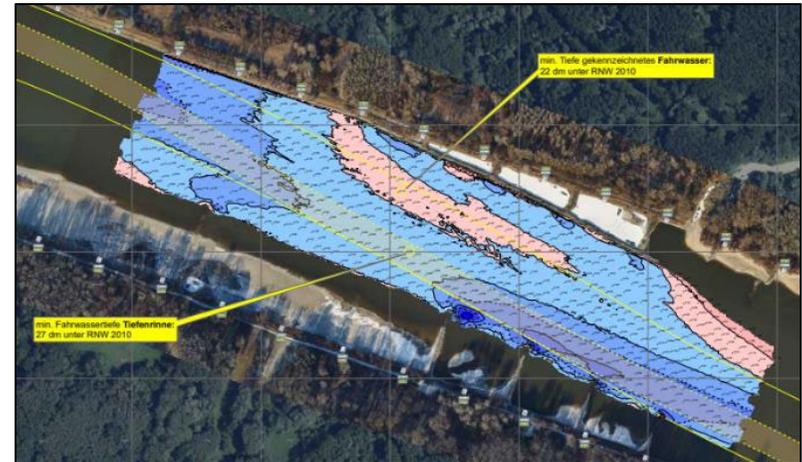
# Re-verification of monitoring, rehabilitation and maintenance activities carried out in 2023

# Monitoring activities 2023

- **Monthly multi-beam surveying** of the most important fords in the two free-flowing sections of the Austrian Danube; publication of results on the "fairway information" page of DoRIS (website and mobile app)
- **Single-beam surveying** of less important fords, lateral fairway sedimentation, mooring sites, and access to public ports

Basic pattern:

- bimonthly in the two free-flowing sections
- biannually in impounded river sections



# Maintenance activities 2023



## Dredging activities 2023 – free-flowing section East of Vienna

Location	River-km	Gravel
Buchenau	1 912.4 – 1 911.5	13 823 m <sup>3</sup>
Fischamündung	1 906.1 – 1 905.1	5 408 m <sup>3</sup>
Regelsbrunn	1 899.0 – 1 897.8	22 546 m <sup>3</sup>
Rote Werd	1 897.2 – 1 895.9	4 574 m <sup>3</sup>
Petronell-Witzelsdorf	1 893.4 – 1 891.7	721 m <sup>3</sup>
Schwalbeninsel	1 890.0 – 1 888.7	4 759 m <sup>3</sup>
Treuschütt	1 888.6 – 1 887.6	12 997 m <sup>3</sup>
Hainburg	1 885.0 – 1 883.9	10 326 m <sup>3</sup>
Port entrances and mooring sites		
Albern	1918.3 – 1918.2	2 579 m <sup>3</sup>
Lobau	1916.6 – 1916.5	1 355 m <sup>3</sup>
Mannsdorf	1906.7 – 1906.6	1 150 m <sup>3</sup>
Bad Deutsch-Altenburg	1886.8 – 1886.6	3 410 m <sup>3</sup>

Maintenance dredging - gravel

**83 647 m<sup>3</sup>**

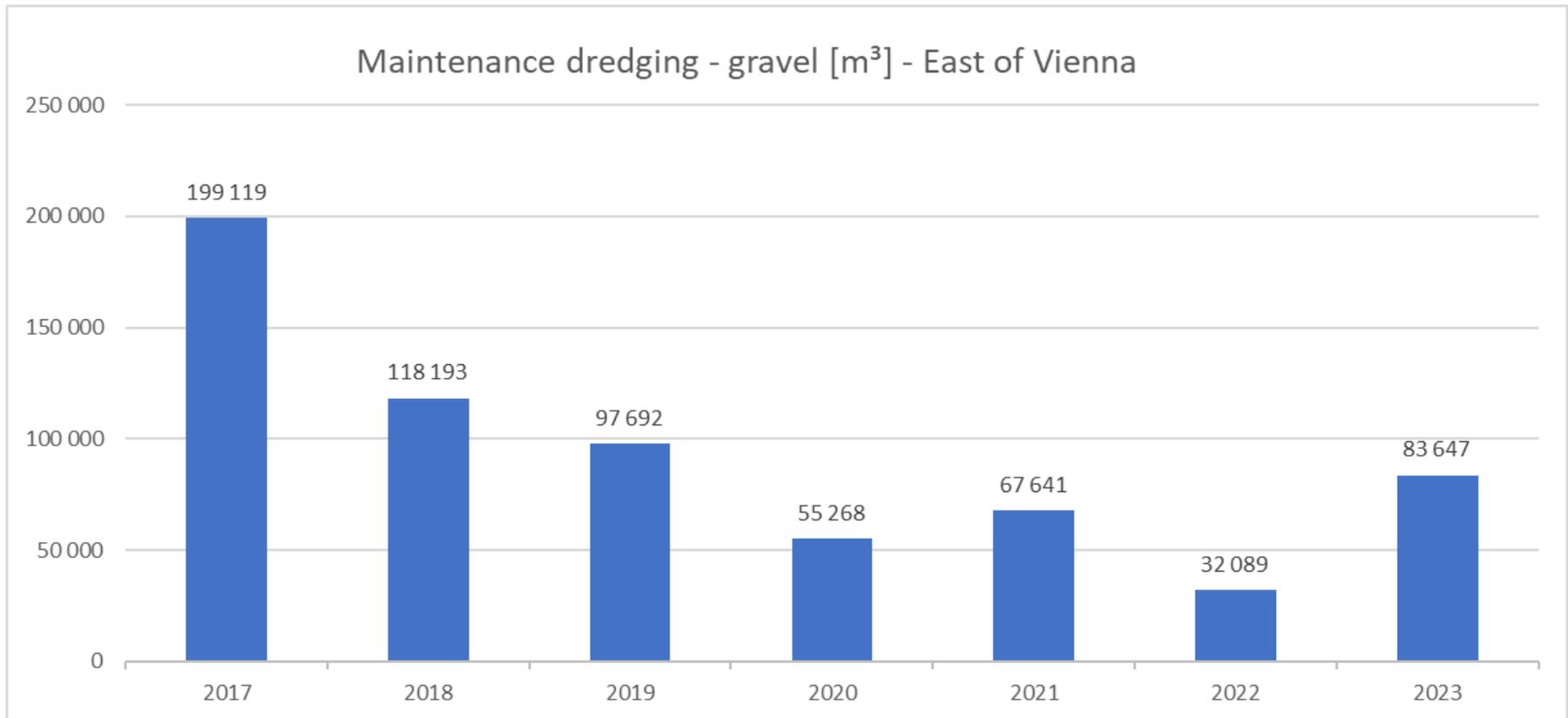
Location	River-km	Gravel
Bedload trap Treuschütt	1 888.4 – 1 887.7	65 937 m <sup>3</sup>
Bedload trap Hainburg	1 885.0 – 1 884.2	40 465 m <sup>3</sup>

Dredging of bedload traps

**106 402 m<sup>3</sup>**

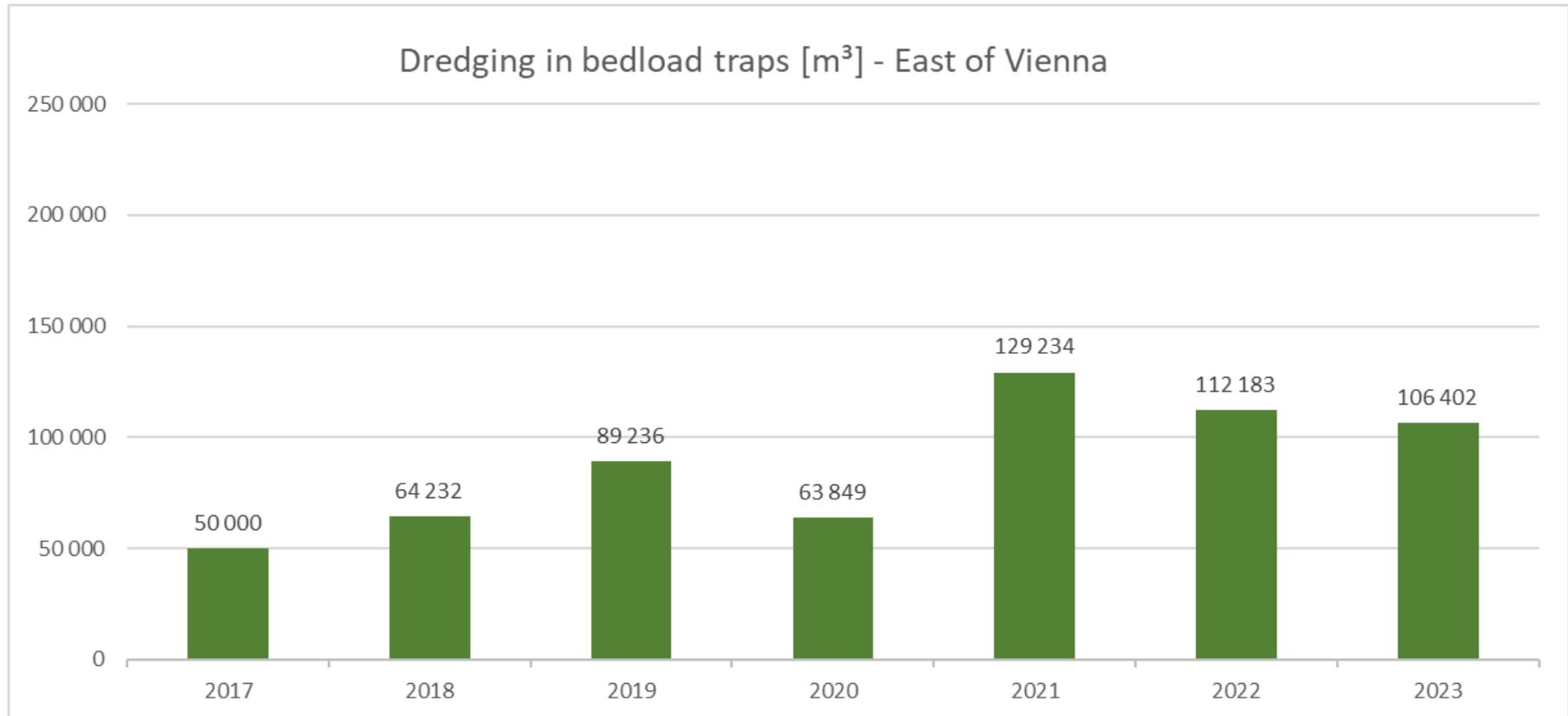
# Maintenance dredging activities 2023

Dredging activities 2017-2023 – free-flowing section East of Vienna



# Dredging of bedload traps 2023

Dredging activities 2017-2023 – free-flowing section East of Vienna



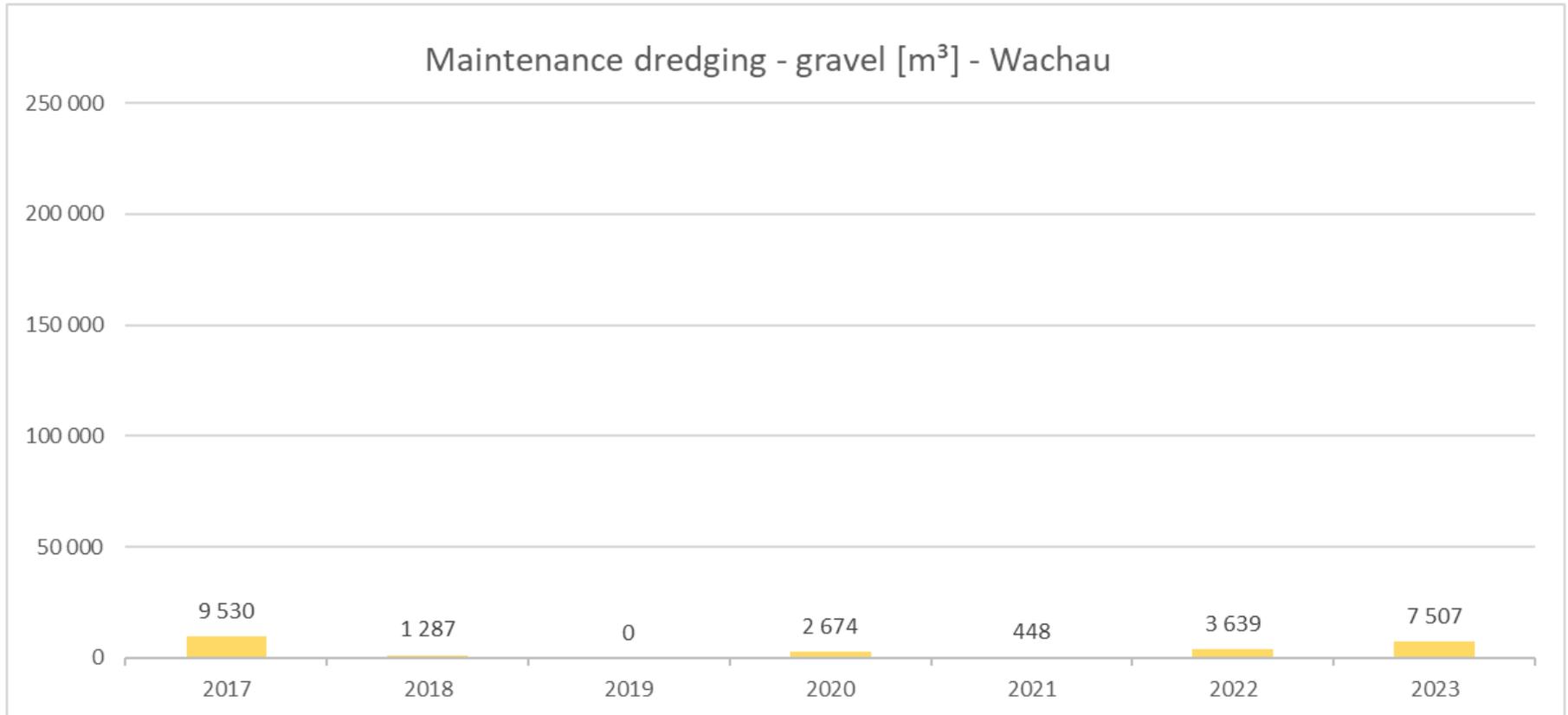
# Maintenance activities 2023

## Dredging activities 2023 – free-flowing section Wachau

Location	River-km	Gravel
Weißkirchen	2014.0 – 2013.5	7 507 m <sup>3</sup>

Maintenance dredging - gravel **7 507 m<sup>3</sup>**

## Dredging activities 2017-2023 – free-flowing section Wachau



# Maintenance activities 2023

## Dredging of fine sediments

Location	River-km	Fine sediment
<b>Port entrances</b> (Cargo ports, ports for public authorities, port for leisure boats)	2 208.4 – 1 886.9	32 896 m <sup>3</sup>

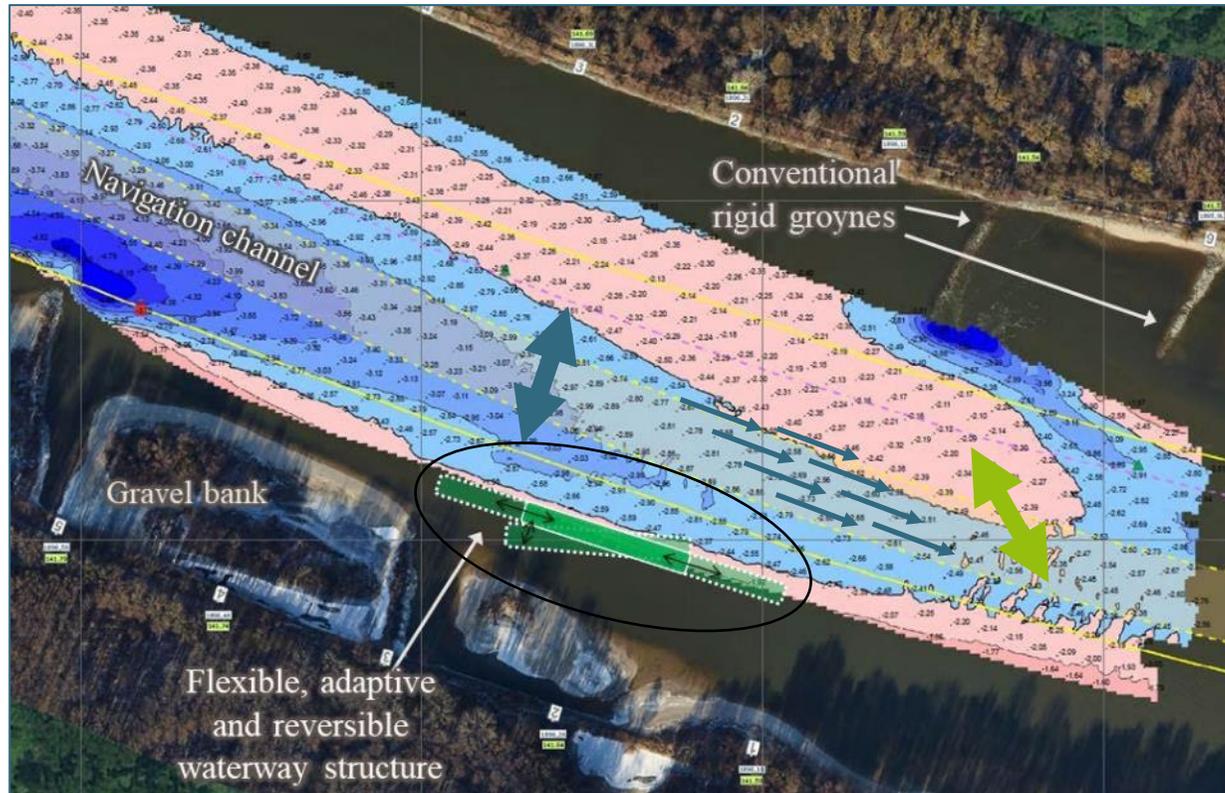
# Planned activities to ensure navigation in 2024

# Planned activities to ensure navigation in 2024

- Activities to be defined in detail until the **dredging briefing session taking place in June/July 2024** in coordination with the Supreme Navigation Authority (well in advance to the low water period)
- **Maintenance dredging (fords):** Up to 80 000 m<sup>3</sup> of gravel in fords in the two free-flowing sections of the Austrian Danube (Wachau and Danube east of Vienna); up to 100 000 m<sup>3</sup> of fine-grained sediment for access to public ports and mooring sites (estimation)
- **Managing of bedload traps:** Dredging and upstream dumping of up to 130 000 m<sup>3</sup> of gravel to mitigate riverbed erosion in the free-flowing section of the Danube east of Vienna; the bedload traps cover the area of two important fords (Hainburg and Treuschütt).

# Planned activities to ensure navigation in 2024

## Flexible infrastructure elements



### Pilot project:

Loaded barges strategically positioned next to shallow sections as a temporary and mobile training wall

**Effects:** narrowed cross-section increases flow velocity and bottom shear stress

**Results:** increased fairway depths for the shipping sector when most needed

## Flexible infrastructure elements

### Status

- Required **permits** were received (water law, navigation law, national park law); approved sites for the pilot: Ford Fischamündung, Ford Rote Werd and Ford Regelsbrunn
- **Anchoring concept** (number, weight, location of anchors) approved by the authority (requirement included in navigational law permit)
- Assignment of **ecological site observation** (requirement included in national park law permit)
- **Start of pilot implementation** in next low water period: barges will be positioned between average water level (AWL) and low navigation water level (LNWL)

# Planned activities to ensure navigation in 2024

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## Flexible infrastructure elements

**Test pilot in Danube countries 2023 – 2027:**  
Implementation in the frame of the project  
„FAIRway Danube II“ in Austria, Croatia, Romania  
and Bulgaria starting in 2024

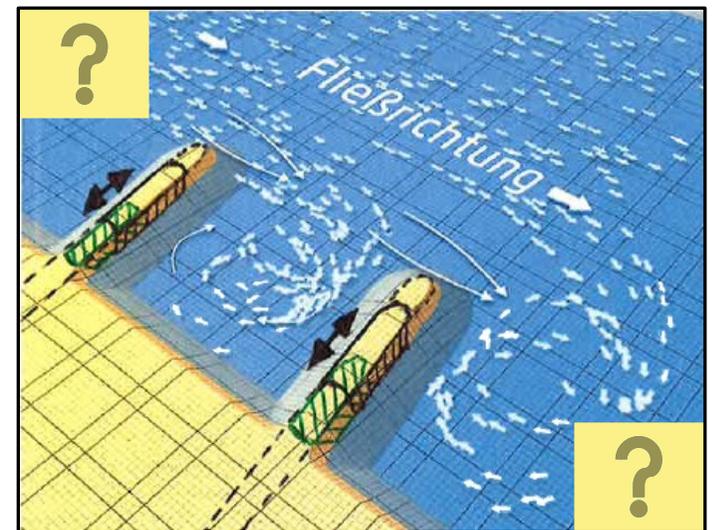
→ international front runner in innovative waterway  
infrastructure management

**Next phase 2027+**  
Move beyond barges to implement modern adaptive  
technology for low water management

**FAIRway** //  
Danube



**Co-funded by  
the European Union**



# Operational expenditures for conducted activities in 2023 and budget needs in 2024

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Need areas	Operational expenditures 2020	Operational expenditures 2021	Operational expenditures 2022	Operational expenditures 2023	Operational budget 2024
Minimum fairway parameters (width/depth) <sup>1,2</sup> (maintenance dredging)	2 158 797	2 209 995	2 452 921	2 566 324	2 211 129
Surveying of the riverbed	879 431	867 800	936 998	1 008 652	1 035 106
Water level gauges	1 048 584	1 007 054	1 119 734	1 253 557	1 277 871
Marking of the fairway	625 853	682 465	726 780	535 389	720 327
Availability of locks / lock chambers <sup>3</sup>	-	-	-	-	-
Information on water levels and forecasts	78 935	58 299	52 938	46 208	48 257
Information on fairway depths <sup>4</sup>	-	-	-	-	-
Information on marking plans	-	-	-	-	-
Meteorological information	-	-	-	-	-
Other needs	-	-	-	-	-
<b>Sum (Euro)</b>	<b>4 791 600</b>	<b>4 825 613</b>	<b>5 289 371</b>	<b>5 410 130</b>	<b>5 292 690</b>

Costs for dumping dredged material upstream	1 619 884	1 048 460	1 650 345	1 702 817	1 752 229
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1 This amount includes only dredging expenditures, not the additional expenditures resulting from dumping the excavated material further upstream.

2 Costs resulting from the dumping of excavated material further upstream.

3 In Austria, the Verbund Hydropower AG is responsible for maintaining the lock infrastructure (revisions). viadonau has no expenditures in this area.

4 Information on fairway depths is provided on the DoRIS website (<http://www.doris.bmk.gv.at/>) and the DoRIS mobile App (roughly EUR 700 000 p.a. in total). Since many other services are provided as well (e.g. bridge clearance), the specific expenditures and budget needs for information on fairway depths cannot be displayed separately.

# Team Waterway Management

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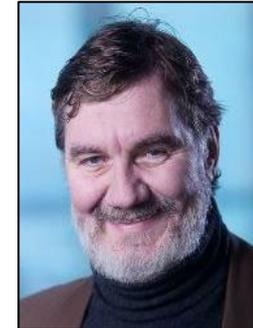


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