

Danube east of Vienna

Navigation issues and other insights

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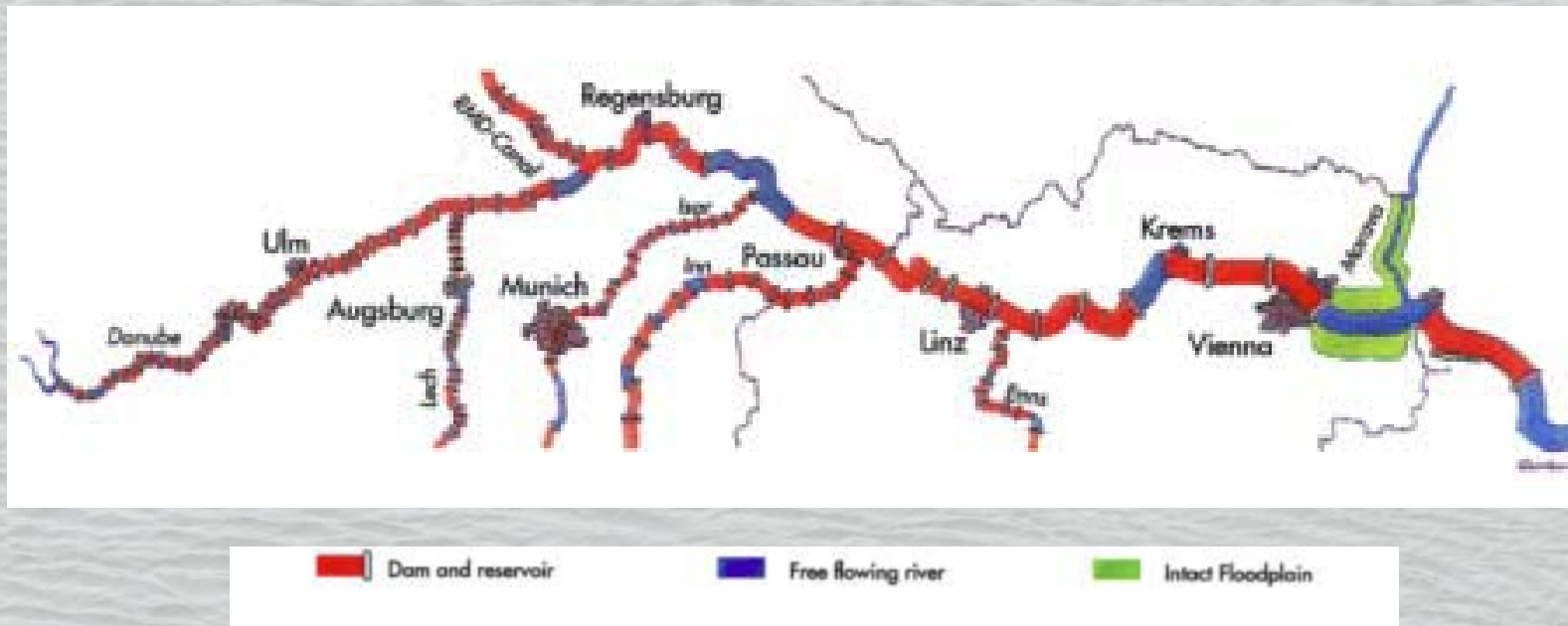
RUSE, October 1st/2nd 2009



Austrian Danube

10 hydrodams

2 free flowing sections (Wachau 35 km,
Vienna-Bratislava stretch 47 km)

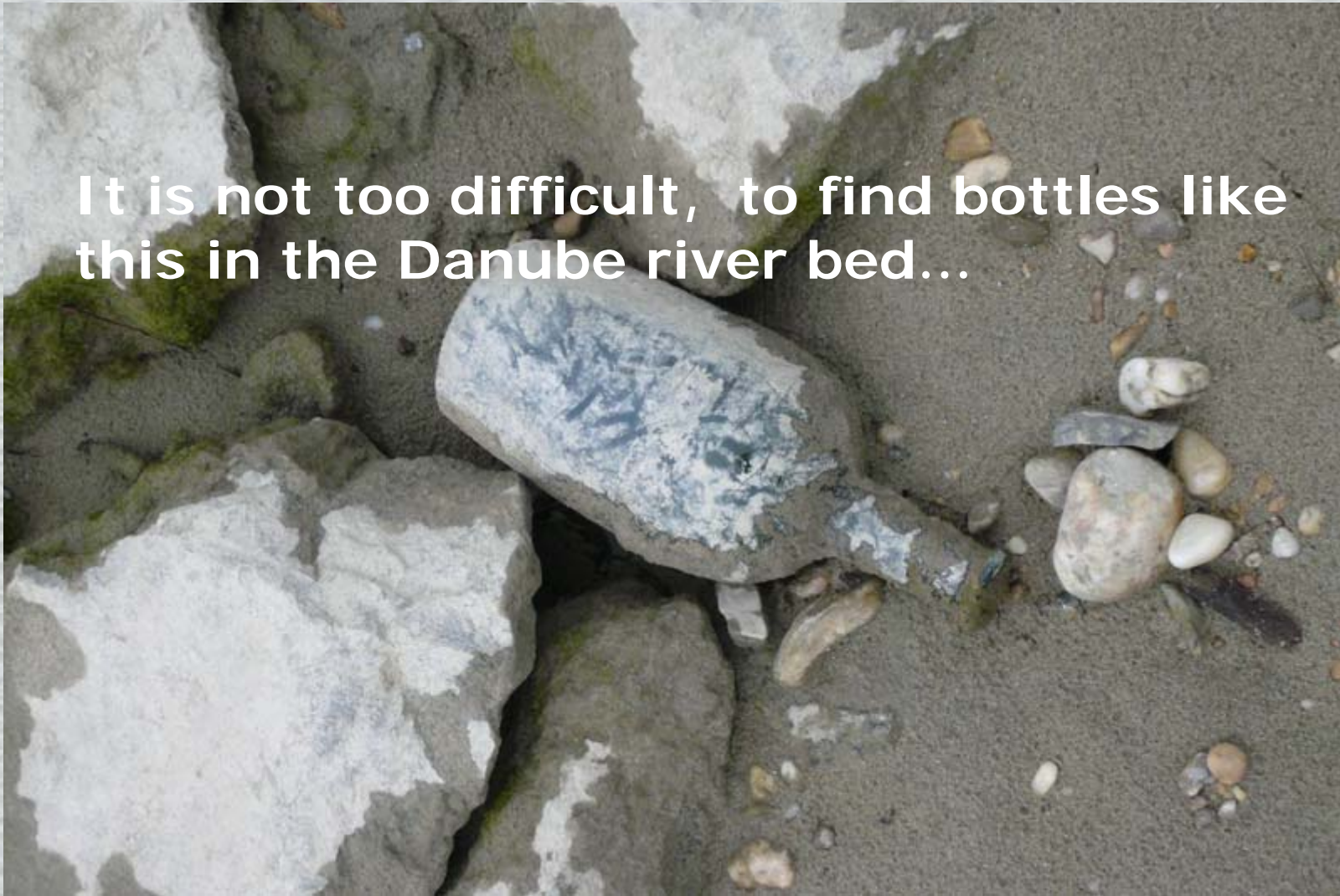


An aerial photograph of a wide river at dusk or dawn. The river curves from the upper left towards the lower right. In the distance, a tall, slender cable-stayed bridge spans the river. The banks are lined with dense green trees. On the left bank, a small town with red-roofed houses is visible. Several boats are on the water: a large white ferry is moving away from the viewer in the lower center, and a long, dark barge is moored on the left bank. The sky is a pale, hazy orange, and the overall scene is peaceful.

NAVIGATION

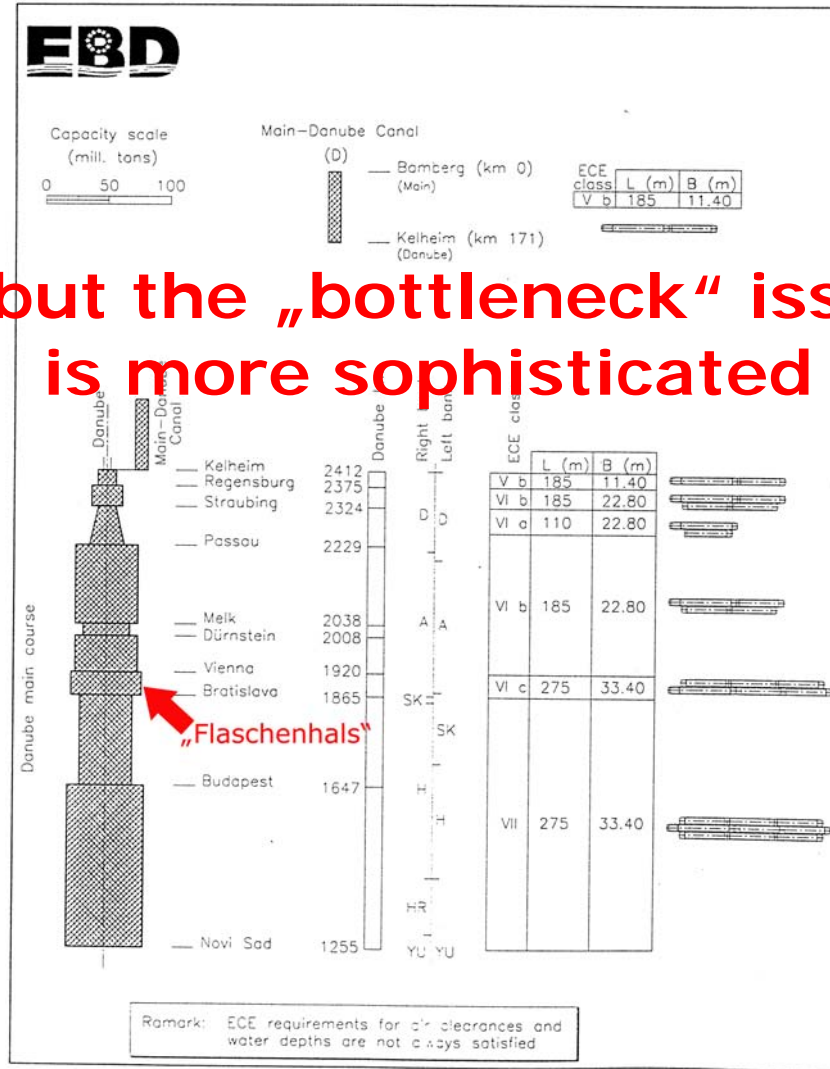
Bottles

It is not too difficult, to find bottles like this in the Danube river bed...



„Bottlenecks“

Figure 2.1a:
Schematic review of the Danube waterway capacity from km 2412 to km 1255



...but the „bottleneck“ issue
is more sophisticated

The simple picture

Danube east of vienna is a bottleneck in terms of LNRL depth

Minimum depths as the basis

Ships are always using maximum draught available

Higher draught gives better cost/tonne ratio

River engineering to increase depth is the way to improve navigation

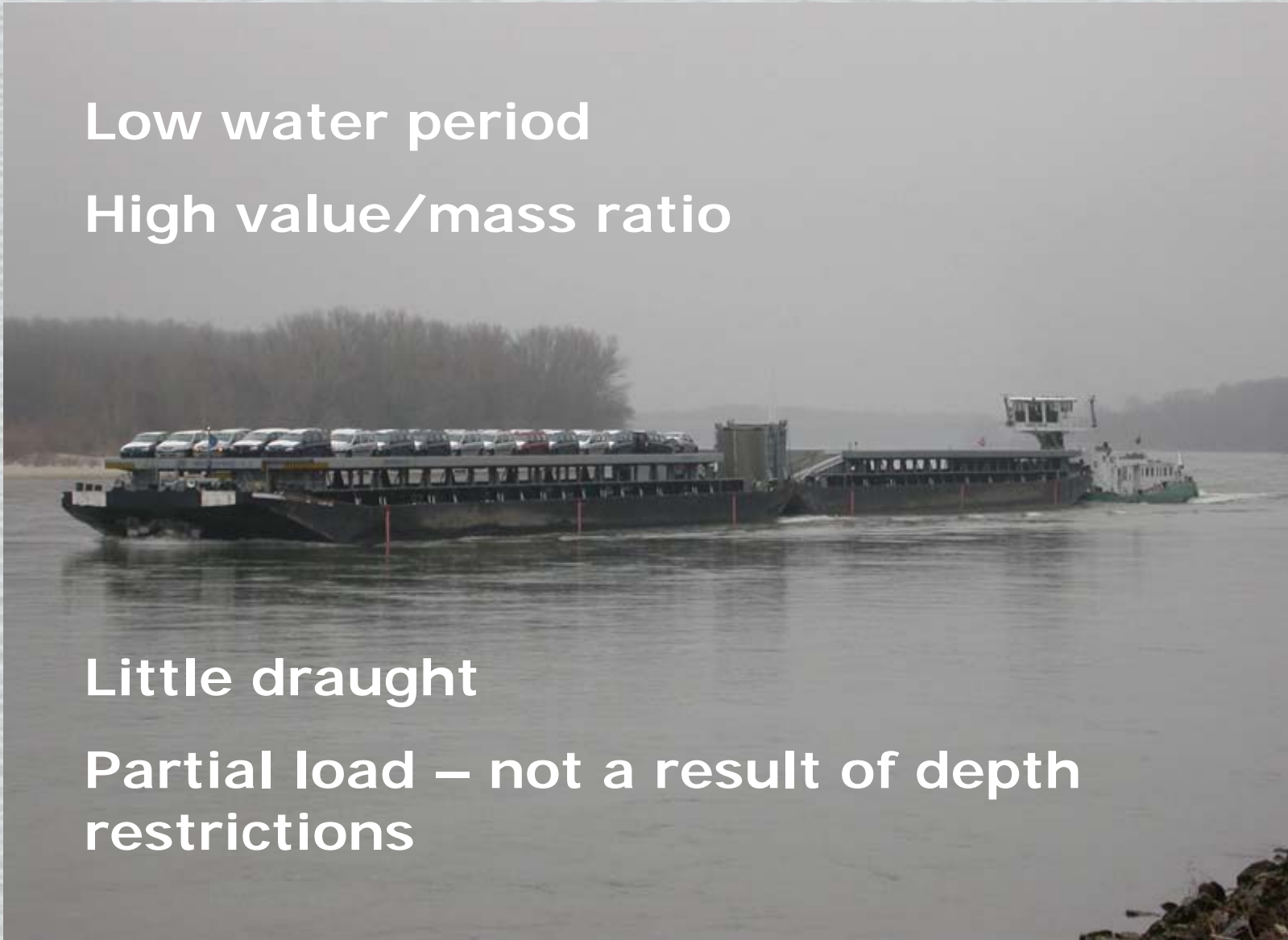
Case 1: Ro-Ro vessel convoy

Low water period

High value/mass ratio

Little draught

Partial load – not a result of depth restrictions



Case 2: Convoy of three pushed barges



Convoy draught indicator and situation

November 2008

LNRL depth

„Current Status“: claimed to be 2,5 m

LNRL depth real: 1,9 m

Depth on specific day : 1,85 m

Draught of barges: 2,1 m!

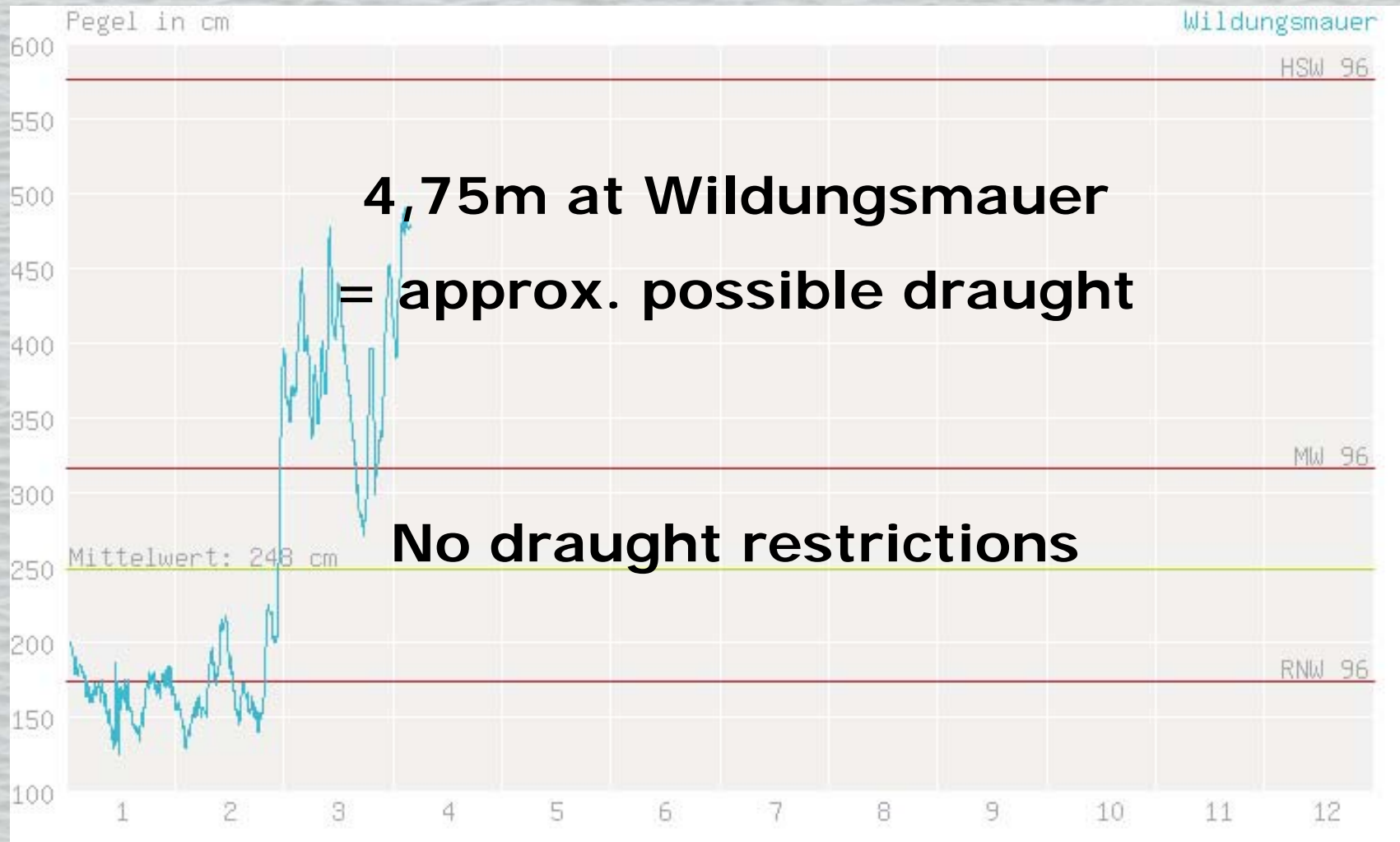
Available „minimum depth“ exceeded!

MILLIREHM

Navigation signs (Hainburg)



Case 3: April 2009



Data and graphics: via donau

Pushed barge - level above middle water

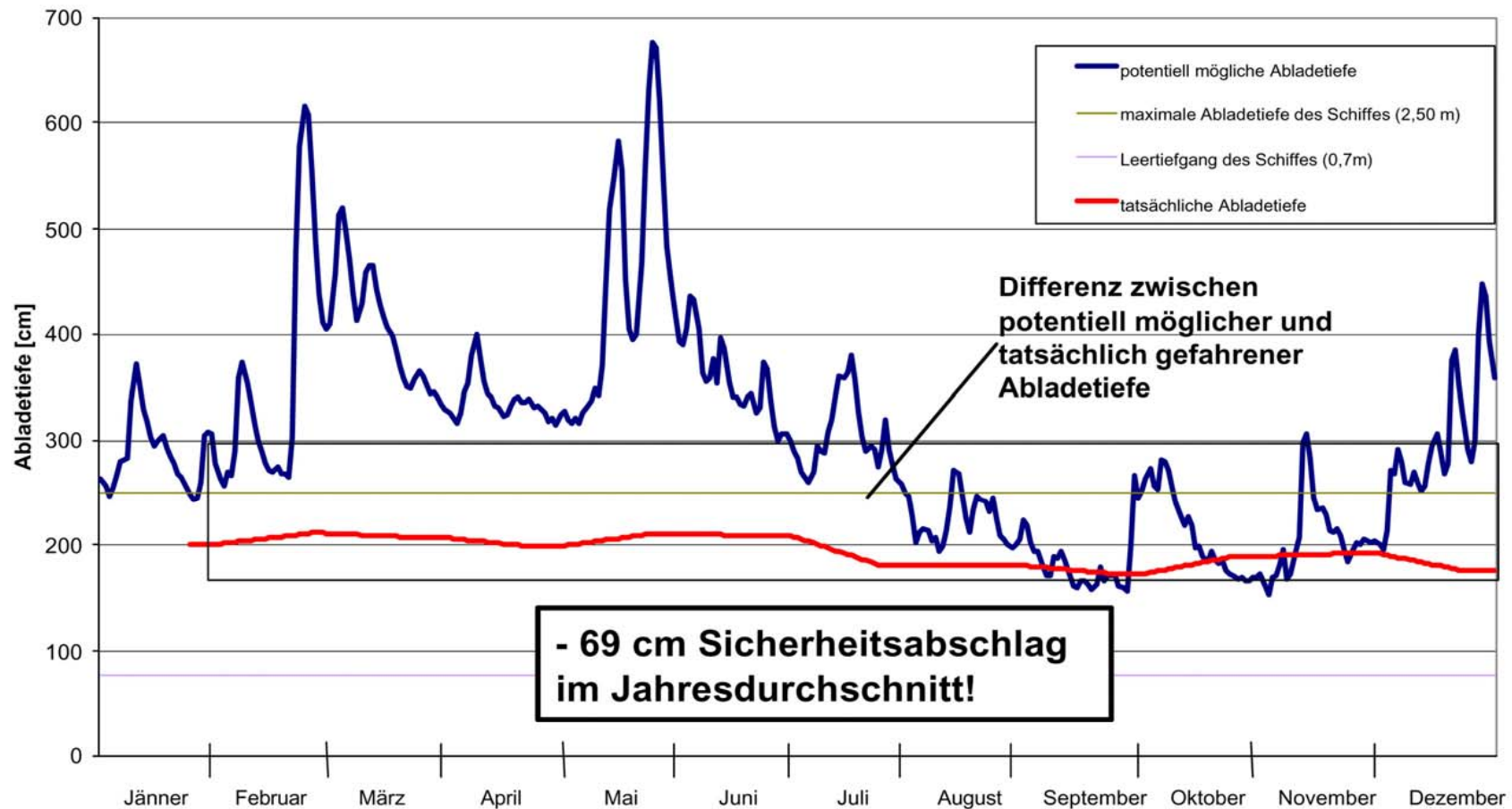


4,5 m available - still only 2,1 m draught



Unsicherheiten hinsichtlich der Wasserstandsprognosen Obere Donau (2)

Vergleich potentieller Abladetiefe zu tatsächlicher Abladetiefe im
Langstreckenverkehr 1999



Draught discrepancies

Available draughts are not always used due to:

- Uncertainty, limited range of prognosis

- Technical limits

But also:

- Demand not given

Conclusion: Significant shares of additional depths offered by navigation projects won't be used

Case 4: Are peaks used?



Data and graphics: via donau

Case 4: Convoy of 2 pushed barges



Full draught 2,7 m



Summary for navigation „East of Vienna“

Free capacities

Skippers act more flexible than theoretical concepts

Usability and usage also in low water periods

„LNRL-minimum depth“ status:

(legal 2,5 m , claims for existing 2,2 m; de facto 1,6 to 2,1 m, most of the time 1,9 m)

WHAT'S NEW

Navigation project

Title: „Flussbauliches Gesamtprojekt“

includes:

2,6/2,7/2,8 LNRL formula (3,6 intrinsic)

„Granulometric bed improvement“ (?)

Connection of side branches (+)

Removal of embankments (+)

What's new?

Navigation conditions different

Wrong analysis of river bed incision ⇒
doubtful method of river bed-stabilization

May cause problems (groundwater,
organisms)- clogging misunderstood

Scientific input ignored

There is an unresolved fine sediment problem

Re-raising of water levels is limited – project
creates obstacles for future improvements

What's new?

There are conflicting ecological target's and requirements the project does not deal with properly

Requires more focus on time table and running order

Planning quality and databasis not sufficient

EIA still ongoing (started in 2006)

Problems caused by misoptimizations (decided 2004) the basic fundament of the project

Conclusions

Good ambitions (assumed at least partially)
necessity of a project (consensus)

⇒ does not guarantee high planning quality
and an overall good project

Austrian NGO's

see the need for significant improvements
ask for fundamental changes, based on
new insights



THANK YOU FOR YOUR ATTENTION!

Wolfgang Rehm

Ruse, September 2009