



R.M. Frings, 2021

Joint Sediment Initiative - Meuse

Proposal for a cross-boundary sediment study in the Meuse Basin

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Proposal for a cross-boundary sediment study in the Meuse Basin

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Relevance

Importance – Bedeutung – Belang

The Meuse is a dynamic river

constantly reshaping its channel by the processes of erosion and sedimentation



The cuesta
landscape of the
Paris Basin
(near Neufchâteau, F)

The Meuse is a dynamic river

constantly reshaping its channel by the processes of erosion and sedimentation



The Meuse valley
in the Ardennes
(near Freÿr, B)

The Meuse is a dynamic river

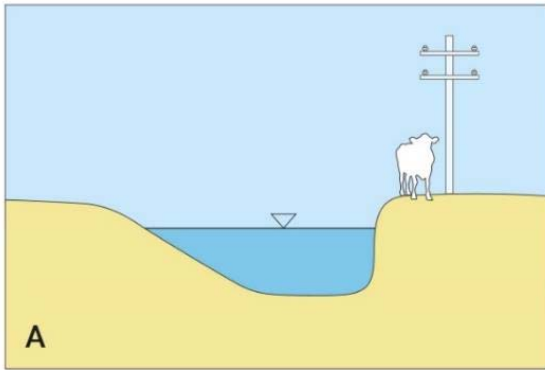
constantly reshaping its channel by the processes of erosion and sedimentation



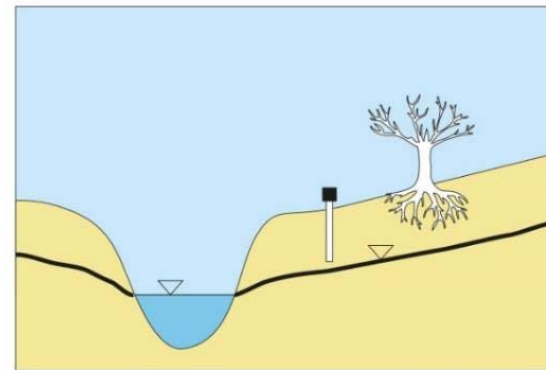
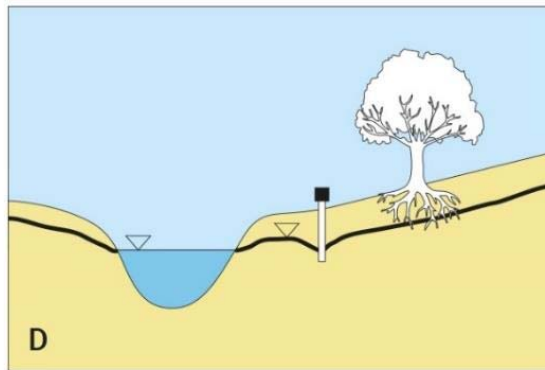
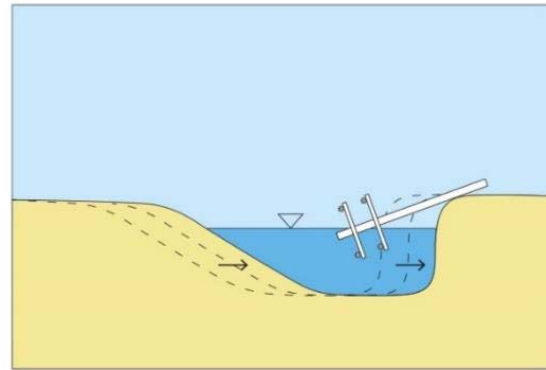
The Meuse delta
(Province of Brabant, NL)

Problems due to erosion

Before



After

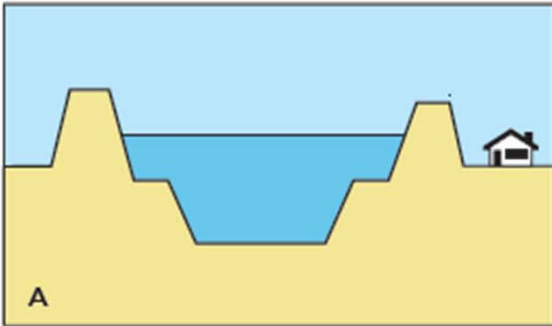


Fritzsche, 2021

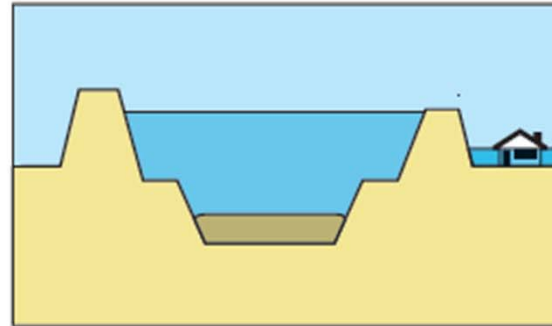
1. Loss of land
2. Damage to infrastructure
3. Falling groundwater levels
and there is much more...

Problems due to sedimentation

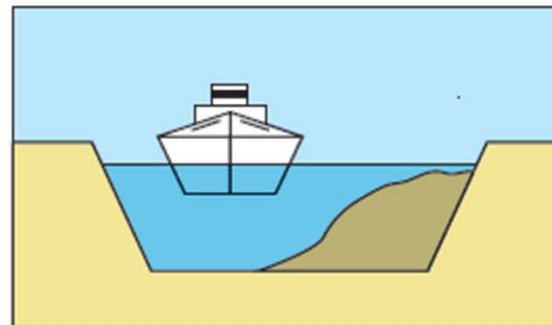
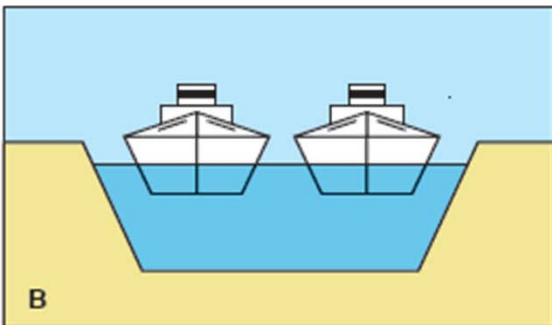
Before



After



1. Flood risk

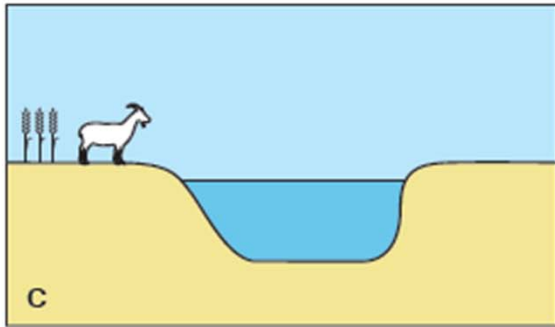


Friings, 2021

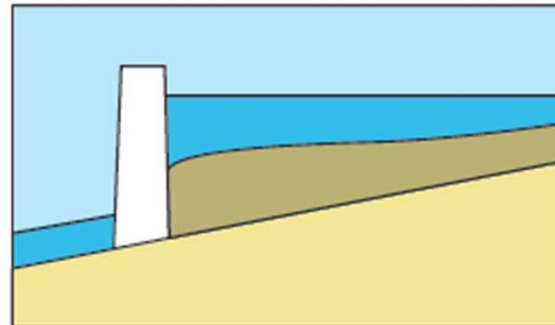
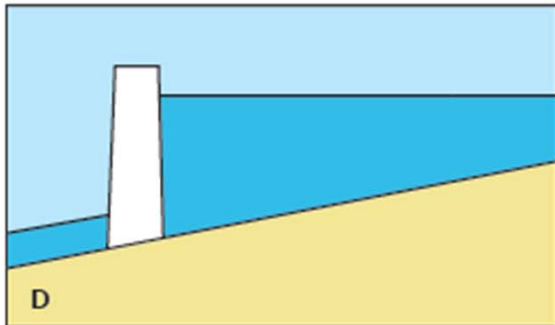
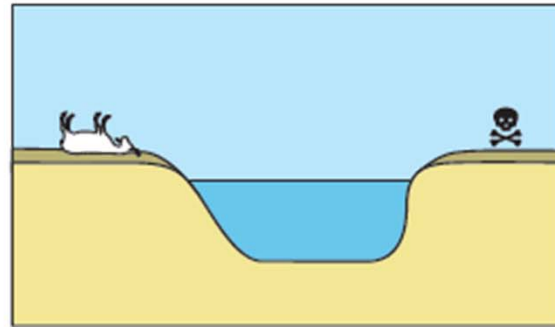
2. Hindrance for navigation

Problems due to sedimentation

Before

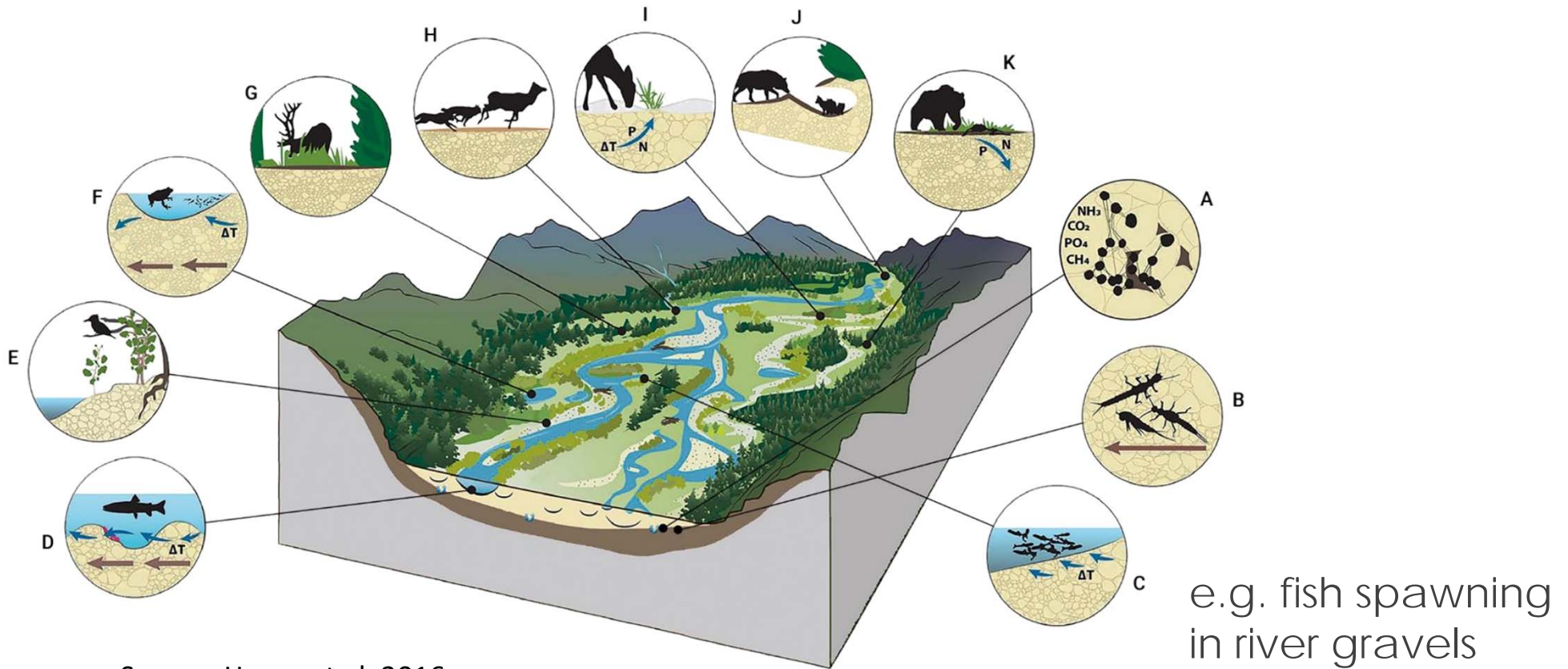


After



Fritzsche, 2021

The ecological need for erosion and sedimentation



Source: Hauer et al. 2016

Our vision

Vision – Vision - Visie



It is time for new forms of river management

If we wish to continue utilising the riches offered by the river, to fight the threats of the river effectively and to halt the regression in biodiversity:

River management must be (1) integrated, (2) sustainable and (3) river basin-wide

(International Meuse Commission, 2002: Treaty of Ghent)

→ For water *and* sediment



Why?

- Better river management
- Cost reduction
- Fits within EU's strategic aims/programmes

E.g., sustainability, climate adaptation, WFD, Natura2000, Green Deal, Floods directive

Objective of this idea

Objectif – Ziel - Doel

Objective

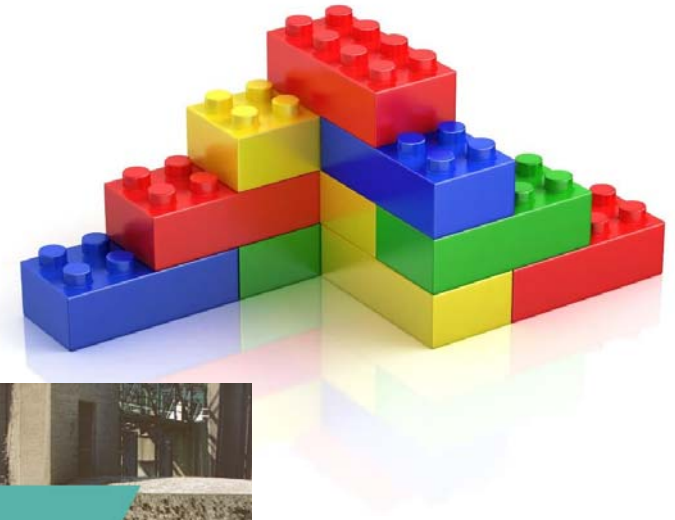
To get insight in
the sediment dynamics of the Meuse
on the basin scale

and to understand the influence of
humans and climate thereon

→ *by bringing together existing knowledge*



Valuable building blocks



L'étude sédimentaire - Mission
"Connaître le fleuve"



Une étude sédimentaire pour anticiper...



Rijkswaterstaat



EPAMA

Research questions

- How much sediment is moving?
- What grain size fractions are involved?
- Where does the sediment come from?
- Where is it going?
- How will climate change affect the processes of erosion and sedimentation?
- What will be the effect on biodiversity, flood safety and the human use of the river?
- What is the effect of human interventions such as dams, weirs, dredging, bank and bed protection and water extraction?



U. Wuchner

Working packages

Paquets de travail – Arbeitspakete - Werkpakketten

Working packages (first ideas)

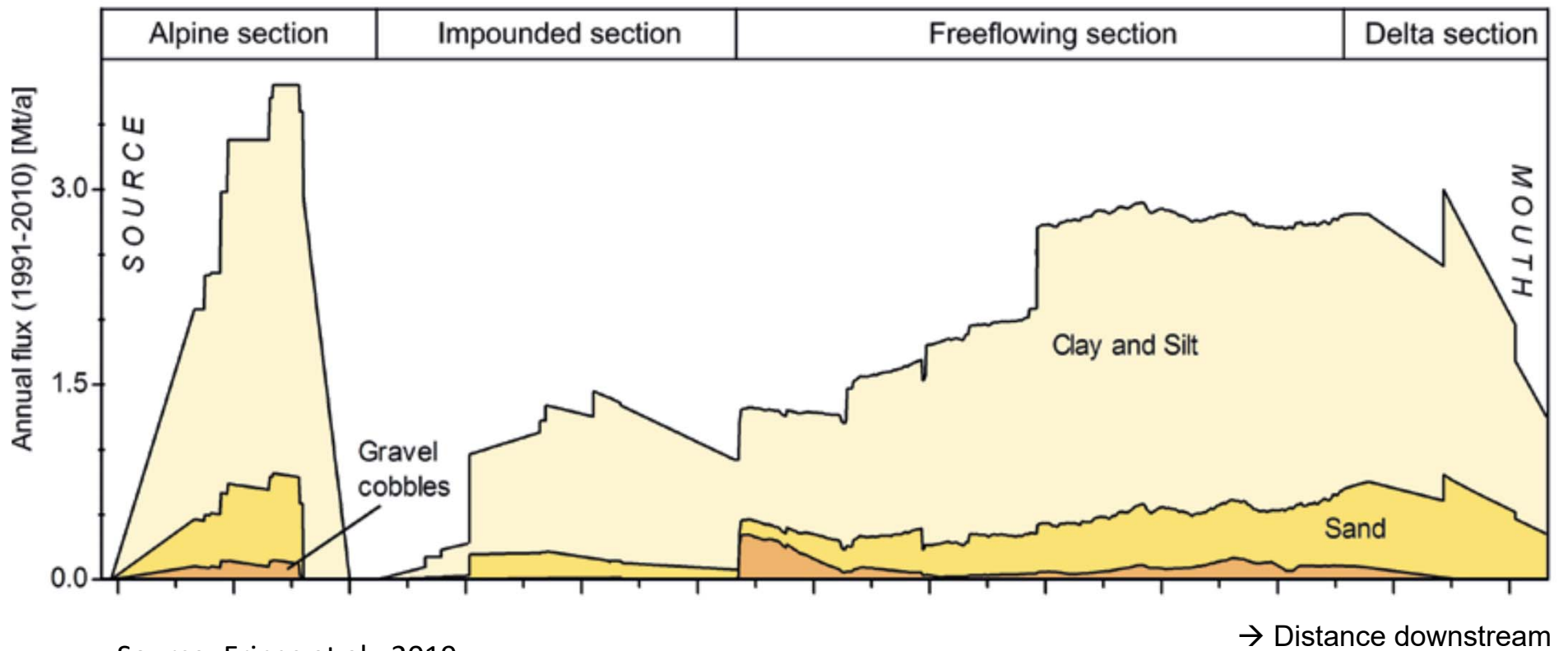
1. Basin-wide overview of **bed level changes**
2. Quantification of the **fluxes** of mud, sand, and gravel
3. Identification of the **sources and sinks** of the sediments (sediment budgeting)
4. Unravelling the **effects of climate and humans**
5. Identification of **knowledge gaps** (setting a research agenda)
6. Inventory of suitable **management options**



Examples from other rivers

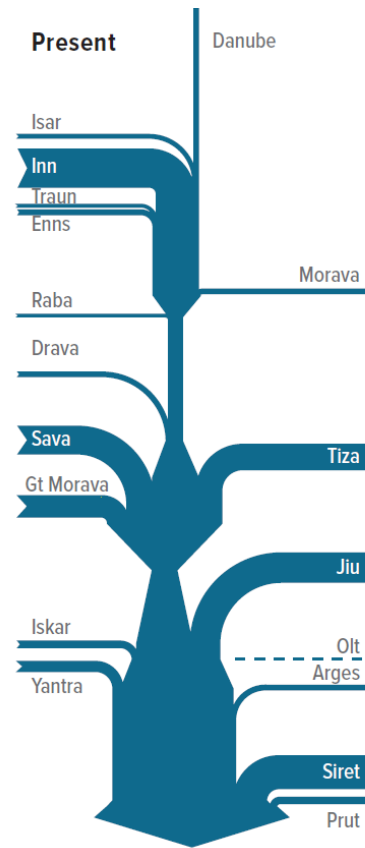
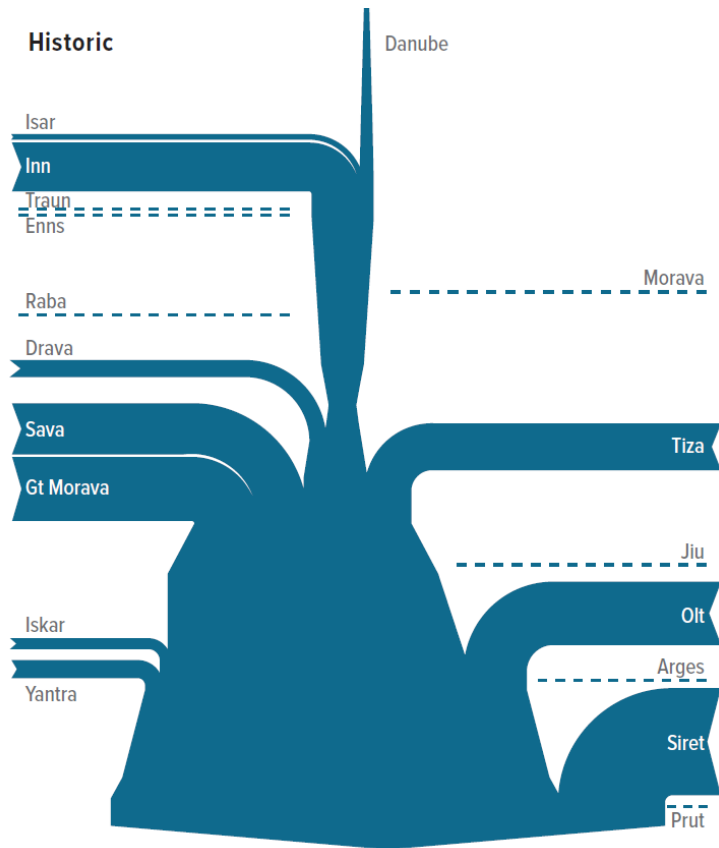
Exemples – Beispiele - Voorbeelden

Rhine



Source: Frings et al., 2019

Danube



Source: DanubeSediment,
<http://www.interreg-danube.eu/approved-projects/danubesediment>

International sediment management plans



Danube

THE SEDIMENT MANAGEMENT CONCEPT OF THE ICPEP

Recommendations for a good sediment management practice in the Elbe

All over the world, river basins are under pressure from human activities that affect their chemical and ecological statuses and exhaust available

are a share in the catchment are share of at least 10% of the susp

Elbe

Merci – Vielen Dank – Bedankt!

Ir. Hermjan Barneveld
Dr. Benjamin Dewals
Dr. Roy Frings

Wageningen University (NL)
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Rijkswaterstaat (NL)



Le tripoint Récourt
24 Juin, 2021

What do you think?

Please fill in the poll in the chat!



Le tripoint Récourt
24 Juin, 2021