

Surface screens for maintenance of side channels

Oostdijk, Tom; Mosselman, Erik

Publication date

Document Version Final published version

Citation (APA)

Oostdijk, T., & Mosselman, E. (2019). *Surface screens for maintenance of side channels*. Poster session presented at NCR Days 2019, Utrecht, Netherlands.

Important note

To cite this publication, please use the final published version (if applicable). Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Please contact us and provide details if you believe this document breaches copyrights. We will remove access to the work immediately and investigate your claim.





Deltares Delta Life

Introduction

Floating surface screens could offer an attractive method for sediment management in the numerous side channels of the Dutch Room-for-the-River programme. The screens would remove undesired sedimentation or mitigate bank erosion without the heavy machinery that might disrupt the local ecosystem.

Surface screens

for maintenance of side channels



Thomas H. Oostdijk & Erik Mosselman (Delft University of Technology and Deltares)

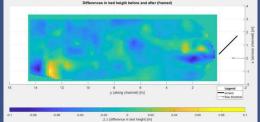
Method

- Design and construction of floating surface screen with adjustable depth of penetration into the water
- Mounting of screen on barges, attached to the banks using chains
- Field experiments in side channel of Welsumerwaard floodplain along the IJssel River
- Measurements: GPS on a pole for bed topography; current meter for flow velocities; frame with small flags for flow directions; balance spring scale for chain forces
- Eight (8) experimental runs from 18 to 28 June, 2018, with different orientations and penetration depths



Results

Bed elevation differences before and after Run 5



Settings	of experimental	runs

Penetration	Angle	Position
(%)	(deg)	
30	+20	centre
70	+25	centre
75	+40	centre
75	-40	centre
70	-45	centre
50	-45	centre
50	-45	centre
50	-45	bank
	(%) 30 70 75 75 70 50 50	(%) (deg) 30 +20 70 +25 75 +40 70 -45 50 -45 50 -45

Conditions of experimental runs

Run	Duration	IJssel	Channel
	(h)	discharge	depth
		(m³/s)	(m)
1	16.0	370	1.30
2	14.5	363	1.25
3	16.3	350	1.10
4	16.8	348	1.06
5	18.8	324	0.88
6	16.1	312	0.82
7	29.1	303	0.76
8	18.0	292	0.71

Conclusions

- Effects on flow and bed topography, despite unfavourable low discharges
- Further upscaling to be sought in a larger number of screens with longer durations, rather than in larger screens



Recommendations

Carry out a next field experiment with:

- a larger number of screens
- longer durations

Design the next field experiment to meet a predefined channel maintenance objective

Reference

Oostdijk, T.H. (2018), The influence of surface screens on morphology in side channels; An experimental study. Delft University of Technology, MSc thesis, November 2018, Delft, The Netherlands.