Rivers as Plastic Reservoirs

Tim van Emmerik, Yvette Mellink, Rahel Hauk, Kryss Waldschläger, and Louise Schreyers

Hydrology and Quantitative Water Management Group, Wageningen University, the Netherlands

WAGENINGEN
UNIVERSITY & RESEARCH

@TimVanEmmerik | tim.vanemmerik@wur.nl

Many rivers emit plastics into the ocean

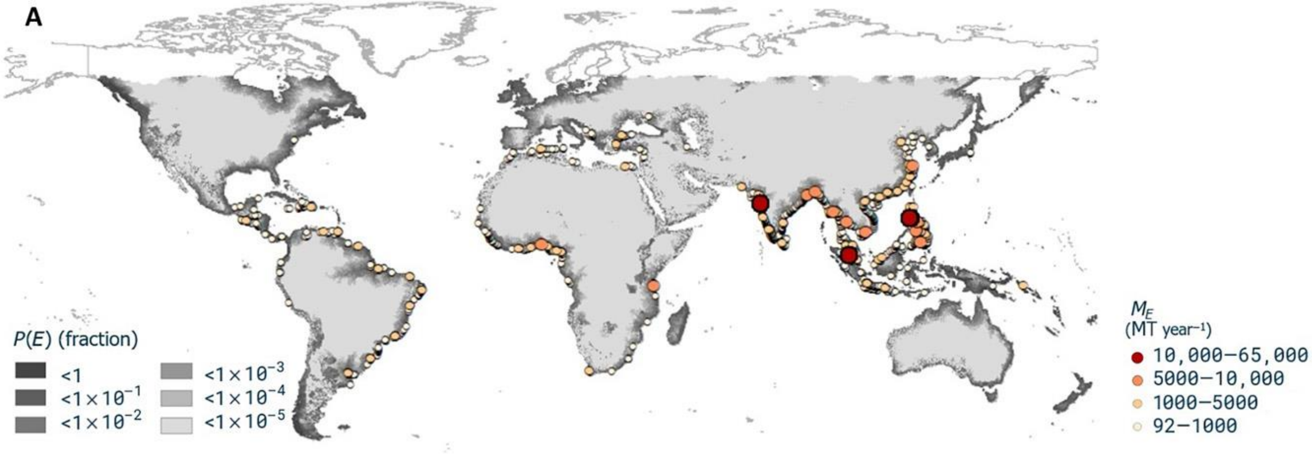
SCIENCE ADVANCES | RESEARCH ARTICLE

ENVIRONMENTAL STUDIES

More than 1000 rivers account for 80% of global riverine plastic emissions into the ocean

Lourens J. J. Meijer[1]*, Tim van Emmerik[1,2], Ruud van der Ent[3,4], Christian Schmidt[5,6], Laurent Lebreton[1,7]

But, less than 2% of mismanaged plastic waste enters the ocean!



WAGENINGEN UNIVERSITY & RESEARCH

Most macroplastic **does not** flow into the ocean

Most macroplastic **does not** flow into the ocean

ORIGINAL RESEARCH article
Front. Mar. Sci., 26 August 2021 | https://doi.org/10.3389/fmars.2021.715924

Check for updates

Estuaries as Filters for Riverine Microplastics: Simulations in a Large, Coastal-Plain Estuary

Alexander G. López[1*], Raymond G. Najjar[1], Marjorie A. M. Friedrichs[2], Michael A. Hickner[3] and Denice H. Wardrop[4]

LETTER • OPEN ACCESS

Riverbank macrolitter in the Dutch Rhine–Meuse delta

Tim van Emmerik[1], Caspar Roebroek[1], Winnie de Winter[2], Paul Vriend[1], Marijke Boonstra[2] and Merijn Hougee[2]

Published 8 October 2020 • © 2020 The Author(s). Published by IOP Publishing Ltd
Environmental Research Letters, Volume 15, Number 10

ELSEVIER
Marine Pollution Bulletin
Volume 160, November 2020, 111566

Transfer dynamics of macroplastics in estuaries – New insights from the Seine estuary: Part 2. Short-term dynamics based on GPS-trackers

R. Tramoy[a, b], J. Gasperi[a, b, c], L. Colasse[d], M. Silvestre[e], P. Dubois[a, b], C. Noûs[f], B. Tassin[a, b]

ELSEVIER
Science of The Total Environment
Volume 727, 20 July 2020, 138653

Limited long-distance transport of plastic pollution by the Orange-Vaal River system, South Africa

Eleanor A. Weideman, Vonica Perold, Peter G. Ryan

ELSEVIER
Environmental Pollution
Volume 292, Part B, 1 January 2022, 118410

Riparian vegetation as a trap for plastic litter ☆

Giulia Cesarini, Massimiliano Scalici

WAGENINGEN UNIVERSITY & RESEARCH

Most macroplastic **does not** flow into the ocean

Preprint • Open Access • You are viewing the latest version by default [v1]

Hydrology as driver of floating river plastic transport

Authors

Tim van Emmerik, Sjoukje Irene de Lange, Roy Frings, L. Schreyers, H. Aalderink, J. Leusink, F. Begemann, E. Hamers, R. Hauk, N. Janssens, P. Jansson, N. Joosse, D. Kelder, T. van der Kuijl, R. Lotcheris, A. Löhr, Y. Mellink, R. Pinto, P. Tasseron, P. Vriend, Vivien Vos

Published Online: Sun, 3 Apr 2022 | https://doi.org/10.1002/essoar.10510983.1

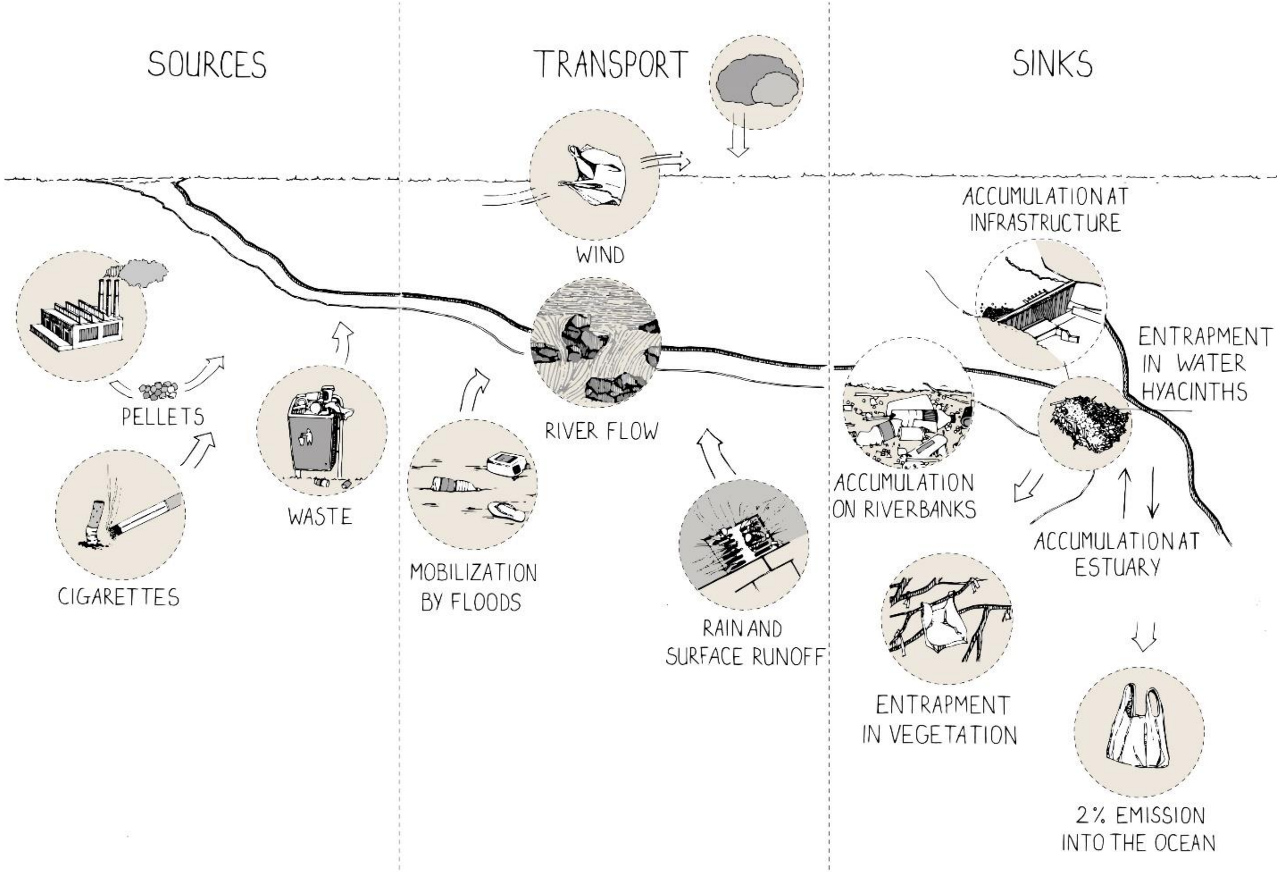
ENVIRONMENTAL RESEARCH
LETTERS

PAPER • OPEN ACCESS

Plastic in global rivers: are floods making it worse?

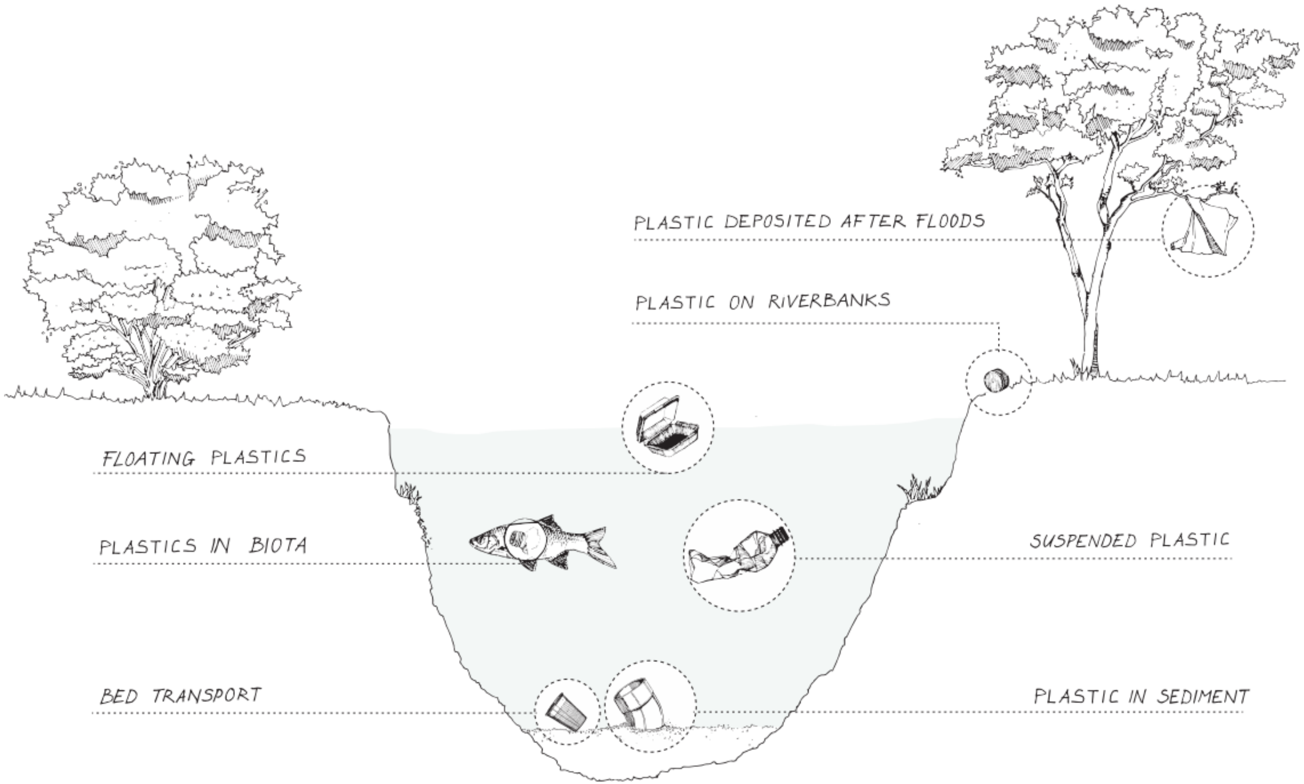
Caspar T J Roebroek[1,2], Shaun Harrigan[1], Tim H M van Emmerik[2], Calum Baugh[1], Dirk Eilander[3,4], Christel Prudhomme[1,5,6] and Florian Pappenberger[1]

Published 27 January 2021 • © 2021 The Author(s). Published by IOP Publishing Ltd



WAGENINGEN
UNIVERSITY & RESEARCH

Rivers as Plastic Reservoirs?

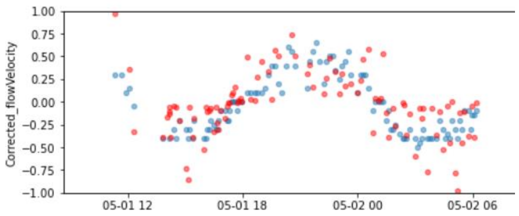


(van Emmerik & Schwarz, 2020)

WAGENINGEN UNIVERSITY & RESEARCH

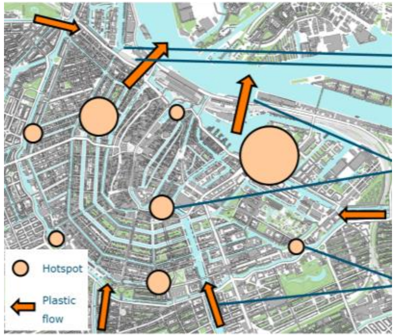
Rivers as Plastic Reservoirs?

Role of the tide

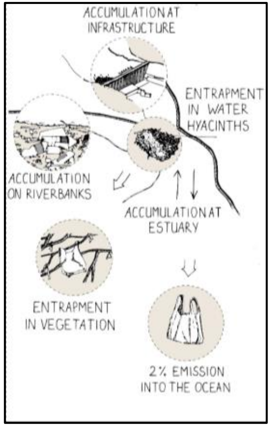


Rahel Hauk, Khoa Thi

Urban plastic soup



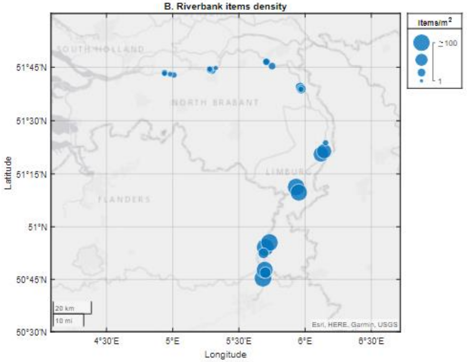
Rose Pinto, Paolo Tasseron



Plant-plastic interactions

Louise Schreyers

Accumulation zones



Rahel Hauk, Khoa Thi

WAGENINGEN UNIVERSITY & RESEARCH

What you need to remember

- Most plastic **does not** flow into the ocean
- Through monitoring we aim to find out where it goes
- Happy to collaborate ☺

(Geraeds et al., 2019)

Rivers as Plastic Reservoirs

Tim van Emmerik, Yvette Mellink, Rahel Hauk, Kryss Waldschläger, and Louise Schreyers

Hydrology and Quantitative Water Management Group, Wageningen University, the Netherlands

WAGENINGEN
UNIVERSITY & RESEARCH

@TimVanEmmerik | tim.vanemmerik@wur.nl