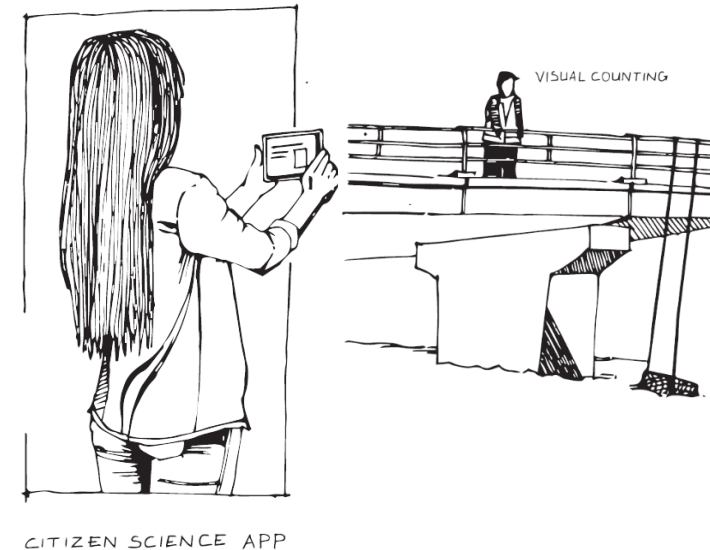# Crowd-based observations of riverine macroplastic pollution

Barbara Strobl[1], Tim van Emmerik[2], Jan Seibert[1], Simon Etter[1], Tijmen den Oudendammer[3], Martine Rutten[4], Mohd Shahrizal bin Ab Razak[5], and Ilja van Meerveld[1]

[1]University of Zurich, Switzerland, [2]Wageningen University, The Netherlands, [3]Rotterdam University of Applied Science, The Netherlands, [4]Delft University of Technology, The Netherlands, [5]Universiti Putra Malaysia, Malysia

Contact: TIM.VANEMMERIK@WUR.NL | @TIMVANEMMERIK

VISUAL COUNTING

CITIZEN SCIENCE APP

- Riverine macroplastic observations are crucial to tackle global plastic pollution challenge, but remain scarce

- Crowd-based observations provide frequent cost-effective data collection over a large geographical range

- We extended the CrowdWater app with a plastic pollution module for **floating plastic** and **plastic on riverbanks**

- Applications in the Rhine (Netherlands) and Klang (Malaysia) showed the data is comparable those of current methods

HOW IT WORKS

- Choose between (1) floating plastic or (2) plastic on riverbanks.

- For (1) floating plastic, count all plastic items you can see floating by for X minutes. You can choose X.

- For (2) riverbank plastic, count all plastic items on a riverbank stretch. You can choose the length (1, 5, 10 m).

- Select a plastic pollution class, take a photo, and done!

- Advanced options: estimate plastic polymer categories, river flow velocity, remove plastic, and/or leave a comment.
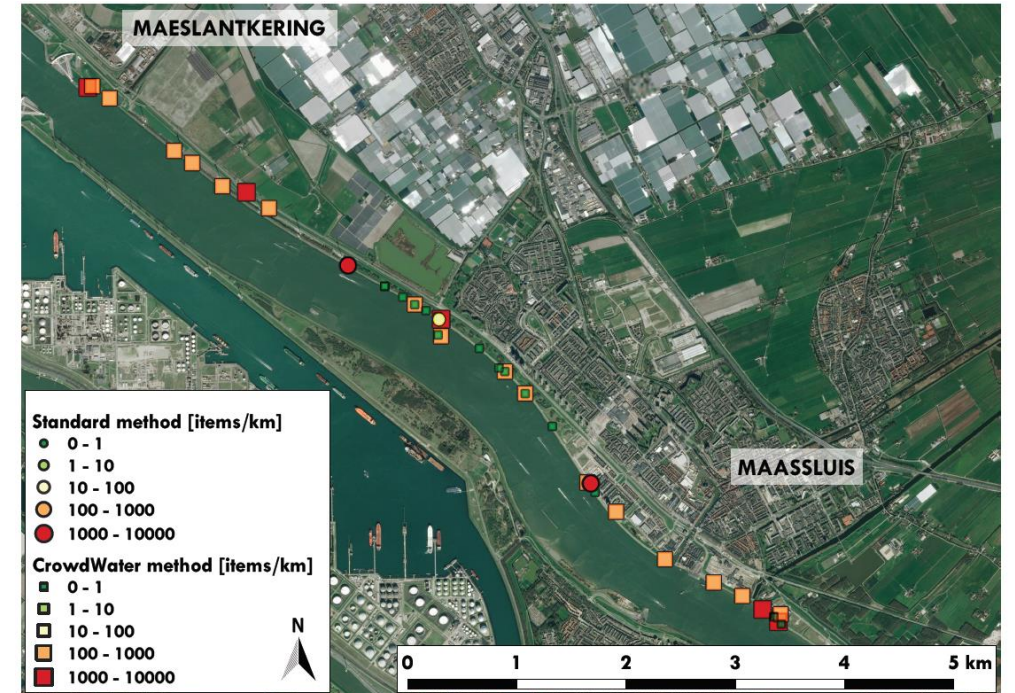
WAGENINGEN
UNIVERSITY & RESEARCH

THE DATA YOU COLLECT

(1) Floating – Klang, Malaysia
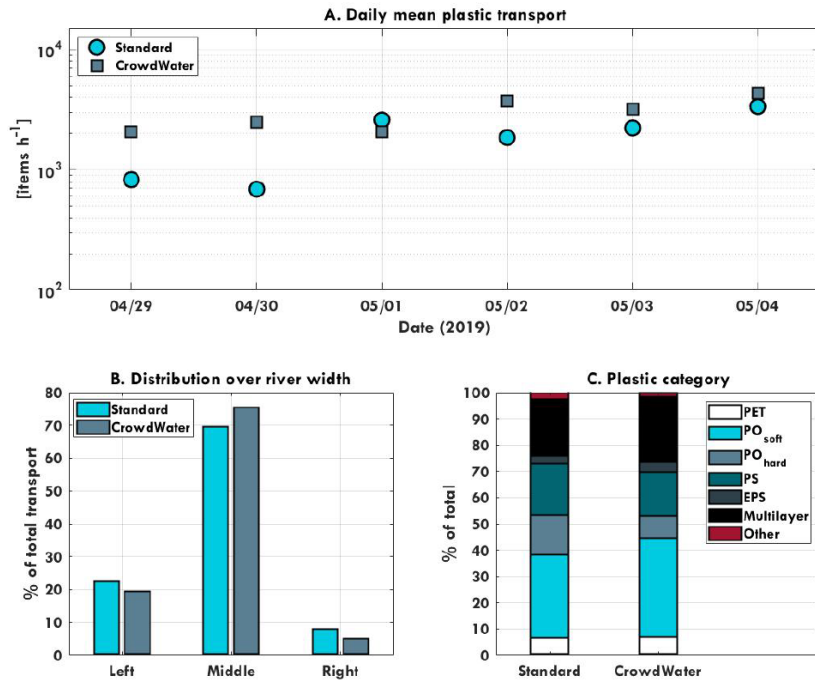
- Crowd-sourced observations same order of magnitude as reference method, difference cause by better temporal spread of crowd-sourced data.

- Gives estimate of spatial distribution and plastic polymer categories.

(2) Riverbank – Rhine, Netherlands

- Crowd-sourced observations give rapid estimate of plastic densities along the Rhine.

- Demonstrate the spatial variation, and emphasize the need for more observations.

Crowd-based observations of riverine macroplastic pollution

Barbara Strobl[1], Tim van Emmerik[2], Jan Seibert[1], Simon Etter[1], Tijmen den Oudendammer[3], Martine Rutten[4], Mohd Shahrizal bin Ab Razak[5], and Ilja van Meerveld[1]

[1]University of Zurich, Switzerland, [2]Wageningen University, The Netherlands, [3]Rotterdam University of Applied Science, The Netherlands, [4]Delft University of Technology, The Netherlands, [5]Universiti Putra Malaysia, Malysia

Contact: TIM.VANEMMERIK@WUR.NL | @TIMVANEMMERIK

VISUAL COUNTING

CITIZEN SCIENCE APP
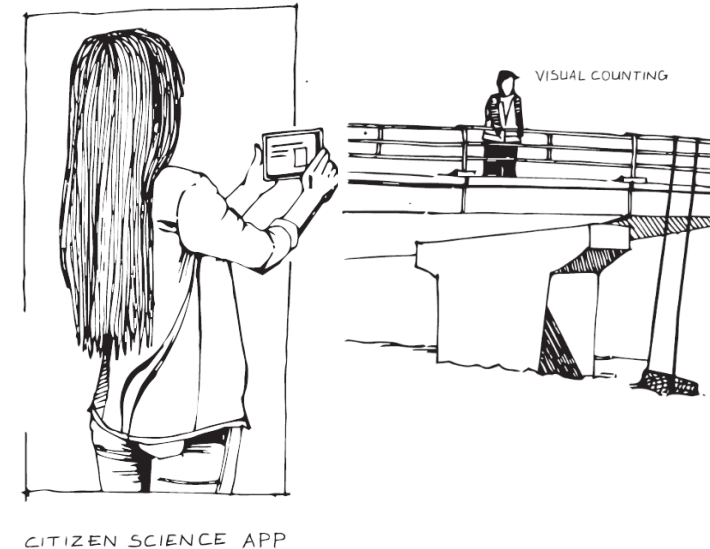
- Join us!

- Measure your rivers, especially now!

- https://crowdwater.ch/en