



Ministerie van Infrastructuur
en Waterstaat

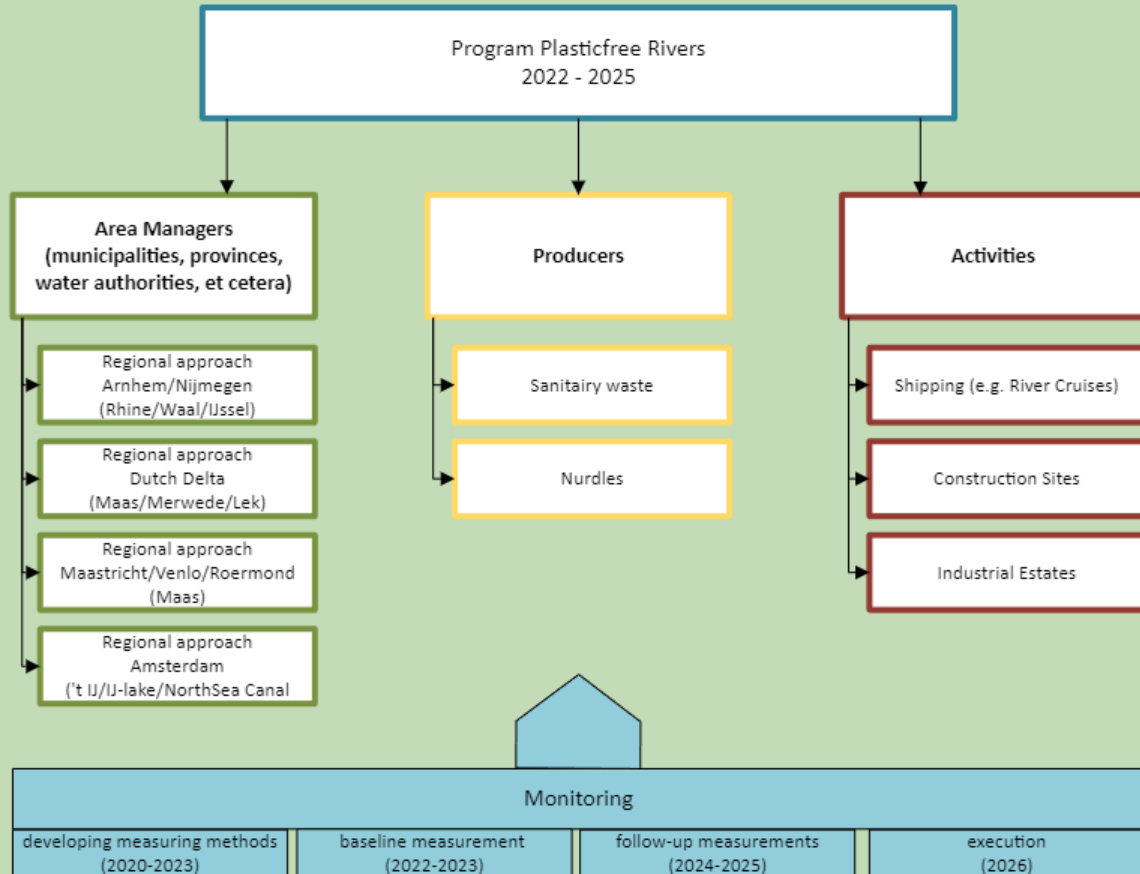
Plasticfree rivers



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Plastic-free rivers program along three lines:

- Approach with area managers
- Producer approach
- Approach for specific activities (companies and public services)



National approach, international anchors

- EU Marine Strategy Framework Directive (MSFD): reducing the input of pollutants and waste/litter.
- OSPAR regional action plan (article A3.1), lead & support F, B & NL: Monitor, prevent and reduce riverine inputs of macro litter to the marine environment and share knowledge on micro litter monitoring
- Water Framework Directive (WFD): no specific provisions on plastic pollution, but relevant bodies are paying attention to the issue in this regard.



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Riverine litter monitoring

macroplastic and
microplastic



Since 2021



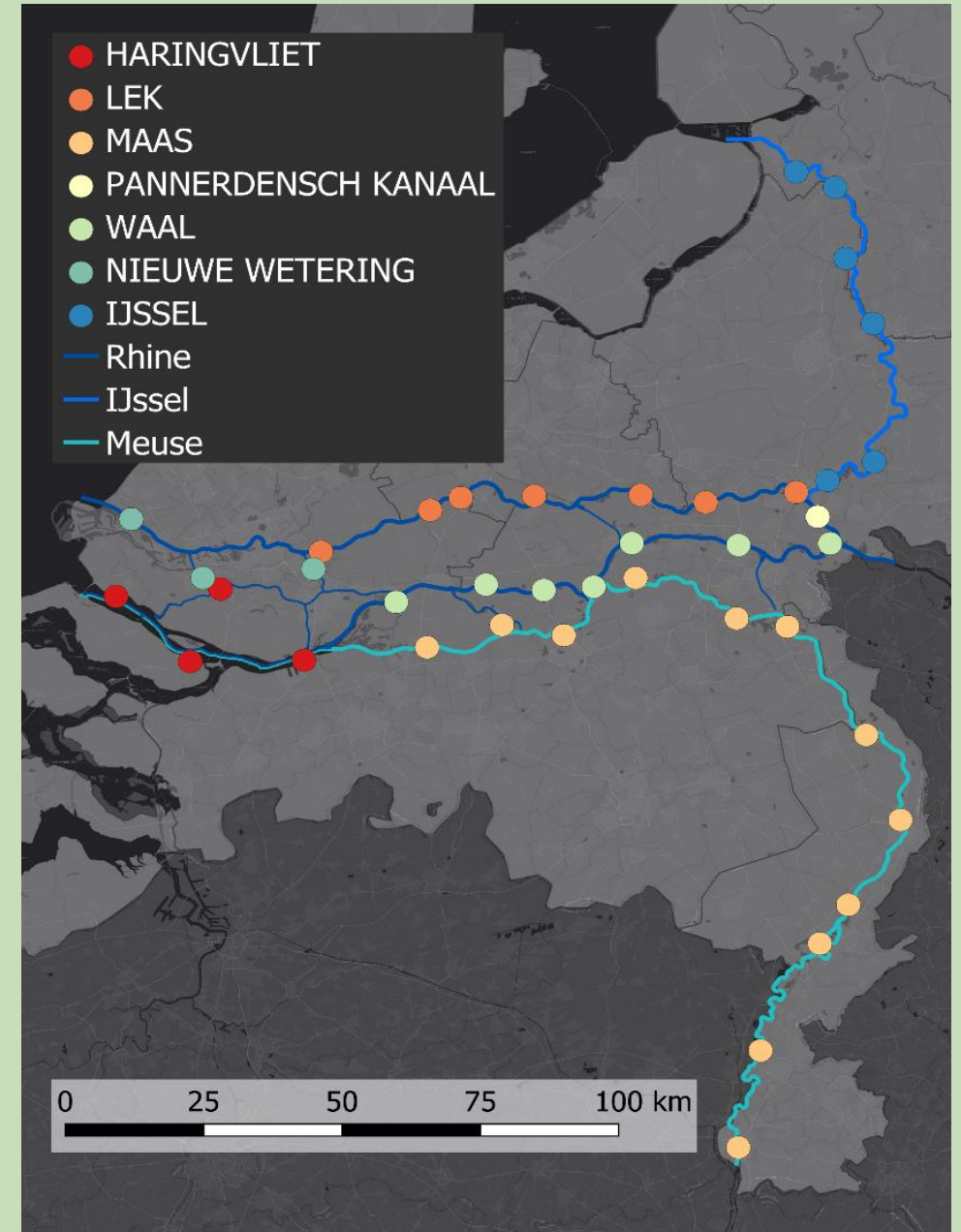
Water surface

- Visual observation method from bridges (since 2021)
- 10 locations in the Meuse, Rhine and IJssel rivers. Monthly frequency
- Mean 80 items/hour, 85-95% plastic
- First crude estimate: 6000 kg/year from Meuse and Rhine discharged in estuary



Riverbanks

- Sample area of 100x25 meter (since 2022)
- OSPAR protocol, sampled by 2 people (citizen science possible)
- 40 evenly distributed sample location along the Meuse, Rhine and IJssel
- Frequency: once every 3 months
- Median: 65 items per 100 m riverbank (max 900)





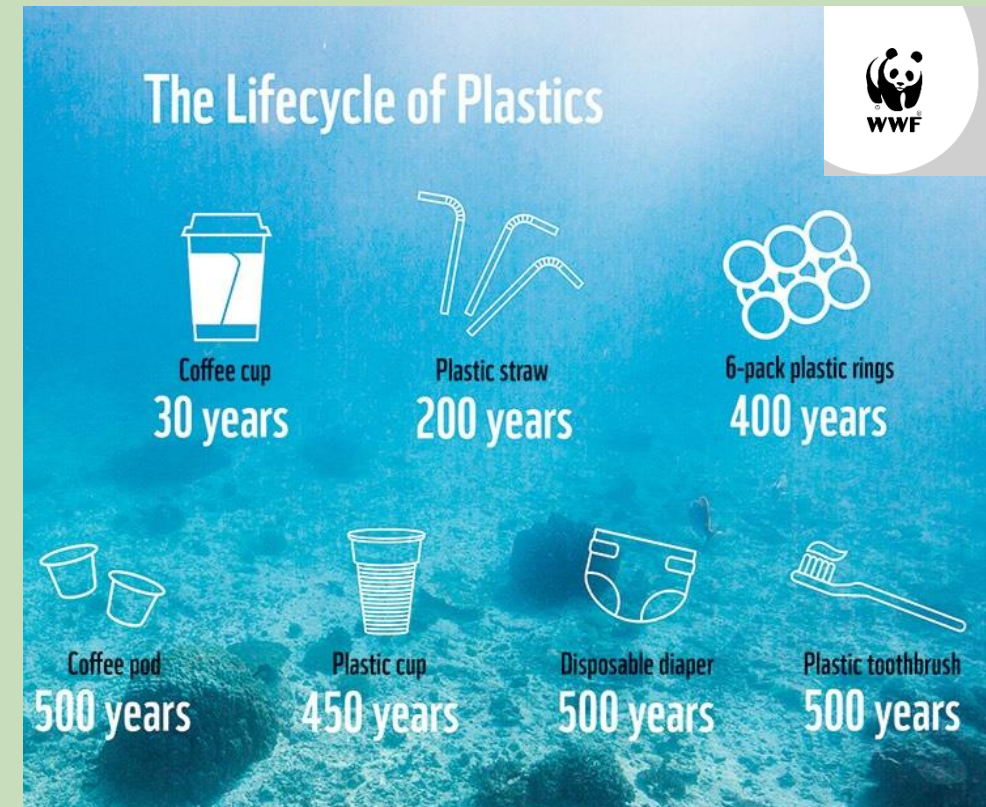
Water column

- Net measurements using trawling nets
- Currently in developmental stage
- Tested in Meuse, Rhine and IJssel (2022-2024)
- 2025: protocol development, followed by first baseline assessment
- First insights:
 - Significantly more important in total transport compared to floating
 - Mostly degraded smaller pieces
 - Sanitary items are common
 - Correlation between discharge and concentrations

Microplastics monitoring

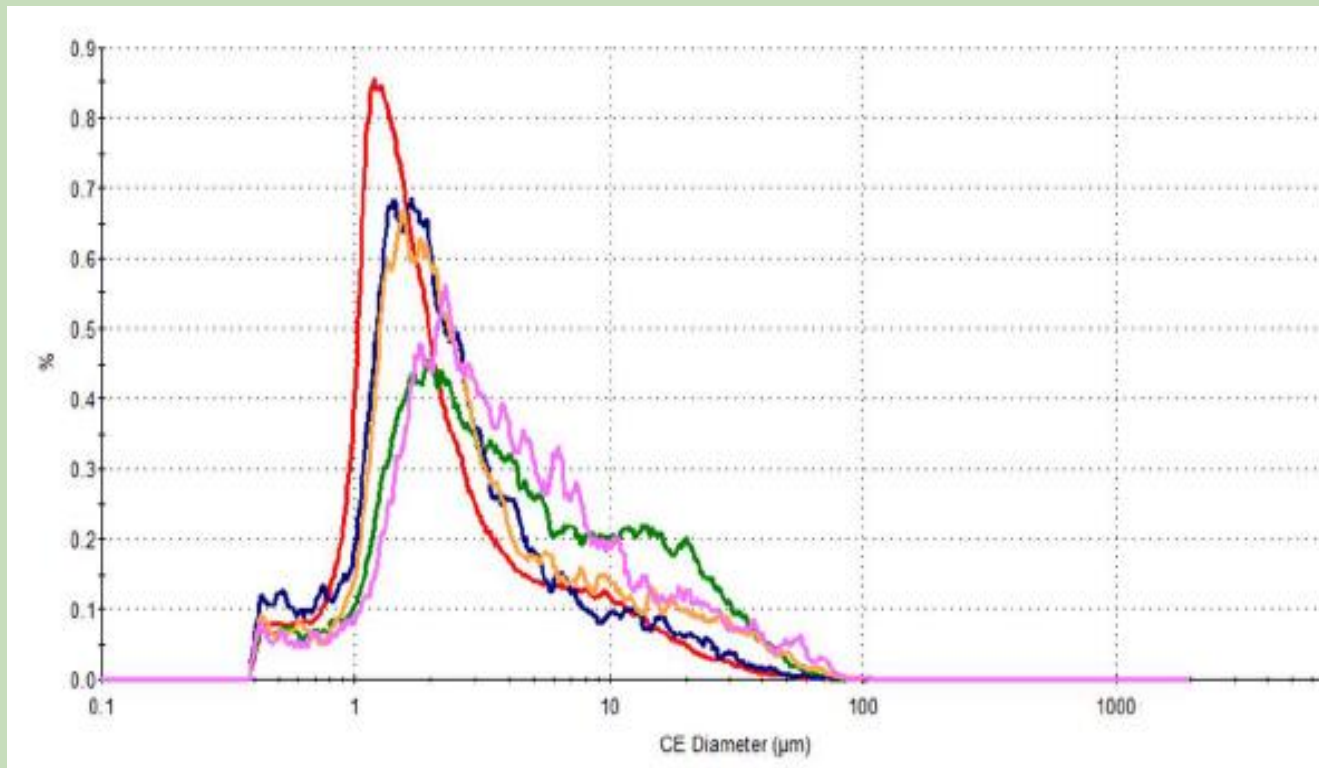


- Plastic and rubber particles with a size between 1 μm to 5 mm.
1. **Sampling** of suspended particulate matter (SPM) of 1 μm to 5 mm in surface water
 2. **Identification** of microplastics in SPM
 3. **Quantify** individual microplastics concentration in SPM (g/kg)
 4. **Freight calculations** ("kg") How much MiPs enter the Netherlands via the rivers
 5. **Model** for the distribution of microplastics in Rhine and Meuse (RIVM/WUR)





Microscopic analysis: >90% of the sampled SPM particles have a diameter < 20 μm



- Particle size distribution for time-integrated samples from different rivers in NL, sampling periods, locations and flow conditions are alike
- Rhine: estimated 2.2 Mn kilo per year at Lobith

A ballpark estimate:



Microplastics entering NL via Rhine and Meuse

Microplastics (mainly <0,1 mm) amounts based on 8 target MP

	Rhine	Meuse	Unit
Flow rate	2.350	230	m ³ /s
	74.110	7.253	million m ³ /yr
SPM	20	15	mg/l (=g/m ³)
	1.482	109	million kg/yr
Microplastics	1,5	1,5	g/kg
	2.2 million	160.000	kg/yr

Actual kg MP/yr could be higher:

- The 8 microplastics analysed by RWS represent ~75% (mass) of most used plastics and rubbers.
- Floating MP were not sampled and are therefore not included. Since floating material will contain larger MP than river water, this could significantly increase the estimation of kg MP/yr

Actual kg MP/yr will be lower:

- Measured PE concentrations too high due to natural occurring substances with similar structure

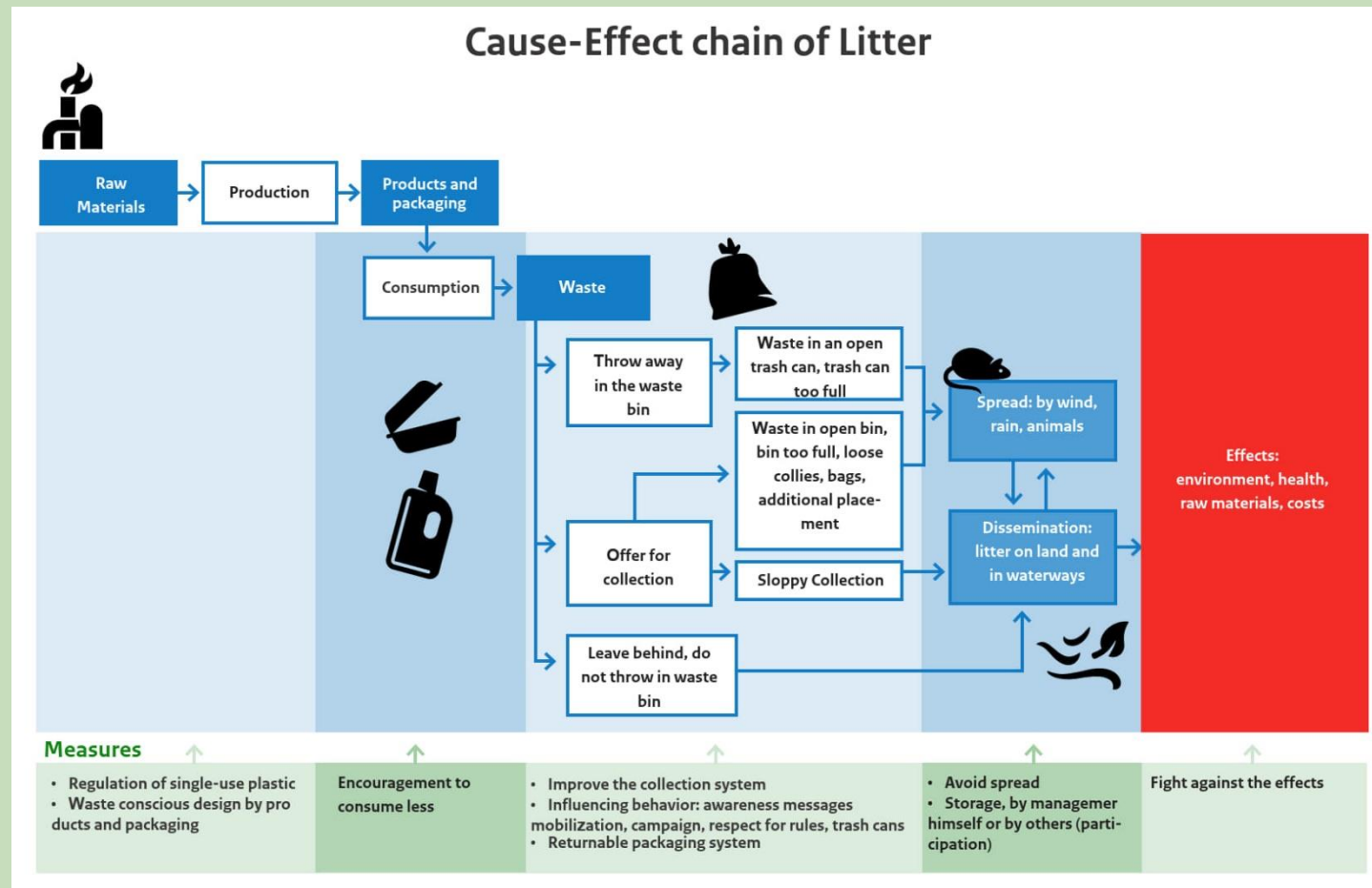


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source approach



What is considered a source?





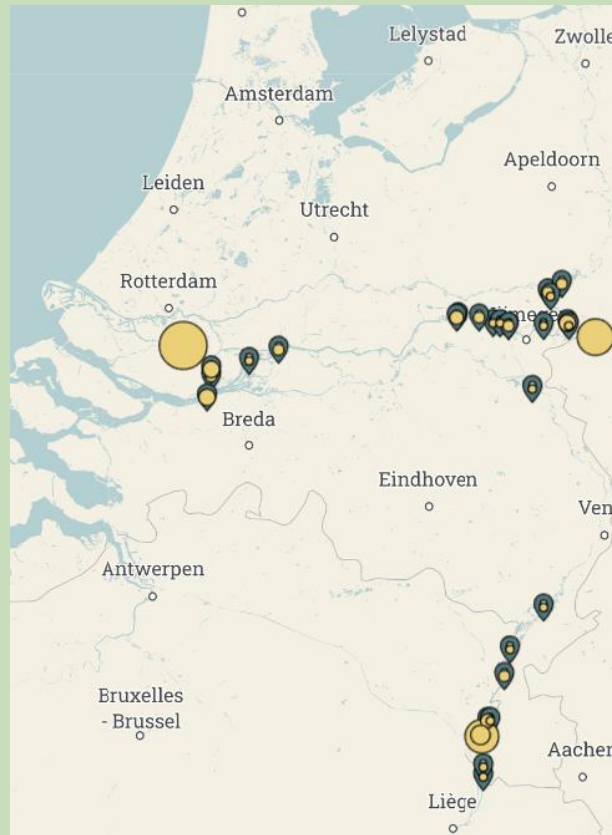
Hotspots help to define source

Data obtained from citizen science projects by IVN ([program clean rivers](#)):

Recreational Waste hotspot
(2017-2020)



Sanitary Waste hotspot
(2020)



Sport Fishing Waste hotspot
(2017-2020)





Activities and reach

1. Knowledge tools for interventions

- Technical facilities
- Influencing behavior

2. Collaboration on area management approach

- 4 regions inflow and outflow areas
- Plus: Local Customized Advice

3. Agreements with companies

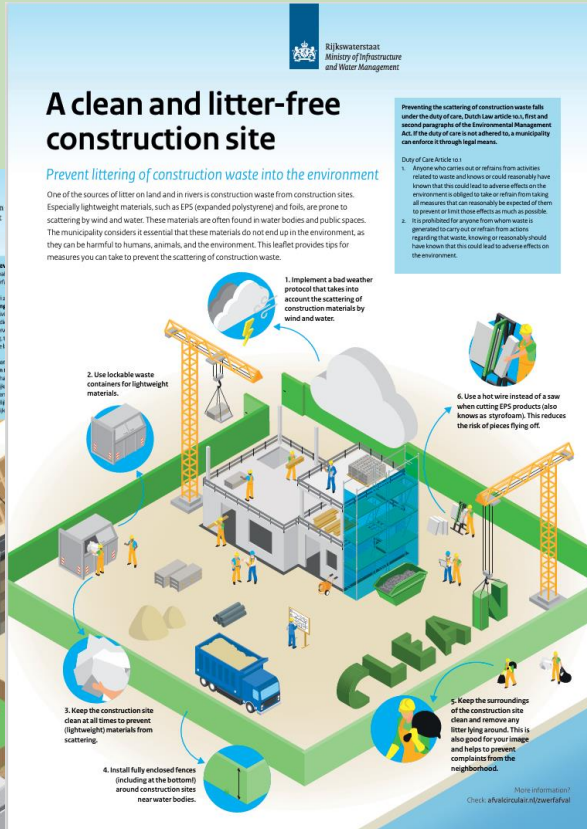
- O.a. construction, river cruises, nurdles

4. Public service collaboration

- O.a. sewer overflows, recreational boating drop-off points

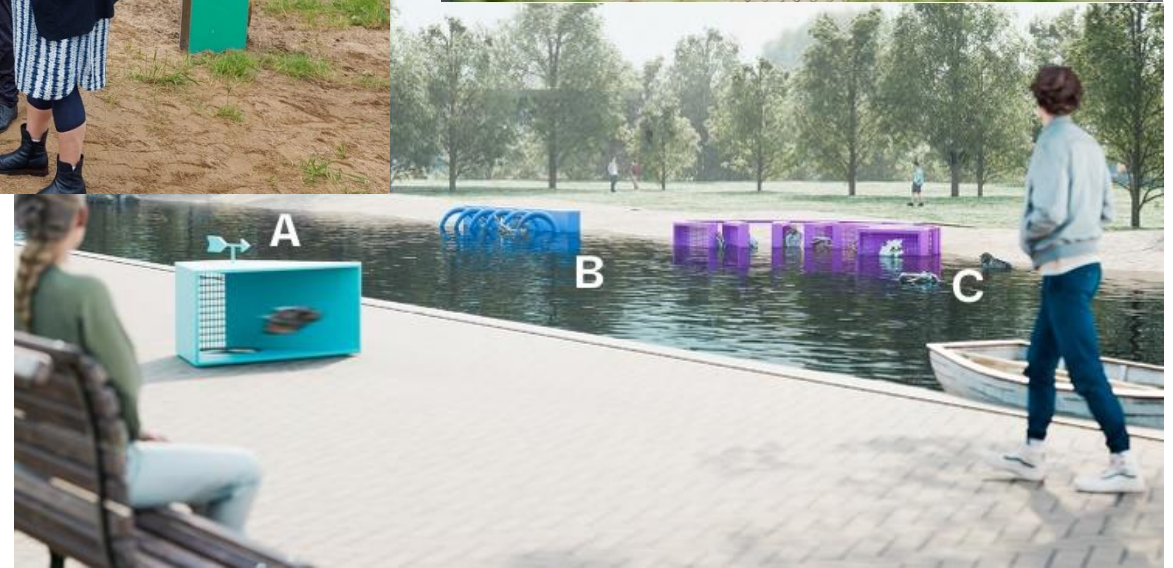
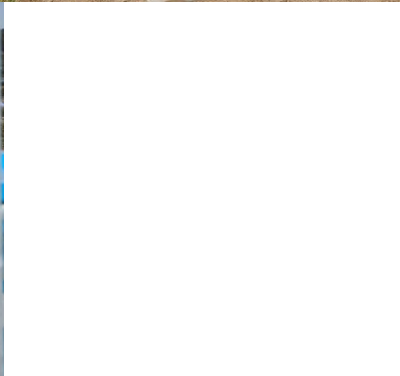
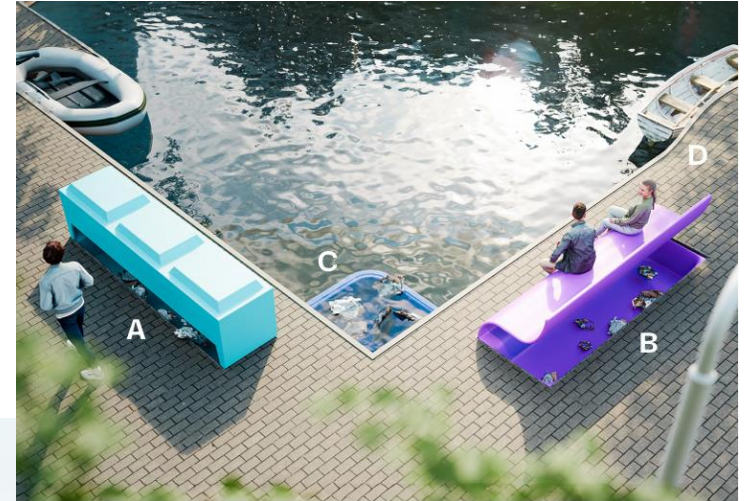


1. knowledge tools





2. Area management approach



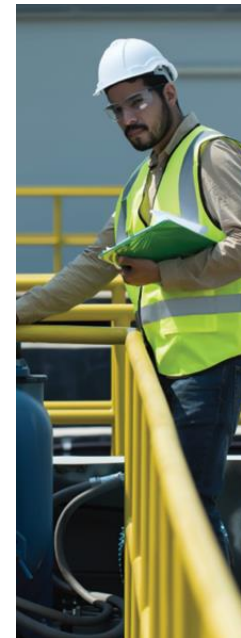


3a. Nurdles

Hotspots analyses



Checklists certification, oversight and enforcement



Stap 1 Inventariseer je bedrijfs

Bekijk of er bedrijven voorkomen in jouw bes

- ☐ productiebedrijven die pellets gebruiken on
- ☐ transportbedrijven
- ☐ bedrijven die werken met containers (op- en
- ☐ afvalverwerkende bedrijven die van afvalpla
- ☐ opslagbedrijven die pellets opslaan in een d

Bekijk welke voorschriften gelden

Zijn er voorschriften/artikelen voor de opslag, p
verwerking van plastic korrels opgenomen in d
in algemene regels in het ActiviteitenBesluit (Al

- a. Type a en b inrichting – voorschriften AB
- b. Type c inrichting – voorschriften in vergunnin
- c. Type c inrichting – voorschriften in vergunnin





3b. Rivercruises on board

Interventions (behavior) Toolkit for River Cruises

How you, as a cruise operator, can contribute to solving the plastic problem in rivers

This guide provides tips for interventions that you can apply on your river cruise. With behavioural interventions, you can influence passengers' habits regarding their use of wet wipes and how they dispose of them. Ready to get started? Scan the QR code and download the toolkit for river cruises!

Wet wipes are a popular product. They are convenient and hygienic to use. However, they also cause problems, as wet wipes often contain plastic fibres. After usage, many wipes end up in the environment, posing a danger to flora and fauna.

It often goes wrong during disposal: used wet wipes are often flushed down the toilet instead of being thrown in the bin. This can cause blockages in the sewage system. However, not all problems are immediately visible. The plastic fibres in wet wipes break down and enter the environment as microplastics. These issues occur both by use of wet wipes on land and on water, for example, during river cruises.

The improper disposal of wet wipes calls for both policy adjustments and consumer education. As a cruise operator, you can also help reduce the flow of wet wipes into rivers, by implementing this toolkit.

1. The captain, the figurehead of the cruise ship, should include in their welcome speech the importance of disposing of wet wipes in the bin and not flushing them down the toilet.
2. Invite all passengers who are checking in to sign a pledge promising that they will dispose of their wet wipes in the bin.
3. After submitting the signed pledge at the reception, passengers receive a branded cardholder to keep their room key in.
4. Place a commitment counter at the reception showing how many passengers have committed to the pledge.
5. Hold a raffle with fun prizes for all passengers who submit the signed pledge.
6. Display a poster with a poem opposite the toilets and in private cabins. The text reminds passengers to dispose of wet wipes properly. In public toilets, place a sticker on the bins that says "Dispose of your wet wipes here."

Scan the QR code to download the toolkit or visit www.schouderonderdehoorn.nl/toolkit



Amidst these river's tranquil flow,
A gentle reminder, so you know,
Wet wipes belong in the waste bin's embrace.
Keep our fragile sewer clean, our cruise in grace.

Wet wipes too, with no disdain,
In the bin, it's completely sane.
Because on river cruises we all agree
We want our holiday problem-free.

An diesem wunderschönen Fluss
erfreuen wir uns gern auch morgen,
weswegen jeder wissen muss
wie wir den Abfall hier entsorgen.

Feuchte Tücher schaden der See,
verschmutzen Flüsse, verstopfen Röhren,
weshalb sie auf keinen Fall ins WC
sondern in den Restmüll gehören.
So mach dir dies zur guten Sitte
zum Schutze unserer Umwelt. Bitte!

Dispose of your wet wipes in the bin.
Entsorgen Sie Ihre Feuchttücher im Mülleimer.

Ministry of Infrastructure and Water Management

VIVA
Cruises Pledge

The river and the cruise thank you.
Der Fluss und die Kreuzfahrt danken Ihnen.

Ich werde nur trockenes Toilettenpapier in die Toilette spülen.

In Ausnahmefällen, wenn ich feuchte Toilettenwischtücher verwenden muss, werde ich sie in den Mülleimer entsorgen.

I will only flush dry toilet paper down the toilet.

In the exceptional occasion that I need to use wet toilet wipes, I will dispose of them into the bin.



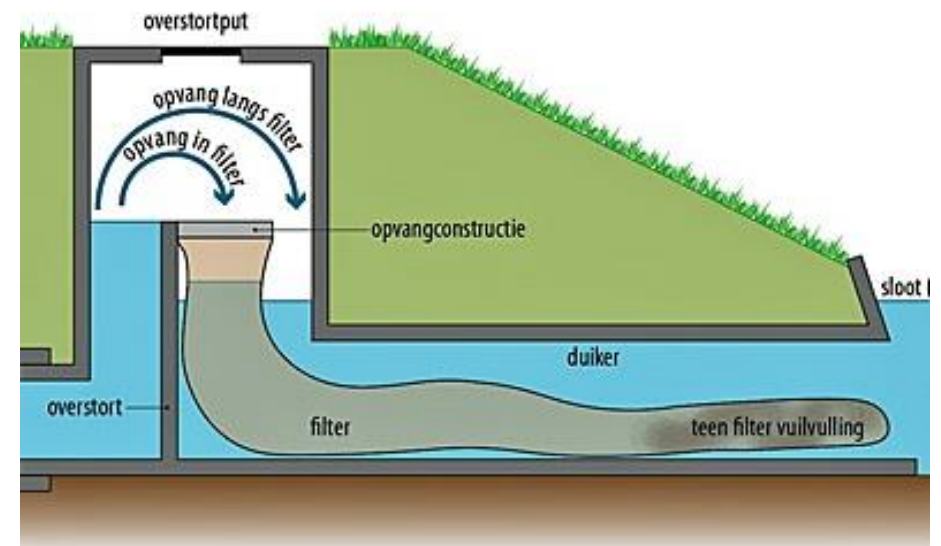
4a. Waste water discharge

Interventions (physical)





4b. Sewer overflow





Sharing is caring

Questions:

- What are solutions for your situation?
- What are your experiences?
- How can we collaborate?

Online

- [Plastikfreie Flüsse: Überwachung und Quellenansatz](#)
- [Des rivières sans plastique : surveillance et traitement à la source](#)
- [Programma plasticvrije rivieren - Afval Circulair](#)
- E-mail: zwerfafval@rws.nl

