

Microplastics and urban water

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Microplastics and urban water


Rachid Dris, Johnny Gasperi, Vincent Rocher, Mohamed Saad, Bruno Tassin

FRS SIAAP
Paris Seine Aval
Société Intercommunale d'Assainissement et d'Assainissement

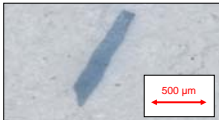
Introduction

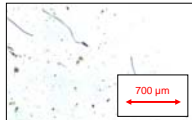
Macroplastics (>5mm)

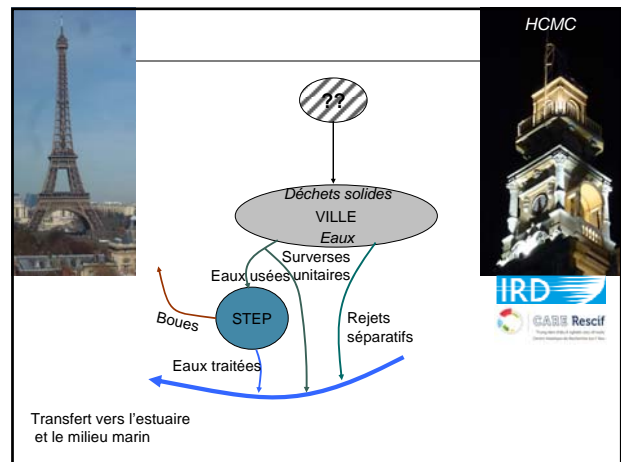
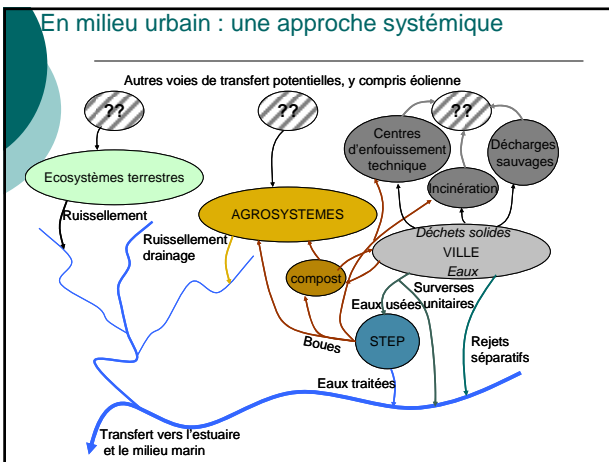
In oceans 

In rivers 

Microplastics (<5mm)

Fragments/Spheres 

Fibers 

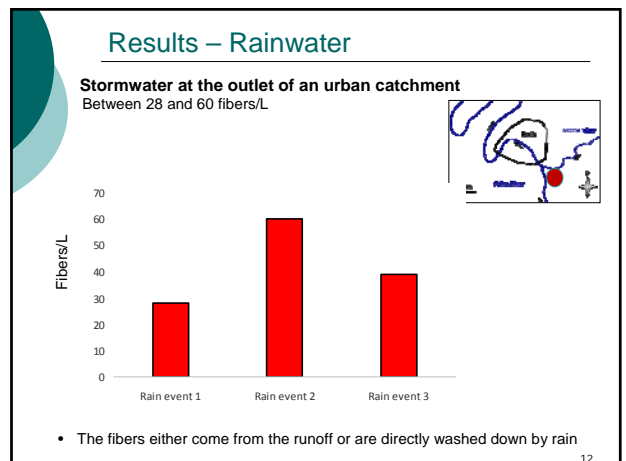
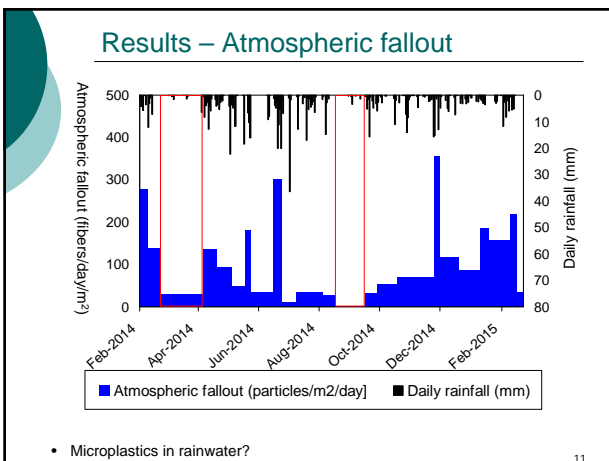
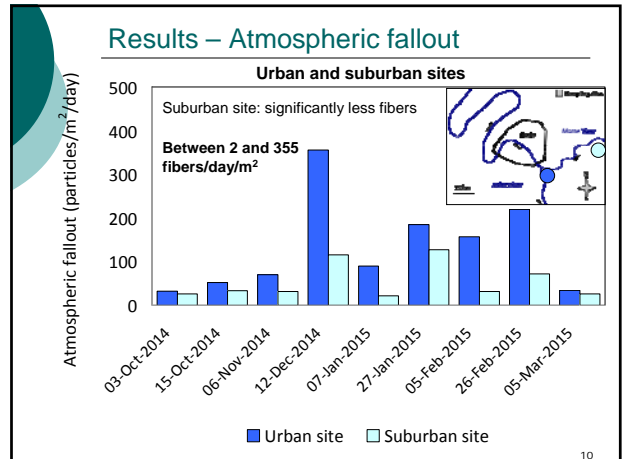
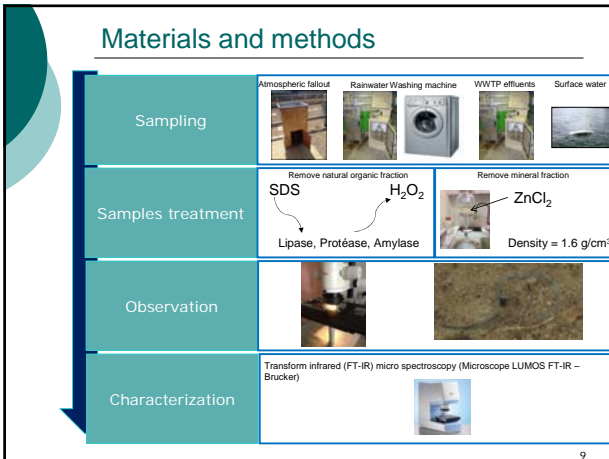
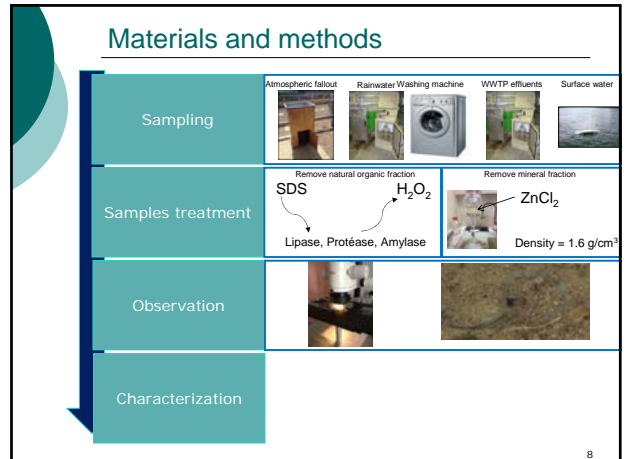
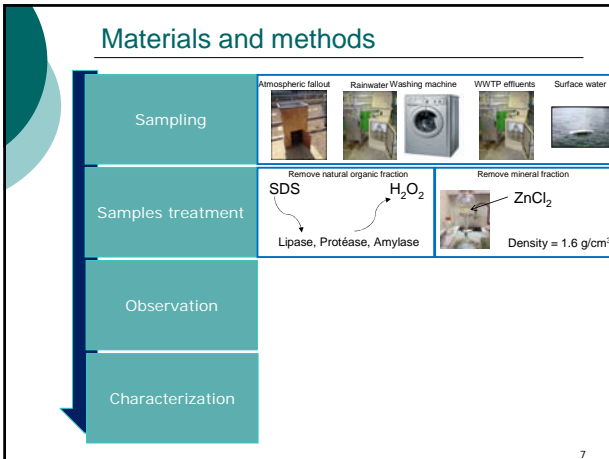


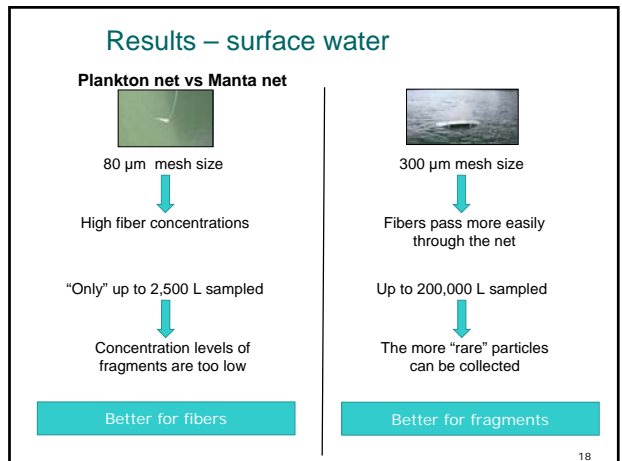
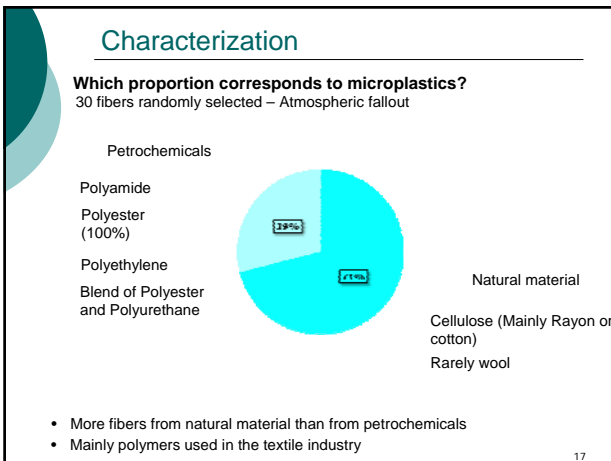
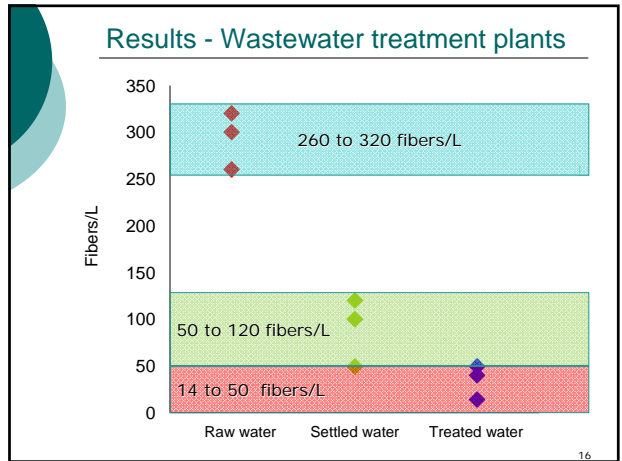
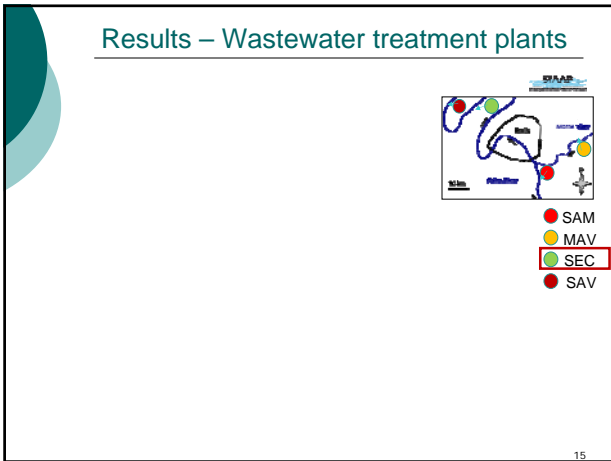
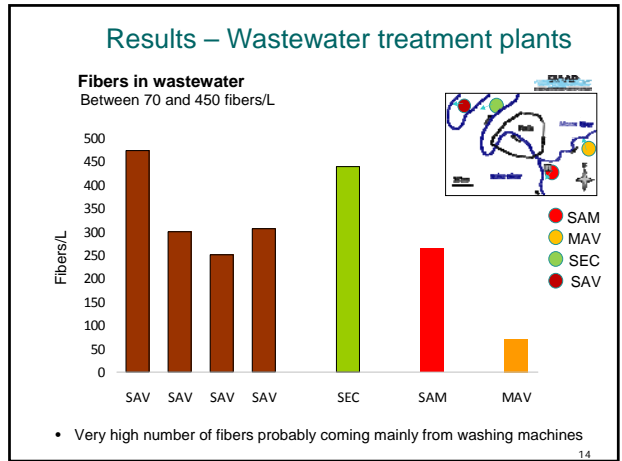
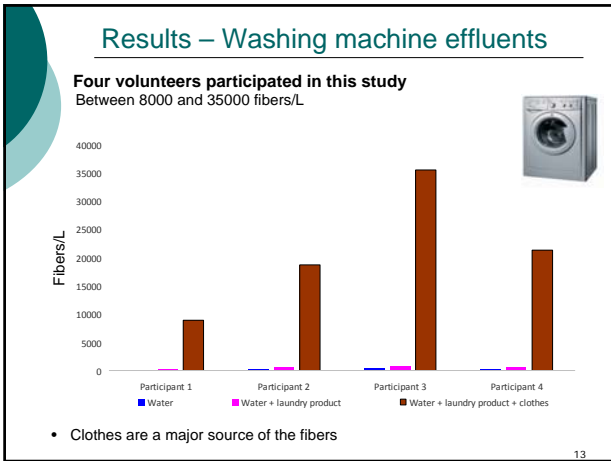
Materials and methods

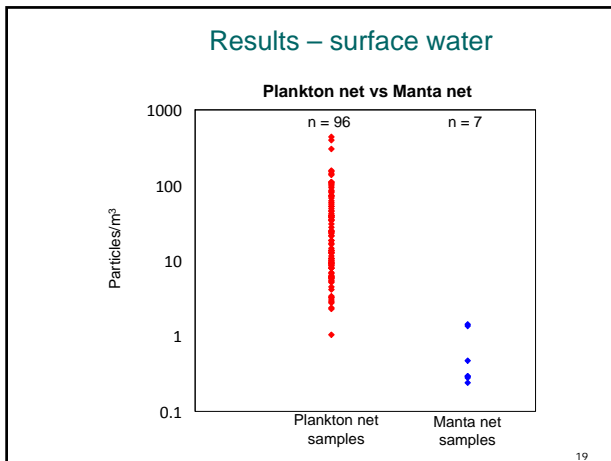
5

Materials and methods

6







Results – surface water

80 µm net samples

Chemical characterization in progress

So far:

- 2 Rayon fibers (among 19 particles)
- Polyester mainly
- Polyamide and Polypropylene

Only fibers

20

Results – surface water

300 µm net samples

Chemical characterization in progress

So far:

- Only plastic particles
- Only Polyethylene and Polypropylene

Fragments, films and spheres

21

Synthèse

Retombées atmosphériques	10 ² /m ² /jour
Eaux de ruissellement	10 ¹ /L
Lave linge	10 ⁴ /L
Station d'épuration (entrée)	10 ² /L
Station d'épuration (sortie)	10 ¹ /L
Rivière	10 ⁻² – 10 ⁰ /L

- ### Conclusions et perspectives
- Présence ubiquiste en milieu urbain
 - Bilans encore très lacunaires
 - Méthodes d'analyse non stabilisées
 - Cas des fibres
 - Difficiles à caractériser
 - Très présentes, (contamination)
 - Question de l'impact écologique

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Microplastics in various compartments of the urban water cycle

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©Dris, R., Gasperi, J., Saad, M., Mirande, C., Tassin, B., 2016. **Synthetic fibers in atmospheric fallout: A source of microplastics in the environment?** Mar. Pollut. Bull. doi:10.1016/j.marpolbul.2016.01.006

©Dris, R., Gasperi, J., Rocher, V., Saad, M., Renault, N., Tassin, B., 2015a. **Microplastic contamination in an urban area: a case study in Greater Paris.** Environ. Chem. 12, 592–599.

©Dris, R., Imhof, H., Sanchez, W., Gasperi, J., Galgani, F., Tassin, B., Laforsch, C., 2015b. **Beyond the ocean: Contamination of freshwater ecosystems with (micro-) plastic particles.** Environ. Chem. 12, 539–550.

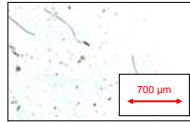
©Gasperi, J., Dris, R., Bonin, T., Rocher, V., Tassin, B., 2014 **Assessment of floating plastic debris in surface water along the Seine River.** Environ. Poll. 195, 163–166.

Introduction

Previous investigations in the Seine River



Less than 2 fragments/m³



Up to 400 fibers/m³