Floating macro litter input from rivers to the European Seas

Photo: Gary Evans, 2016

RIMMEL project

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RIMMEL - JRC exploratory project
Riverine and Marine floating macro litter Monitoring and Modelling of Environmental Loading

Riverine litter input to the marine environment
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Riverine and Marine floating macro litter Monitoring and Modelling of Environmental Loading

Riverine litter input to the marine environment

4 European Regional Seas
ca. 2500 rivers (catchment area >100 km²)
and more smaller rivers, streams
Almost no data on floating macro litter input to the seas is available!
RIMMEL - JRC exploratory project
Riverine and Marine floating macro litter Monitoring and Modelling of Environmental Loading

• Close collaboration with MSFD Technical Group on Marine Litter:
  ➢ JRC Technical report providing overview on options for riverine litter monitoring

• Development and testing of approaches for monitoring of riverine floating macro litter: Visual observations / Camera System


Monitoring method: river surface observation

- Floating litter as proxy for litter flux
- Visual observation from bridges close to sea
- Litter items > 2.5 cm (‘macro litter’ under MSFD)

Field data collection

- JRC Floating Litter Monitoring App - harmonized approach
- RiLON – Riverine Litter Observation Network
JRC Floating Litter Monitoring Tablet Computer Application

Observation set-up

Protocol development through monitoring community

Toward a Harmonized Approach for Monitoring of Riverine Floating Macro Litter Inputs to the Marine Environment

RiLON
Riverine Litter Observation Network

- Data collection in 53 rivers across Europe
- Spatial coverage in 17 countries
- Collaborative approach with Research Institutions, Projects, NGOs
- Weekly/bi-weekly observations expected
- 0.5 – 1 hour session
- 1 year observation period
53 rivers - 817 datasets – 8499 litter items - 470.6 hours of observation

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<th>July 16</th>
<th>Aug 16</th>
<th>Sep 16</th>
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<th>Total per month</th>
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Joint Research Centre
Datasets – Observed items per hour

Average across all observations: ≈ 18 items/h/observation
Observation track width – Minimum Estimate

*items/hour/observation (averaged by river)*
Minimum Estimate  Standardized by meter of river width  Total Load Estimate
Extrapolated to total river width – Total Load Estimate

items/hour/river (averaged by river)
Conclusions / Output

**RIMMEL** - First ever database on riverine floating macro litter following a **Harmonized approach**

**RiLON** - EU wide expert Network set-up for riverine litter

**JRC Litter Monitoring App** - New version planned to be public

**Floating macro Litter quantities** - high variability and peaks

**Top Floating Litter Items** - 82% plastic / fragmentation process

Need to compare, inter-calibrate with other methods
Thanks for your attention!

RIMMEL

MCC (Marine Competence Center)
http://mcc.jrc.ec.europa.eu/

MSFD (Marine Strategy Framework Directive)

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