

# ***RIMMEL***

## **RIverine and Marine floating macro litter Monitoring and Modelling of Environmental Loading**



***JRC exploratory research  
project***

***Daniel Gonzalez and Georg Hanke***

European Commission  
Joint Research Centre  
Institute for Environment and Sustainability  
[daniel.gonzalez@jrc.ec.europa.eu](mailto:daniel.gonzalez@jrc.ec.europa.eu)

## *To do*

- Need to quantify litter input for prioritization of measures
- Need to ensure comparability of assessments
- Need to provide harmonized monitoring/quantification methodologies
- Provide overview on different approaches currently under development
- Provide initial dataset

*After the storm...*



*Riverine debris inputs*



*Macro litter!*



## *The RIMMEL project will*

quantify floating macro-litter loads through rivers to marine waters, by

- collecting existing data,
- developing an European observation network (and beyond!)
- deploying a camera system

and using the resulting data to

- build a statistical inverse model of litter loading based on the characteristics (flows, population, economic factors) of the catchments upstream of the observation points.

## *Approach*

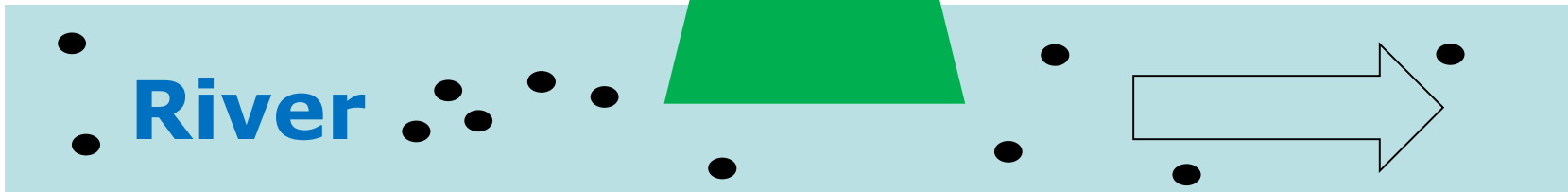
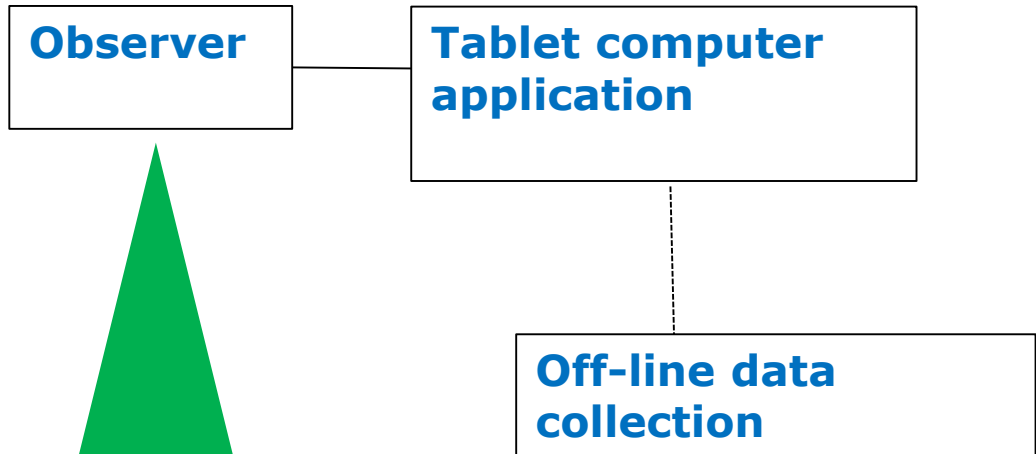
- **Analysis of existing publications, report, activities**
- **Contribution to MSFD Technical Group on Marine Litter, report on Riverine Litter Monitoring**
- **Investigate plastic material properties and internal river dynamics**
- **Collection of data through observation network**

## ***Visual Observation Monitoring Network***

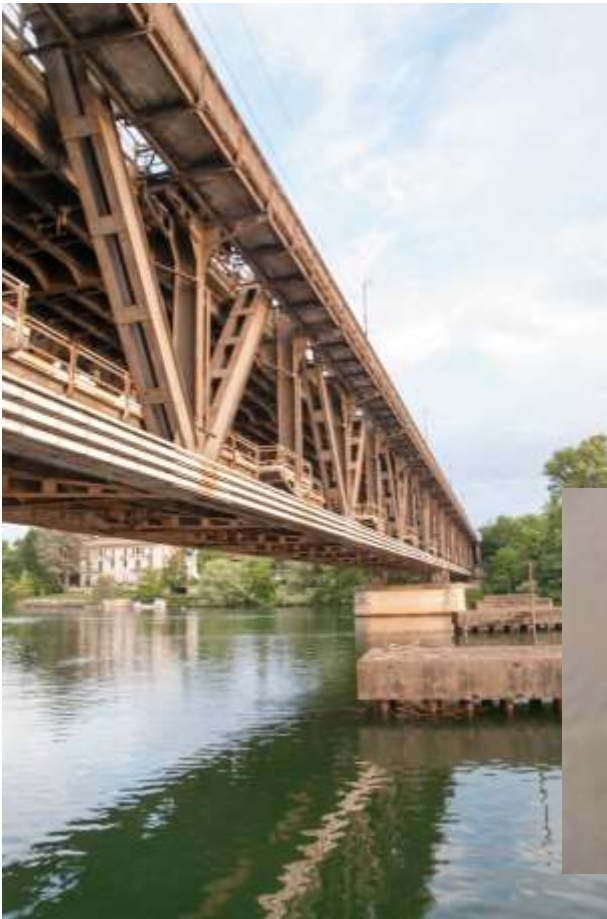
- **Development of tablet computer App. based on MSFD litter category list**
- **Set-up of network through Researchers, MS authorities, River Commissions, NGOs, etc.**
- **Acquisition of data (+ metadata) under different conditions in the estuaries of rivers**
- **Collection of riverine litter data in single database compatible with/for later use by MS and RSCs**

## *RiverlitterAPP set-up*

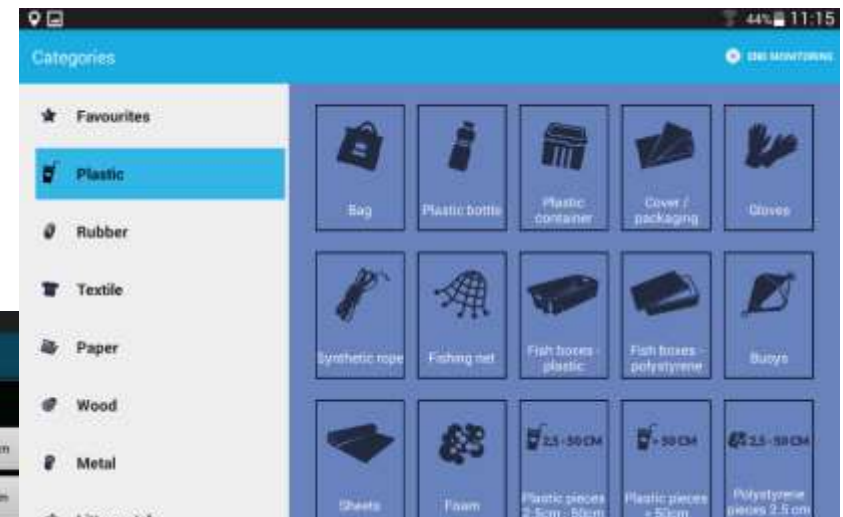
- Short term (1 h)
- Frequent



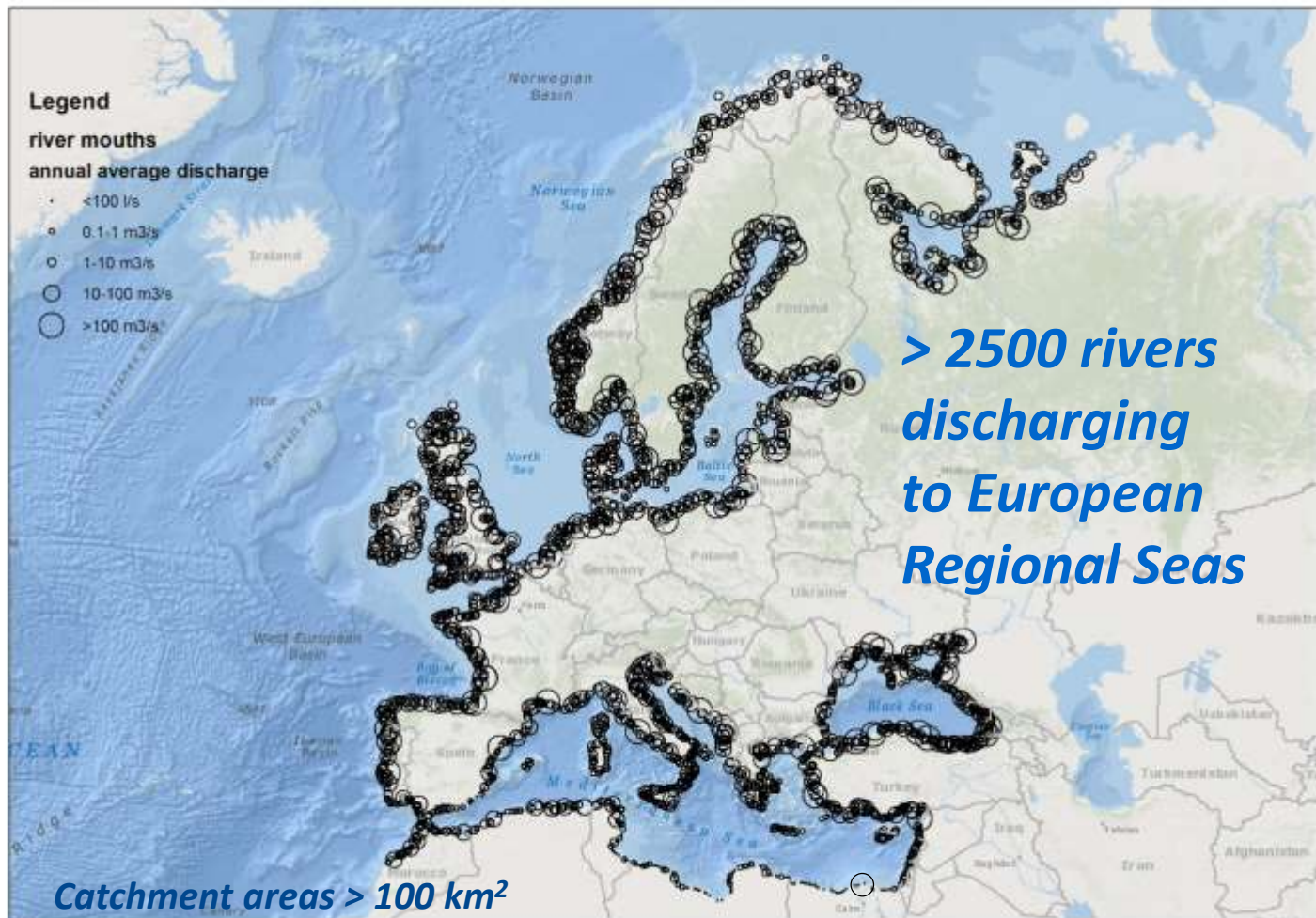
## *RiverlitterAPP set-up*



# Floating Litter Monitoring – Tablet computer application

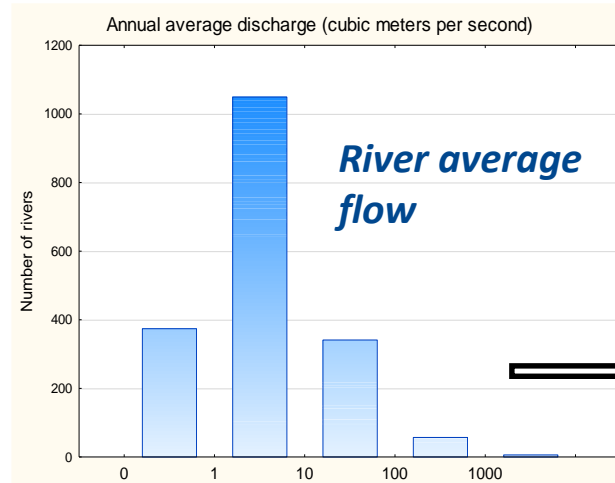


# Rivers

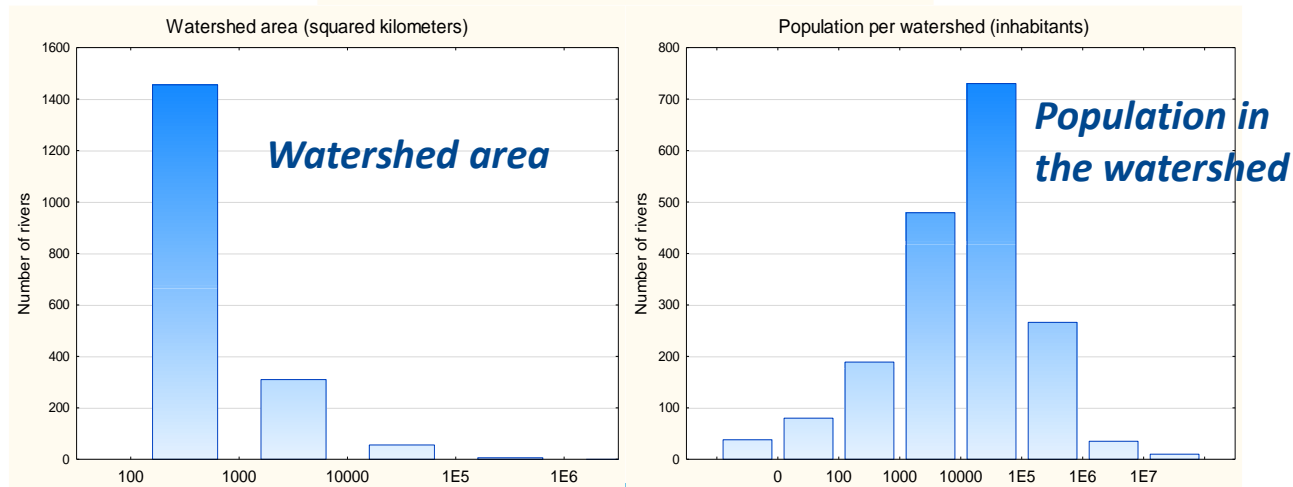


# Selection of river monitoring sites

*EU MS + Norway > 1700 rivers*



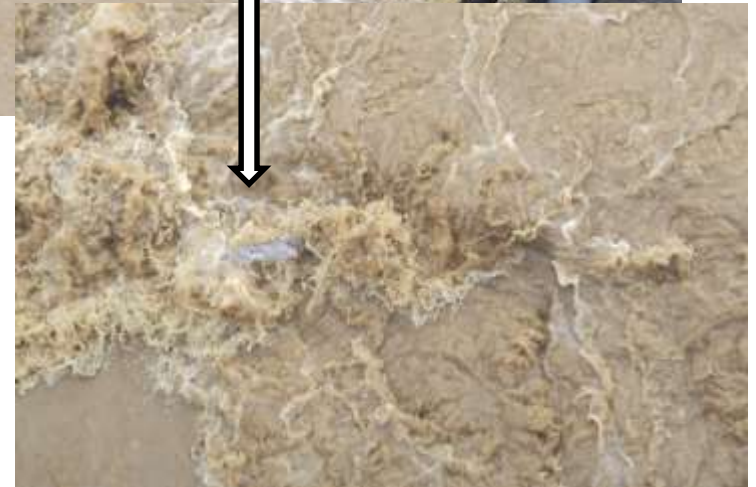
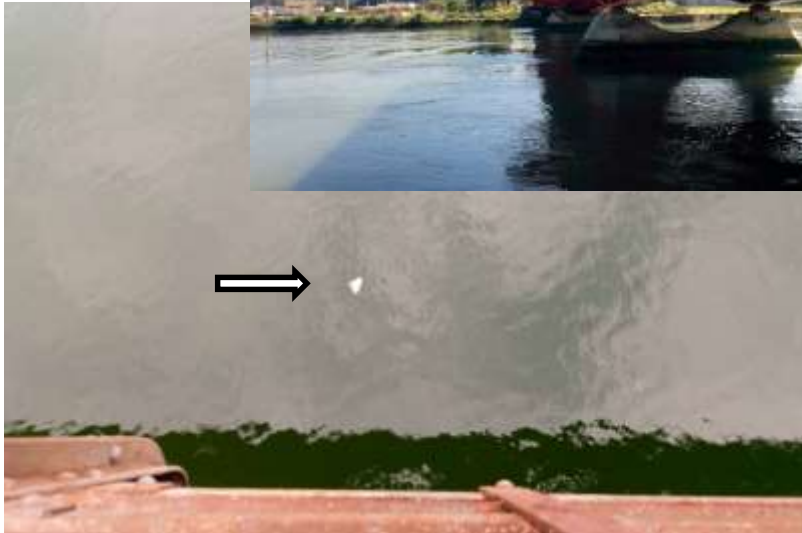
*11 rivers > 1000 m³/sec*  
*81 rivers > 100 m³/sec*



# *Selection of river monitoring sites*

*Different rivers!*

*Different conditions!*



# ***Floating Litter Observation Monitoring Network***

We invite you to join our International Observation Monitoring Network. Please, contact us to receive further information:

[rimmel@jrc.ec.europa.eu](mailto:rimmel@jrc.ec.europa.eu)

- Table computer App. ready!!
- Preparing database with contact details
- We should cover minimum 1 year data for seasonal variability

## ***The approach:***

- Contribution from Researchers, MS authorities, River Commissions, NGOs ...
- Visual observations of floating macro litter (>2.5 cm) on river water surface
- Monitoring at river/sea boundary (e.g. estuaries) from bridges ...
- Harmonized approach using the JRC Litter Monitoring App.
- Starting summer 2016 and finishing autumn 2017 (no mandatory frequency monitoring)

## ***Riverlittercam*** - Autonomous observation system pilot test

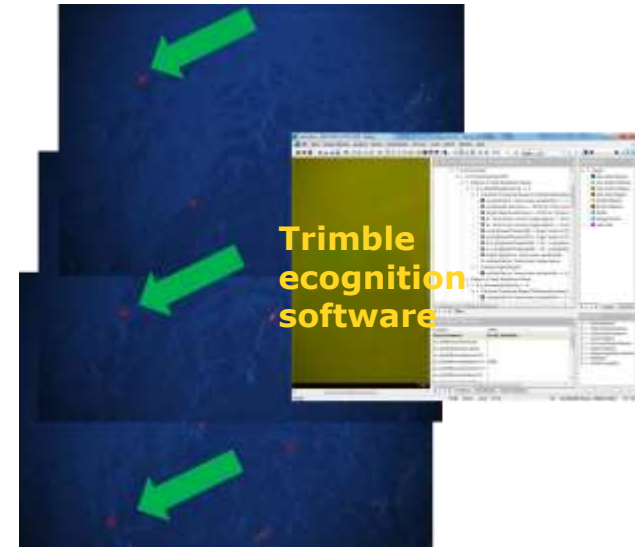
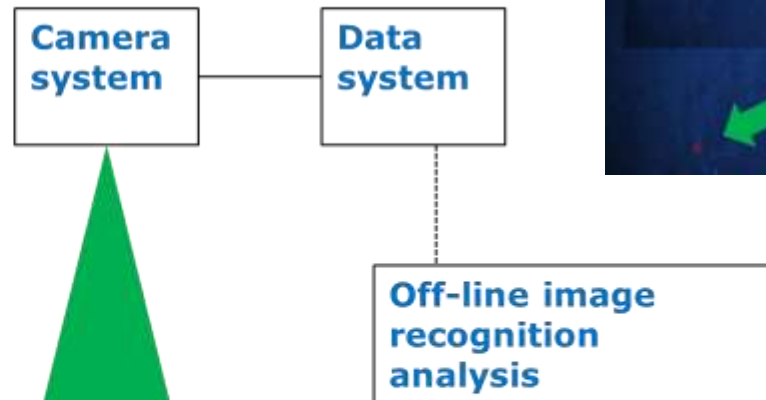
- High resolution camera installed over river close to estuary
- Image recognition software for identification of floating items
- Provides long term continuous observation



# *It's a challenge!!*

## *Riverlittercam set-up*

- Long term
- Pilot site



# *Riverine Litter modelling*

Combination of litter quantification data with metadata such as

- River flow data
- River properties
- Population data
- Meteorological data,
- Socioeconomic data
- etc..



Derivation of litter fluxes, litter hot spots, link with spatial and other factors

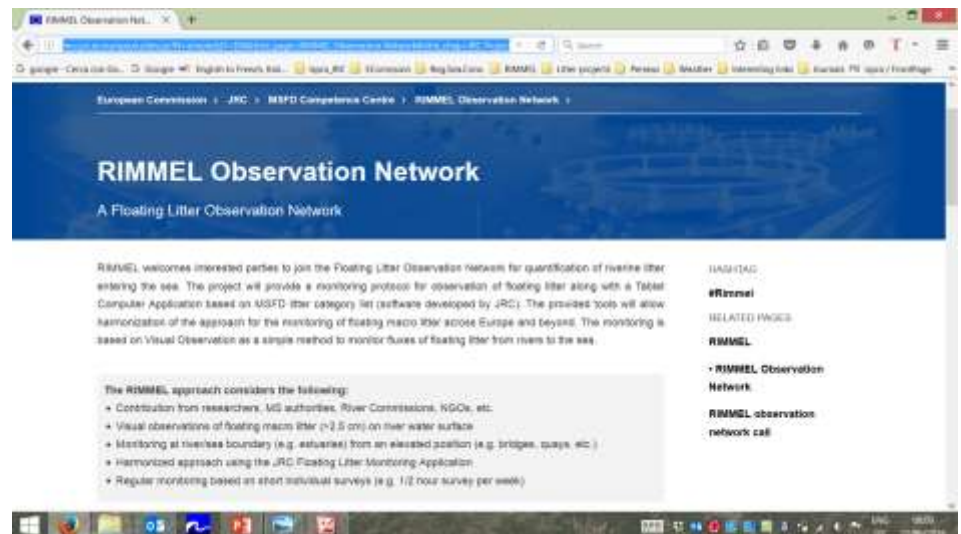
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**MSFD Marine Competence  
Center (MCC) website:**

[\*\*http://mcc.jrc.ec.europa.eu/\*\*](http://mcc.jrc.ec.europa.eu/)





# Thanks!!



**Bon voyage,  
Plastic bag!!**