**Evaluating Riverine Litter Monitoring Methods: A Comparative Study of Visual** and Camera-Based Approaches



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## Background

- While much attention is given on detection models using AI, little knowledge on camera, human and hybrid counting performance
- Insights in quality differences in methods for both short- and longterm measurements can improve monitoring strategies

## Methods

- 2 different data gathering methods (human and camera), executed in a semi-controlled waterway
- 4 different processing methods
  - A Human observations
  - (B) Manual counting from camera images
  - (C) Al-assisted counting from camera images
  - (D) Fully automated AI-based counting
- 6 different OSPAR categories tested (750 items, 2 size categories)
- **Cost/benefit** analysis for different methods for both short- and longterm monitoring

Main schematic visual created with the help of AI-generated illustrations.



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# Which litter monitoring method works best? – We'll put four to the test

From eyes to AI: comparing four different methods to monitor riverine litter



Hypothetical data used for illustrative comparison.







### **Expected results**

#### Quality assessment per method

- Ground truth comparison
- Pairwise cross correlation between methods



Method y

Cost benefit evaluation per method  $\mathbf{\Delta}\mathbf{I}$ 



Method x



Scan for abstract

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