ACeS PROJECT: Water, Climate and Health

Development of a replicable One Health model for the preventive assessment of health risks associated with bathing waters

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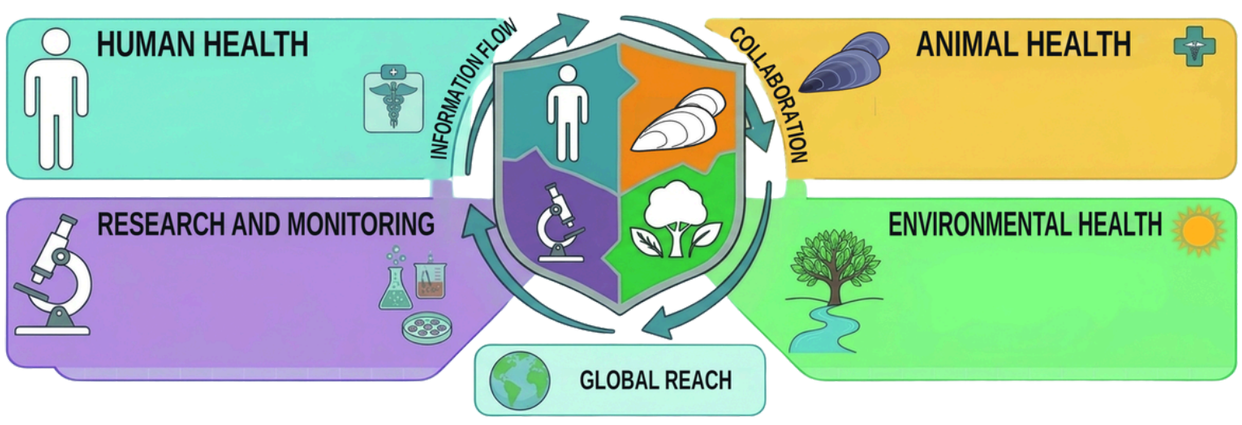
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INTRODUCTION

Coastal recreational waters are **increasingly exposed** to interacting **anthropogenic and climatic pressures**, with potential consequences for environmental and human health.

- Current EU bathing-water monitoring (Directive 2006/7/EC) relies on *Escherichia coli* and intestinal enterococci for microbiological quality assessment.
- They may not capture emerging biological and chemical hazards, including emerging pathogens and antimicrobial resistance (AMR).

OUR APPROACH



ACeS project addresses this gap through a multidisciplinary **One Health** approach.

WHERE



Samples were collected across two Italian pilot coastal areas in the Adriatic and Tyrrhenian Seas.

WHAT WE SAMPLED

- Seawater
- Marine sediments
- Beach sediments
- Edible bivalves

ANALYSES PERFORMED

- Chemicals
- Microbiological
- Metagenomics
- Ecotoxicological analyses

(including chemical contaminants, emerging pathogens and antimicrobial resistance).

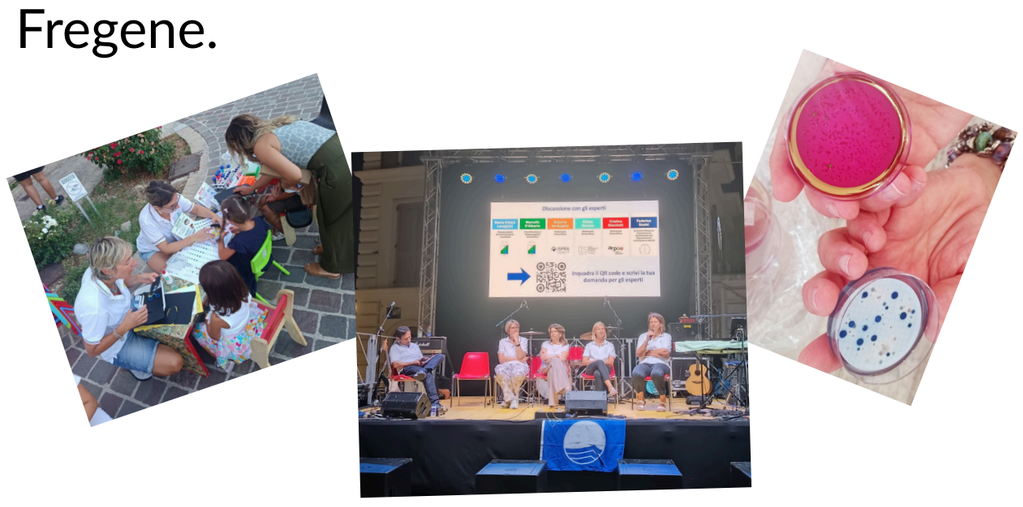
Findings were integrated into a risk-assessment framework considering multiple human exposure pathways, including ingestion, dermal contact, marine aerosols, sediment resuspension and transfer through the food chain.

WHAT WE FOUND

- Various antibiotic-resistant pathogens
- Contaminants found in sediments
- Residues of antibiotics for both animal and human use.

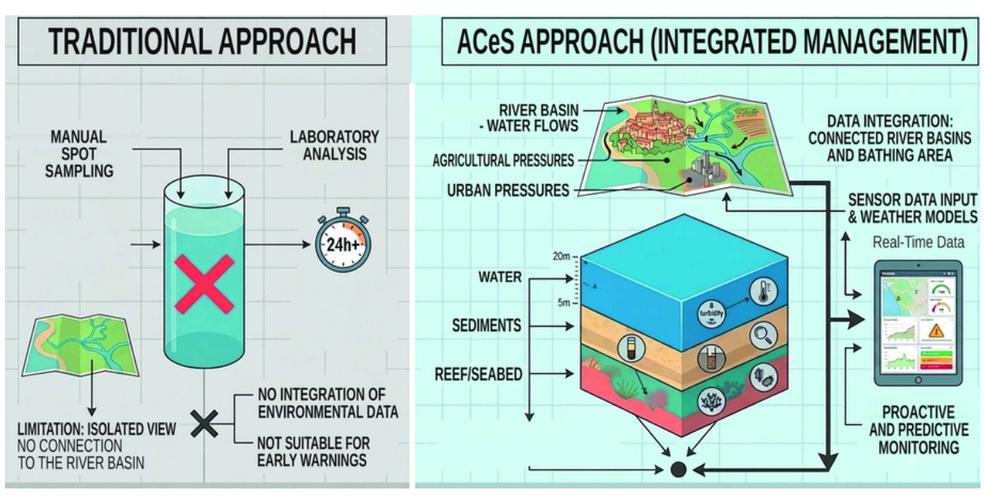
CITIZENS & SCIENCE

The model and risk-based approach were presented to schools, citizens, mayors and local environmental associations at two citizen science events in Ortona and Fregene.



ADDED VALUE

Bringing together public administrations with complementary expertise in human, animal and environmental health, ACeS combined its results into a model that turns complex data into one simple risk score for coastal water use. **ACeS provides a predictive risk-based approach that goes beyond conventional beach closure measures**, offering mayors new tools and highlighting the need to extend monitoring to rivers. Designed to be **replicable nationwide**, the model above all aims to provide new evidence to support **adaptations of the European regulatory framework on bathing water**.



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