



Brunel
University
London

INTCATCH: Developing innovative sensors for environmental water monitoring and management

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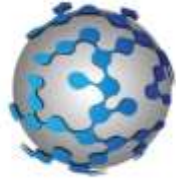
SEFS10 <http://www.sefs10.cz> 3rd July 2017

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INTCATCH



2020

Vision

Monitoring and managing the water environment for 2020 – 2050.

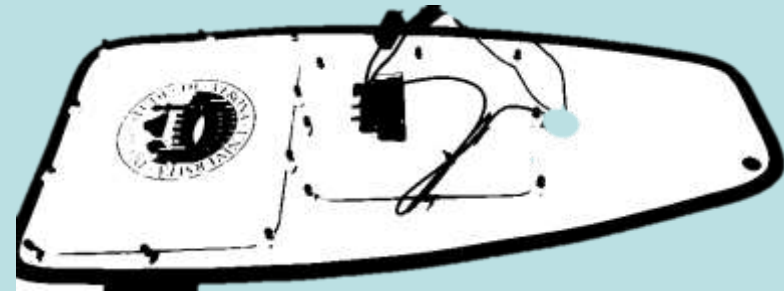
- We will deliver SMART water environments that use digital technologies, innovative low-cost tools and presents real-time information that:
 - ❖ protects and enhances the quality and value of those environments by enabling effective management of pollution in real time
 - ❖ reduces costs
 - ❖ engages more effectively and actively with citizens

The EU INTCATCH Project

Across the EU, regulators, policy makers and the water industry need reliable environmental data from which to assess and manage water quality. Such data may be expensive to provide and thus the EU Horizon 2020 funded INTCATCH Project <http://intcatch.eu/> aims to provide a paradigm shift in monitoring and management techniques utilising a bottom up approach from Citizen Scientists and other stakeholders.



SEFS 6



Brunel University has had a long & successful association with freshwater monitoring initiatives, working with local community groups and regulators.



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Development and application of Novel, Integrated Tools for monitoring and managing Catchments



INTCATCH is about robotic boats, sensors and water management

Coordinator: Brunel University
Duration: 44 months
Total EC funding: 7,570,335 €
20 partners from academia & industry

‘This is an opportunity to work with our partners across Europe to influence the monitoring and management of river and lake water quality that is fit for the period 2020-2040’

Call: Water-1-b-2015: [Water Innovation: Boosting its value for Europe](#)

Topic: Demonstration/Pilot Activities Type of action: Innovation actions

An EU Horizon 2020 Innovation Project

INTCATCH Consortium



Organisation	Country
UBRUN	UK
UNIVR	Italy
UVIC-UCC	Spain
NTUA	Greece
TCH	Italy
ISS	Italy
EYDAP	Greece
UGOE	Germany
BOKU	Austria
GO-Sys	Germany
ICN2	Spain
CERM-MTer	Spain
EA	UK
THAMES21	UK
ESAL	UK
DS-CIC	UK
PG	Italy
AGS	Italy
ALG	Italy
SALSNES	Norway

Are we focusing on the wrong problem?

❖ Present monitoring

- large discharges may have significant influence on rivers and coasts
- an issue that has been largely addressed in Europe ?

❖ Other polluting sources can lead to water quality problems e.g.

- Extreme events, sewer overflows; agriculture & misconconnections
- many water bodies cannot meet the Water Framework Directive objectives
- lack of 'dynamic data', spatial coverage
- monitoring of acute pollution incidents



Enable new stakeholders to monitor their water environment:

Assess current approaches to water quality investigations / monitoring in rivers & lakes.

Understand how people & communities can, and do interact with the water environment.

Develop innovative approaches to water quality monitoring:

- Identify and bring forward new tools

- Build new monitoring strategies

- Enable non-specialists – citizen scientists



What is INTCATCH about? Innovation, Demonstration and Data*

- Our Demonstrations show the effectiveness of our tools, and promote market uptake:
 - Lake Garda
 - Urban rivers in London
 - With stormwater / run-off treatment
 - Rural river in Norfolk (UK)
 - Lake Yliki in Greece
 - River Ter system in Spain

Data* ~ Cost effective, shared by local communities & regulators

What does INTCATCH mean to you? We all have our own “interests” e.g. ...

- The project encompasses these activities
 - Water quality
 - Writing papers and attending conferences
 - Data and communication
 - Catchment management
 - Engaging communities
 - Stormwater / run-off treatment systems
 - Citizen science
 - Supporting delivery of the Water Framework Directive

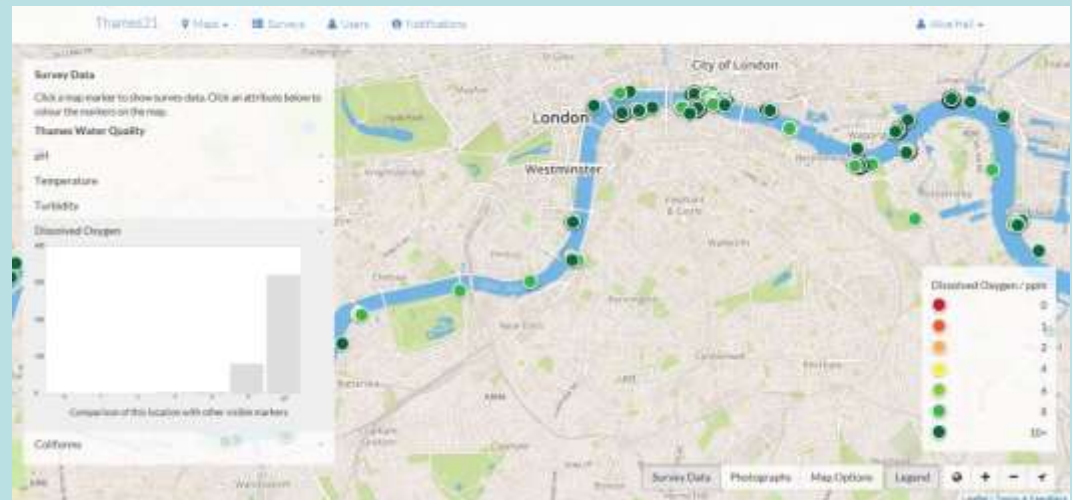
Change to a SMART water environment

- ❖ Combinations of water quality sensors on different boats
- ❖ Sensors used in the right place, right time, real time data
 - ❖ Identify inputs, sources, loads, dynamics
- ❖ Data stored and shared with other stakeholders for analysis *Community & Citizen Science*
- ❖ Enables effective decision making and management

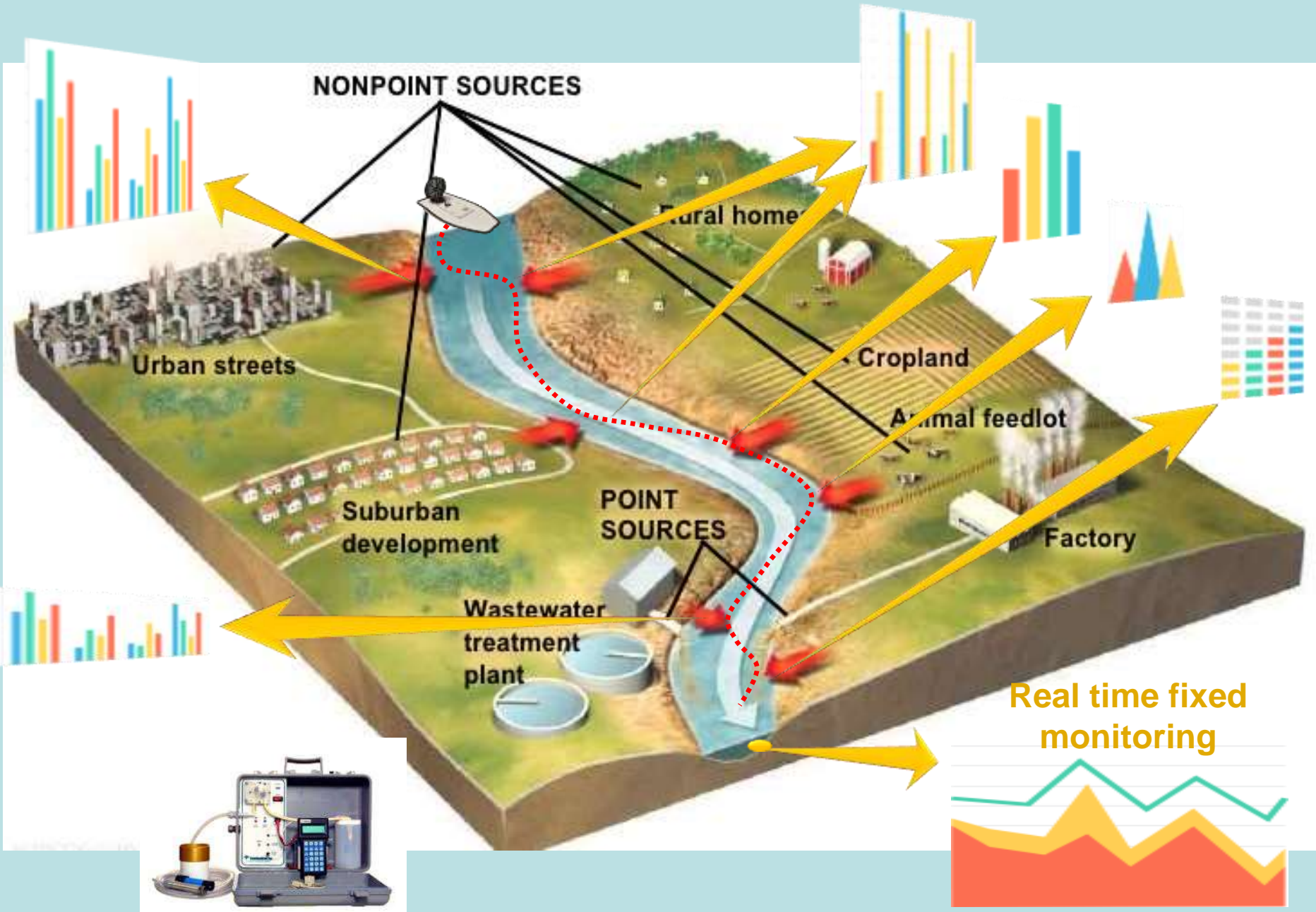


Thames River Watch Results

Trained 237 volunteers in how to undertake water quality monitoring in 29 sessions.
55 of these volunteers are regularly resting
Delivering 857 completed surveys.



Integrated (smart) water quality monitoring in catchments



INTCATCH: expected outcomes



- ❖ Regulatory monitoring
 - Comparative analysis
- ❖ Community / stakeholder monitoring focus
 - low-cost sensor-based investigations
 - mobile and fixed stations
 - pollution incident 24 hour 30 days
 - identifies the problem, and source
 - enables management decisions
- ❖ Empowered and engaged communities use these tools, share data and make improvements
- ❖ The INTCATCH project will compare & challenge existing environmental monitoring e.g. novel assessments such as e- DNA to determine coliforms & real – time methods for micro-plastics.



How you can help find our stakeholders?

- Who currently does water quality monitoring in your country?
 - What monitoring do they do?
 - What is the purpose?
- Identify the people, businesses and community groups that care about the water quality in your rivers & lakes?
 - Who are they ?
 - What are their needs ?



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Acknowledgements & Web Links

- INTCATCH <http://intcatch.eu/>
- Thames 21
<http://www.thames21.org.uk/projects/intcatch-smarter-rivers-and-lakes/>
- Citizen Crane:
www.cranevalley.org.uk/projects/citizen-crane.html
- FORCE Friends of the River Crane Environment www.force.org.uk
- Environment Agency
www.environment-agency.gov.uk



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Also with thanks to Nathalie Gilbert, Thames 21, Joe Pecorelli at ZSL & Rob Gray at FORCE + Ilse Styl, Crane Valley Partnership www.cranevalley.org.uk & Brunel INTCATCH colleagues

See also the SEFS9 Poster presentations :
LEONARD DRP., GRAY R. and PECORELLI J. (2015) Citizen Crane:
An example of Community engagement, helping assess the
environmental use of the River Crane, a tributary of the River Thames.

And

Development and application of a sediment analysis strategy for
monitoring the water quality of the River Crane, a tributary of the River
Thames by Kavitha Nagalingam from Brunel University.

Questions?



Project manager Nathalie Gilbert with one of the floating lab boats under development

Thames 21 Project Manager: Nathalie Gilbert testing equipment

London - find your wild side!



Prepare to **be wowed** by the natural beauty of the capital this [London Rivers Week](#) from June 26 - July 2.

With more than 30 events across London's rivers there is **something to inspire everyone**. From avid fitness fanatics to story lovers, London Rivers Week offers exciting events to entice even the most nature-shy among us.

Celebrate the wonder of London's rivers!

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