

Empowered communities – a balance between citizen engagement, common methodology and adaptation to local needs



Dr Wim Clymans

Research Manager, Engagement and Science

EARTHWATCH: INSPIRING ACTION SINCE 1971



Action

Empower
people to
protect the
natural world

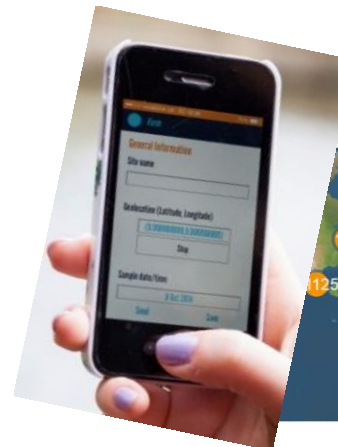
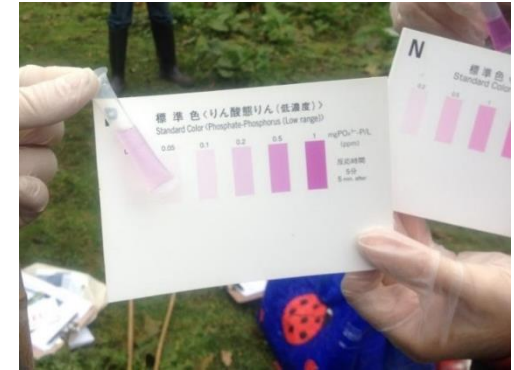
Engagement

Science



FRESHWATER WATCH

- Water quality monitoring tool
 - N, P, turbidity & more
- App & web platform
- In 6 years:
 - >9000 citizen scientists
 - >40 projects on 6 continents
 - >20 scientific publications
 - 89% of participants improved understanding of water issues
 - 95% reported changing own environmental impact



STEWARDSHIP PROGRAM

Creating a positive change on the ground:

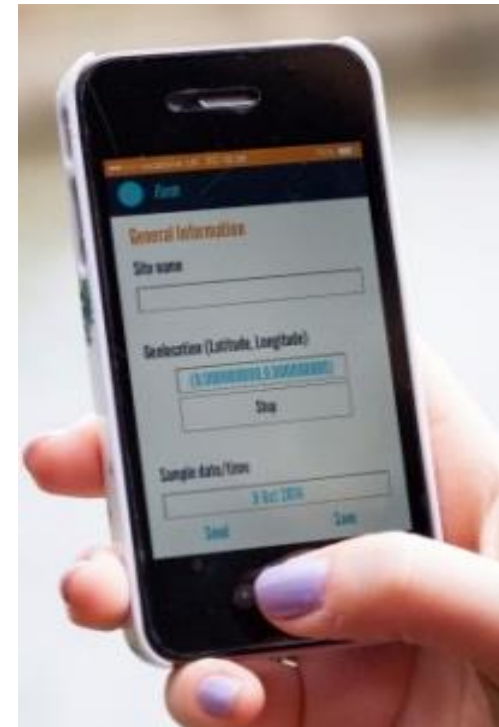
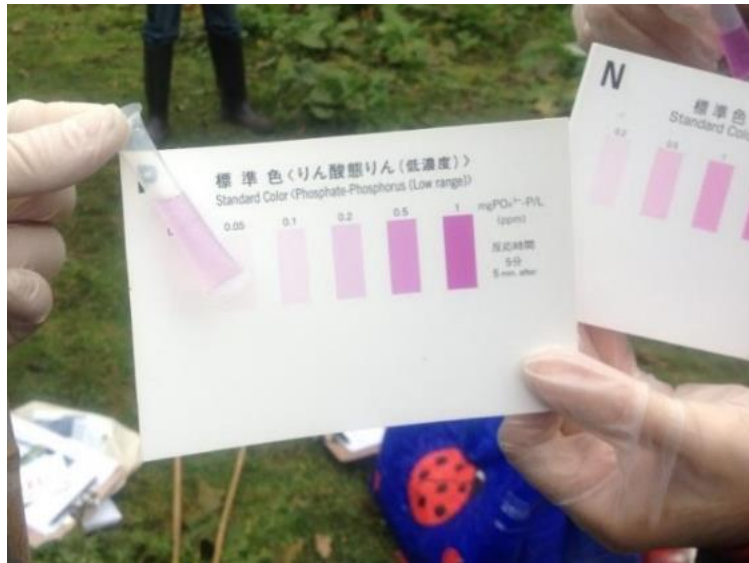
- Reduce pollution sources in urban areas
- Evaluate impact restoration project and catchment management plans

Systematic review of 40 + projects:

- User requirement and user experience survey
- Analysis of scientific and engagement performance

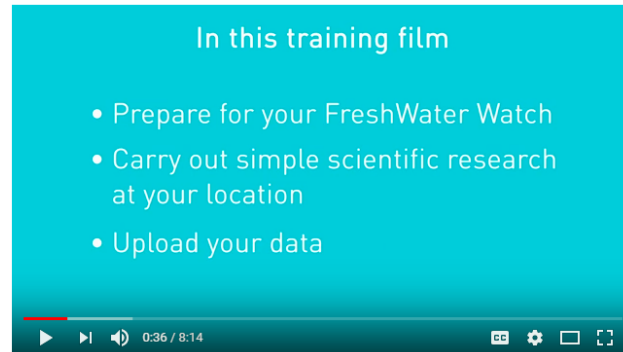
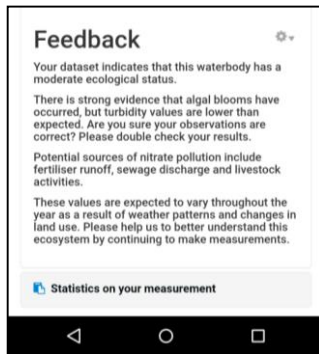
SCIENCE, ENGAGEMENT & ACTION

i. User friendly and robust methodology



SCIENCE, ENGAGEMENT & ACTION

- i. User friendly and robust methodology
- ii. Personalised feedback and support



Earthwatch FreshWater Watch



SCIENCE, ENGAGEMENT & ACTION

- i. User friendly and robust methodology
- ii. Personalised feedback and support
- iii. Capacity to support a network of communities
 - Organisation support
 - Train-the-train of group managers
 - Online Q&A and learning platform
 - External: Local PI or topic expert

SCIENCE, ENGAGEMENT & ACTION

- i. User friendly and robust methodology
- ii. Personalised feedback and support
- iii. Capacity to support a network of communities
- iv. Local ownership of standardised methodology

POSEIDOMM

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We are looking at water quality in the Chianti area, between Florence and Siena. The project is led by the University of Siena, v from local active communities, associations (Cittadinanza Attiva) and schools. Trained citizen scientists from several towns in t are mapping nutrient pollution and litter pollution in major rivers feeding into the Arno that eventually lead to the Mediterranean

We are also working towards the setting up of a microplastics monitoring strategy along our rivers and potentially in sediments.

Data Map



Data Table

Title
Pesa a Pontenuovo-
Torrente Agliena-04-
Virginio-04-04-2017-
elsa 02-17-04-2017-
Ema-23-04-2017-13
Elsa Certaldo campo

Adapted sampling design and parameters:

- pH, temperature, DO
- Ammonia, ...
- Odour
- Faecal residue
- Plastics
- Invertebrates

SCIENCE, ENGAGEMENT & ACTION

- i. User friendly and robust methodology
- ii. Personalised feedback and support
- iii. Capacity to support a network of communities
- iv. Local ownership of standardised methodology and approaches
- v. Easy accessible open data & story telling



OUR LATEST MAPS

The Freshwater Links philosophy is that 'The whole is greater than the sum of its parts'. Freshwater Links aims to empower local communities and researchers by connecting the growing number of volunteer, regulatory and research datasets in the Thames Catchment together. Discover datasets or understand your local aquatic environments, and find out how volunteers, NGOs and government organisations can work together and encourage ideas that will help to improve the quality of their local aquatic environments.

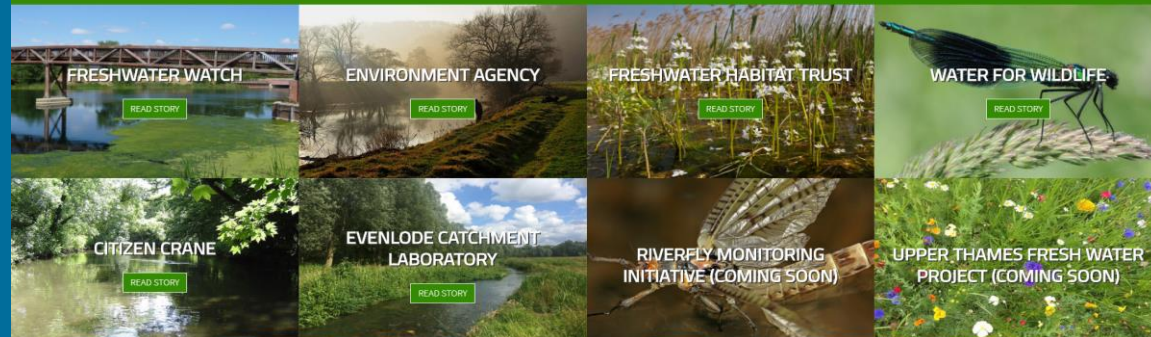


FIND OUT HOW TO GET THE MOST FROM OUR MAPS

MAP USAGE

WATER STORIES

Discover freshwater projects across the river Thames catchment where you can get involved. Each of these projects is developing productive partnerships between scientists and volunteers to help improve the state of natural environments and carry out important research.



CHALLENGE: IMPACT

- Policy/Management
- Legislation
- Protection of resources



Targeted pollution prevention, Lincolnshire, UK



Integrated Water Resources Plan for irrigation, Central Java, Indonesia



Early warning in Sao Paolo and Curitiba, Brazil

DISCUSSION POINTS

- Which platform ingredients are most relevant to empower citizens?
- How important is capacity building when offering a citizen science platform as a service?
- What is the importance of integrating analysis tools within a platform, and what would be the added value to support local communities?

ACKNOWLEDGMENTS:

Earthwatch: Leticia Miguel-Chinchilla, Zara Plummer, Luis Felipe-Velasquez, Steven Loiselle, Toos van Noordwijk, Josephine Head and Ian Thornhill

Partners: HSBC, Thames Water, Fresh Water Habitat Trust, Wild Oxfordshire, Environmental agency, and others.



Creating Knowledge. Inspiring Action.

CHECK OUT

MONOCLE Webinar 11th of June, 3PM GMT +1:
Citizen Science, Earth Observation and the future of
integrated environmental monitoring.

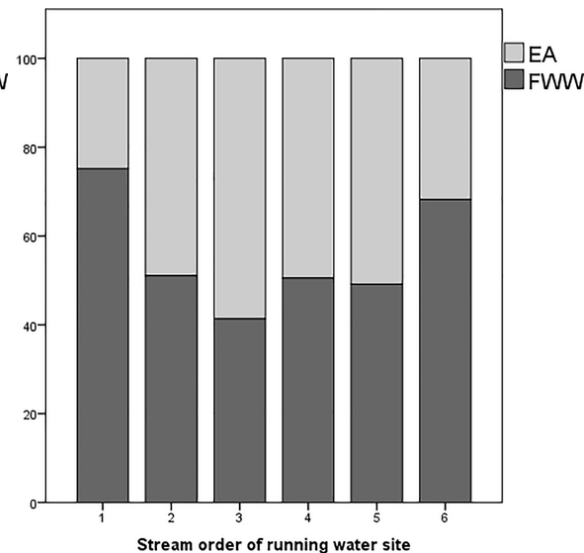
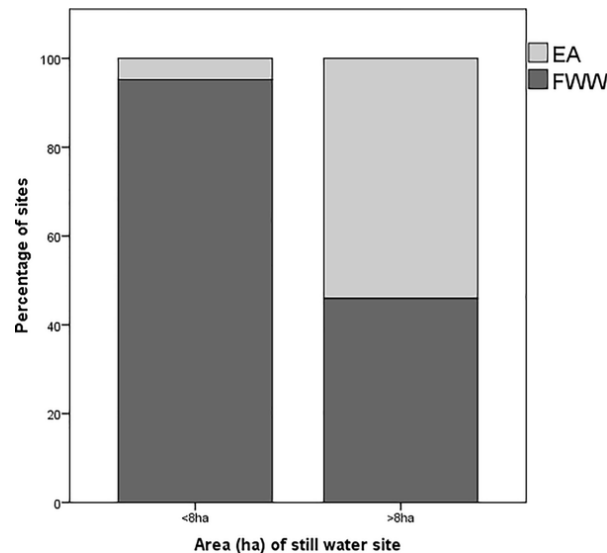
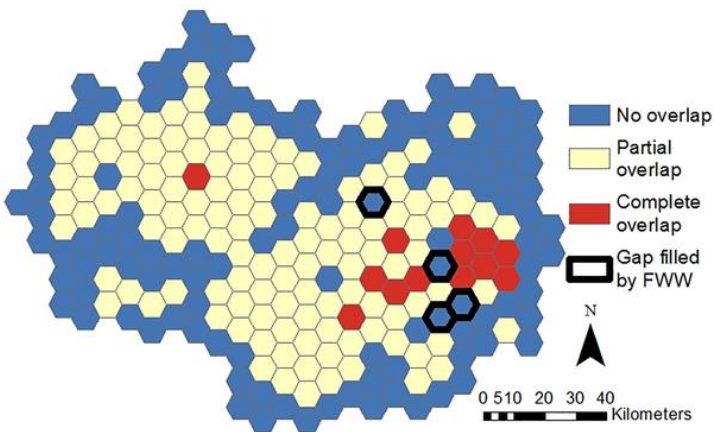
*We address opportunities for data sharing and
knowledge exchange between Earth Observation
and Citizen Science.*

Register: <http://monocle-h2020.eu/Webinars>

OPPORTUNITIES!

Getting the full picture: Assessing the complementarity of citizen science and agency monitoring data

Jeneen Hadj-Hammou^{1,2*}, Steven Loiselle^{1,3}, Daniel Ophof¹, Ian Thornhill^{1,4}




4. ON THE IMPORTANCE OF FEEDBACK

Timescale	Query	Communication
Rapid (immediate)	Did my record count? Is anyone listening?	Feedback to app. Data appearing online
Short (quarterly)	What does our data mean? Is it working?	Simple trends analysis Contextual information Visualisation
Medium (annually)	Who is listening? What action can we take?	Scientific reports Management/policy influence (if appropriate)
Long (project end)	Is my local environment improved? Have we helped the planet?	Impact reports How to carry on Tangible outcomes


What is FreshWater Watch?

Watch this animation to find out more.



Leaderboard

Are you one of our top citizen scientists?



Select a Freshwater body type

Select a Freshwater body type

- Freshwater
- Stream
- Lake
- River
- Wetland
- Other

Select the immediate surroundings

Select the immediate surroundings

Select the pollution sources

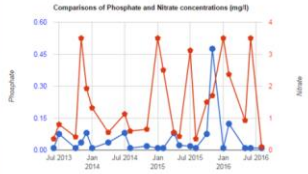
Select the water flow

Search

Average concentrations from selected areas

Temporal dynamics from selected areas

Selection 1 from Lat 53.80065 and Long -1.63593 to Lat 53.85962 and Long -1.45329



Month and Year (number)	Average Phosphate	Average Nitrate
May 2013 (1)	0.009	0.349
Jun 2013 (2)	0.075	0.800
Jul 2013 (5)	0.009	0.409
Oct 2013 (1)	0.035	0.500
Nov 2013 (2)	0.080	1.924
Dec 2013 (3)	0.009	1.315
Mar 2014 (2)	0.035	0.549
Jun 2014 (2)	0.080	1.125
Jul 2014 (6)	0.009	0.591
Oct 2014 (3)	0.018	0.649
Dec 2014 (1)	0.009	0.500
Jan 2015 (2)	0.009	0.500
Mar 2015 (2)	0.080	0.549
Apr 2015 (2)	0.022	0.429
Jun 2015 (3)	0.018	0.116
Jul 2015 (1)	0.009	0.349
Sep 2015 (1)	0.075	1.500
Oct 2015 (3)	0.475	1.700
Dec 2015 (1)	0.009	0.500
Jan 2016 (3)	0.123	2.366
Apr 2016 (2)	0.009	0.424
May 2016 (1)	0.009	0.500
Jul 2016 (1)	0.009	0.100

Meet Ian, one of our scientists
Read Ian's blog

The Citizen Science Opportunity for Researchers and Agencies

IAN THORNHILL, STEVEN LOISELLE, KATERINA LIND, AND DANIEL OPHOF



RESEARCH ARTICLE

Micro and Macroscale Drivers of Nutrient Concentrations in Urban Streams in South, Central and North America

Steven A. Loisele¹, Davi Gasparini Fernandes Cunha^{2*}, Scott Shupe³, Elsa Valiente⁴, Luciana Rocha⁵, Eleanore Hessler⁶, Patricia Pienas Belmont⁷, Anindam Banerjee⁸

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FreshWater Watch

- Dashboard
- Store
- Content
- Structure
- Appearance
- People
- Modules
- Configuration
- Layer Slider
- Quiz
- Reports
- Log out
- Hello I Thornhill

Feedback on your measurement

Feedback

Your dataset indicates that this waterbody has a moderate ecological status.

There is strong evidence that algal blooms have occurred, but turbidity values are lower than expected. Are you sure your observations are correct? Please double check your results.

Potential sources of nitrate pollution include fertiliser runoff, sewage discharge and livestock activities.

These values are expected to vary throughout the year as a result of weather patterns and changes in land use. Please help us to better understand this ecosystem by continuing to make measurements.

Statistics on your measurement