

Sullied Sediments Water Sampling Activity for Volunteers
(Work Package 5 – Citizens’ Behaviour)

The volunteer water sampling activity is delivered in eight parts:

- 1) Meet and greet volunteers (CRT staff/volunteer)
- 2) Waterside health and safety talk (CRT staff/volunteer)
- 3) Overview of the Sullied Sediments project (University of Hull/ERYC)
- 4) Behaviour Change Survey (UHull/ERYC)
- 5) Rationale for Sampling Activity (UHull/ERYC)
- 6) Demonstration and instructions (UHull/ERYC/CRT)
- 7) Sample gathering (done in smaller groups if necessary)
- 8) Round-up discussion and thanks (all)

Group size may depend on leader – It worked with the plenary introduction and smaller sampling groups.

1	Meet and greet volunteers	Lead: CRT staff/volunteer
	<u>Requirements</u> Registration sheet <u>Content:</u> <ul style="list-style-type: none"> • Welcome volunteers • Ask them to sign in on registration sheet (needed for reporting) 	
2	Waterside health and safety talk	Lead: CRT staff/volunteer
	<u>Requirements</u> <ul style="list-style-type: none"> • First aid kit • Life jackets <u>Content</u> <ul style="list-style-type: none"> • General health and safety talk and any information relevant to the day (i.e. relating to weather conditions) 	
3	Overview of the Sullied Sediments	Lead: UHull/ERYC
	<u>Requirements</u> <ul style="list-style-type: none"> • Sullied Sediments leaflets • Sullied Sediments banner <u>Content</u> <ul style="list-style-type: none"> • Is everyone familiar with the landmark BBC series called Blue Planet hosted by Sir Richard Attenborough? • This television series has given us a vivid wake up call to the damage that plastics are causing in our oceans and seas. • It has spurred waves of action across the world. People are taking part in mass campaigns to clean up our seas and beaches. Policy makers are setting down stricter rules to control plastics. And businesses are reviewing their practices to reduce or eliminate their use of it. 	

<ul style="list-style-type: none"> • Blue Planet has focused almost every corner of society on plastics in our oceans. However, our inland waterways are also at risk. Not only are they being affected by plastics, they are also affected by other forms of pollution, including chemicals that are wind up in waterways. • Today, we are going to find out more about what's in our waterways and what we can do to ensure that our rivers and canals are healthy and fit to be enjoyed by future generations. • We are running this workshop as part of a major European-funded project called Sullied Sediments. Through this project, a network of scientists, researchers, water managers and regulators are developing a better understanding of the chemical pressures our waterways are under. The information we gather is being shared with those organisations that are responsible for waterways to help them look after our rivers and canals better and more cost-effectively. • In this project, we are also developing brand-new techniques that can help us remove certain chemicals from the water and from sediments. These methods are being pioneered in the lab and we are hoping to work with water companies and regulators to test them in waste water treatment facilities or in the environment. • The third part of the Sullied Sediments project is about helping people to understand how they may be inadvertently harming the environment through their use of certain chemicals that can be found in household items, such as common medications, hand soaps, toothpaste, clothing and cosmetics. This is why you are here today. 				
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- These substances either pass through us and get flushed down the toilet or are washed into drains. Either way, they become wastewater which is transferred to special facilities for treatment and for the most part released back into the water cycle.
- Our water companies already clean our waterways by removing many substances that we are already aware of. As well as this, they are working alongside us on the Sullied Sediments project to find out about the things that may need to be removed in the future.
- For us, the health of our waterways reflects the quality of the environment in which we live and we are keen to ensure that this environment is looked after and in good condition.
- So, what can we do to reduce the levels of these watch list chemicals in our rivers and canals?
- Today we are going to use a paper device to test for phosphates in the river water. Whilst phosphates are an essential nutrients needed too much of them can cause problems.... These tests have been developed as a pilot study to help us to develop similar devices to look for watch list pollutants, in particular triclosan.
- Today we hope to achieve three things:
 - First, we would like to make you more aware of what substances you may be releasing into the environment through regular, daily activities so you can make better choices about the products you use.
 - Secondly, we want to suggest how you can dispose of medications safely.
 - And thirdly we will offer ideas for alternative products that you can use.
 -

Sullied Sediments: Domestic sources of river pollution



A simple test for one pollutant.

Everyday household products too often end up in our local waterways where they can cause problems. Simple changes to our lives could help prevent this.

Ways you can help reduce other pollutants.

- Personal care product – Check the label for triclosan (TCS)
- Medicine – Dispose via local pharmacist
- Garden products – use alternatives

This work is carried out as part of the EU-Interreg North Sea Region, focusing on the Sullied Sediments project

6 Demonstration and instructions | UHull/ERYC

Requirements

- Laminated info sheets (How PADs work, Domestic Sources, PAD Test)
- Sampling kit (including white board/sheet for assessing and photographing petri dishes)
- PADs
- App loaded on at least one mobile device per group

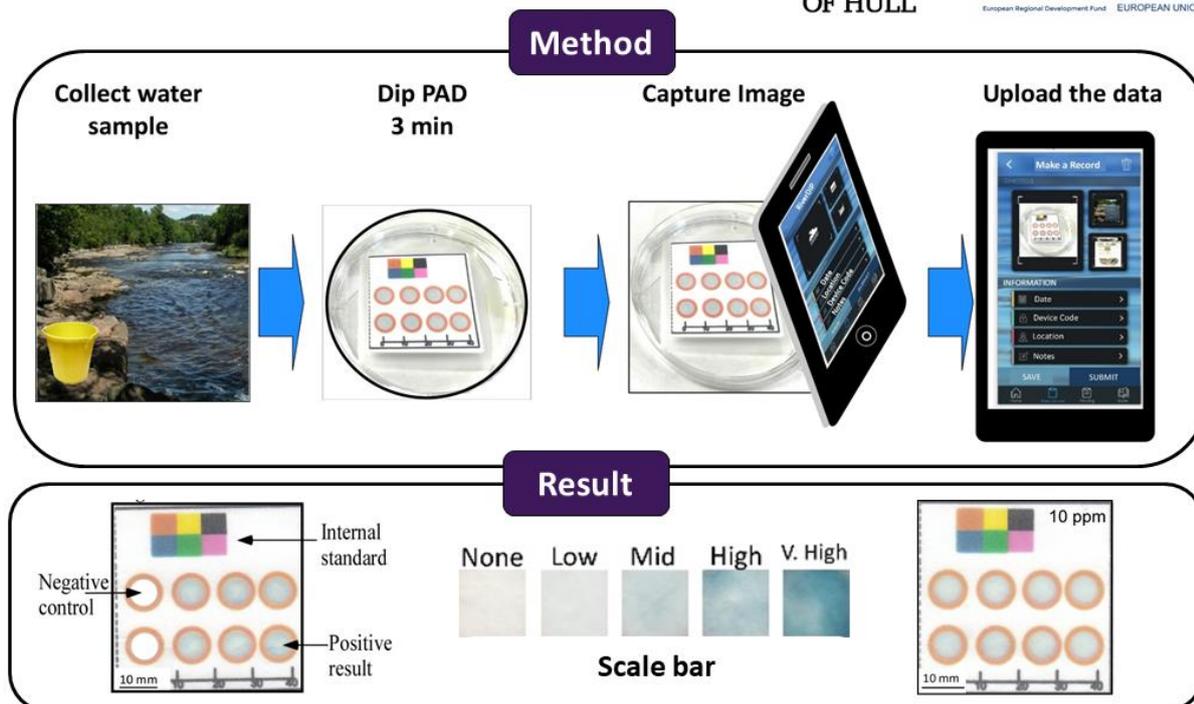
Content

- Explain how the app has been developed
- Download the app if need be

- Assign roles within the group (e.g. app user, water dipper, photographer, etc.)

How the Sampling Activity should be carried out:

Sullied Sediments: PAD test



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7 Sample gathering

All

Requirements

- Sampling kit (including white board/sheet for assessing and photographing petri dishes)
- PADs
- Laminated copy of *The Conversation* article

Content

- Once participants are settled into the sampling activity, you can talk to them about the various sources of watch list chemicals and changes that can be made.
- Triclosan (an antibacterial agent found in soaps, toothpastes and cosmetics) – All products have an ingredients list. If you are concerned about what might be in your toothpaste, look at the list. If your brand contains triclosan, shop around and find one that do not contain triclosan.
- Diclofenac (a painkiller) and estradiol (which is found in the contraceptive pill) – What do you do with medications that you no longer need or that have expired? Flush them down the loo, put them in the bin? If you do either of these things, trace amounts of these substances will end up back in the environment over time – either through the water cycle or through leaching in landfill. The best way to dispose of drugs is to return them to your local pharmacy where they have a safe process for destroying unwanted medications.
- Methaldehyde (found in slug pellets) – Although methaldehyde is not a watch list chemical, it is something that many people are familiar with and we know that it is not good for the environment. There are a number of alternative methods for eliminating slugs, for example hand-picking, beer, copper tap, oatmeal, egg shells, coffee grounds, nematodes (a type of worm),... the list goes on.
- We can refer and talk about the article in *The Conversation*, which has been look at by 5,000 readers. The article is called: “Four simple ways you can reduce pollution in your local river”. Here is the link

We can talk about how the PADs work:

Sullied Sediments: PAD test

Domestic pollution sources

Everyday household items too often end up in our local waterways where they can cause problems. Simple changes to our lives could help prevent this.

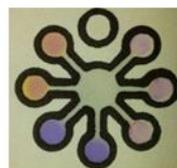


Sources of potential pollution

- Personal care product – Check the label
- Medicine – Dispose via local pharmacist
- Garden products – use alternatives

Paper Analytical Devices (PADs)

Paper-based devices can be used to check for pollutants in river water using colour changes.



Iron

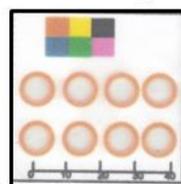


Nickel

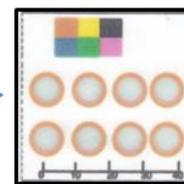
Copper

How?

- A wax barrier in the paper creates reaction zones where a colour change occurs.
- We can test for potential pollutants by observing a colour change in the reaction zone.



Just add water



This work is carried out as part of the EU-Interreg North Sea Region, focusing on the Sullied Sediments project

- We can talk about how this activity is helping us to test the effectiveness of the PADs. Our aim was to develop a testing device that was easy to use and produced results quickly. The PAD also had to be versatile; that is, capable of being adapted to detect a range of substances.
- By taking part in this activity you are helping us to refine the design and effectiveness of the PADs. This will help us to develop a tool, or a sensor, that can be used in other settings, such as in industry on farms and in other places where environmental monitoring is needed.

8 Round-up discussion

All

Use this time to find out how the volunteers found the sampling activity. Consider asking the following questions:

- How did you find using the app?
- What kind of results did you get?
- Did you have any problems with carrying out the test?

Let volunteers that we would like to stay in touch to keep them informed in the project and so we can send them the follow-up survey. Ask if that is okay.