



TRAINING CARD: WATER QUALITY



Red Burn, Acomb
river watch

A participatory approach to water quality monitoring: Observing water quality using simple techniques

Water quality monitoring – appreciating the physical, chemical and biological characteristics of our ditches, streams, rivers and lakes.



What is ‘water quality monitoring’?

Water quality is a way of describing or classifying the health of the water environment. Useful parameters can be monitored to provide an indication of how healthy a pond, lake, stream or river is.



Why monitor water quality?

The water environment has many purposes – for example, it sustains aquatic life, it is a source of water and it is a recreational resource. Water quality can also change suddenly as a result of a flash flood event. It is sometimes difficult to physically see by eye how healthy a water body is. A range of physical, chemical and biological parameters can provide an indication of how healthy a pond, lake, stream or river is and there are many well-established monitoring techniques available which we can use to answer:

- *What is present and what isn't present?*
- *How does it vary from it's original state?*
- *Where are the pollution sources and pathways?*
- *How does it change over time and during a flood?*



What parameters can I observe?

There are many observational parameters which we can use. This training card will cover the main physical, chemical and biological indicators relevant to rural UK water environments:

- **Temperature**
- **Algae**
- **Dissolved Oxygen (DO)**
- **Nitrates / Nitrites**
- **Phosphates**
- **pH**

These parameters provide a simple water quality assessment. If you collect surprising results, it may trigger a more detailed assessment.

There is a separate training card for water clarity. It is best to measure all parameters listed, including water clarity, at the same time to provide a ‘complete’ picture for water quality. Use the same water sample for all tests but test for DO and temperature first.



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How often should I observe the water quality parameters?

It is desirable to make an observation at least **once a week or once a month** at each location you are monitoring. Make a note of the **date** and **time** on your monitoring sheet. Extra observations before, during and after rainfall events are also extremely useful too!



Where should I get my equipment from?

A suggested supplier is **LaMotte Europe** which specialise in water monitoring kits and are approved by many regulating bodies e.g. US Environment Protection Agency (EPA). Take a look at their website here: <http://www.lamotte.com/en/>.



Recommended water quality equipment from LaMotte:

- Nitrate / Nitrite test strips (No. 2996): <http://bit.ly/1sut6aZ>
- Phosphate test kit (No. 5892): <http://bit.ly/1pKWoyw>
- Dissolved oxygen test kit (No. 5889): (<http://bit.ly/1kWGt1d>)
- pH test strips (No. 2974): <http://bit.ly/1pKWoyw>

Speak to your local river watch (citizens science) group – they may have a budget for monitoring equipment. You may also need a sampling pole to assist with getting water samples out from the river. For example, you could use a wooden cane from the garden and attach your sampling bottle with elastic bands..

Monitoring tips:

In any type of environmental monitoring scheme, it is important to be **consistent** with your monitoring approach, location and equipment used. This will allow us to make valid comparisons over time and between different locations.



Important Please take care when sampling water, especially if the stream or river is fast flowing. You do not need to stand in the water to take a sample – take it from the bankside. Do not put yourself in any danger! If possible, work in pairs.



Did you know that there is such a thing as the 'World Water Monitoring Challenge'? Each year on the 18th September, people from all over the world take water quality measurements using techniques like those listed in this training card. Find out more here: <http://www.worldwatermonitoringday.org/default.aspx>



Action 4 Acomb



Where should I monitor water clarity?

There are no specific monitoring locations – it depends on your own ability to reach the same location each time you are observing water clarity. Think about what your normal walking route would be – can you tie it in with this? Please also remember that you need to be able to access the burns easily and from a footpath. Two suggestions include:



Red Burn Culvert area:
downstream of the trash screens but upstream of the road culverts, near Crossbank View.



Birkey Burn Allotments:
by the footbridge which leads to the allotment gardens, at the bottom of Garden House Bank.

Click on the coloured dots to view exact locations on Google Maps (internet required)



How do I submit my results and how often?

It is suggested that you record your weekly/monthly observations each time and submit a monitoring sheet at the end of each month to the shared Dropbox folder. You could also try using Twitter or the Android app to submit your data as soon as you have taken a reading so the community can benefit from this information. You can also submit your observations using the ‘Red Burn Citizen Science’ webpage here: <http://bit.do/redburn-submit> if you prefer. Remember... Your observation should always be accompanied by a date, time and location.


#WaterQuality
@RedBurnAcomb

Why not also take a picture of yourself monitoring and tweet it to [@RedBurnAcomb](https://twitter.com/RedBurnAcomb) with the hashtags #WaterQuality and #RedBurn or #BirkeyBurn.



An example and suggested water quality monitoring sheet..



OBSERVERS NAME: J. HALL		PARAMETER: PH		
LOCATION: Birkey Burn Allotment Footbridge, Garden House Bank, Acomb.		GRID REFERENCE: (http://gridreferencefinder.com/) 392928 565946		
OBSERVATION DATE (DD/MM/YYYY)	TIME OF OBSERVATION (24HR CLOCK)	PH	BRIEF WEATHER DESCRIPTION (PAST 24 HRS)	NOTES (VISUAL OBSERVATION)
01/04/2015	09:05	7	Dry, warm for past week	Clear looking
08/04/2015	09:00	6	Heavy rain overnight	Opaque – dark brown

For further support and guidance please contact Action 4 Acomb – contact details can be found on the website: <http://www.action4acomb.co.uk/>