

Welcome to FreshWater Watch!

Congratulations! You are now part of a community of citizen scientists who are monitoring freshwater quality around the world. We hope that you are looking forward to contributing to our global research programme. This leaflet contains instructions for how to take your water quality measurement. If you are a group leader, you are responsible for passing on these instructions to your group members and ensuring that they understand the safety measures. Please check that you have installed the FreshWater Watch app on your mobile device or have a printed copy of the datasheet. Both can be accessed through your online profile: www.freshwaterwatch.org

Important safety guidance

Before setting off, make sure that you have:

- ✓ Followed the latest COVID-19 government advice in your region regarding social distancing, movement and personal hygiene measures, and have taken extra precautions if you are sharing kit outside your household
- ✓ Permission to access the water body from the landowner
- ✓ Someone going with you, or leave instructions with someone as to what you are doing and where
- ✓ A mobile phone or a way to call for help, and details of the nearest medical facility and how to get there
- ✓ Sensible footwear that is waterproof and with good grip
- ✓ Appropriate clothing and protection (e.g. high SPF suncream) for the environment and the weather
- ✓ Knowledge of current weather forecast; is there a chance of flooding or dangerous conditions?

Upon arriving at your site:

Sampling activities should be avoided in dangerous conditions or locations. Do not approach animals and keep a safe distance away from them whilst sampling. Select a site with easy access to the water where you can stay on a stable area of the bank without needing to balance on uneven ground or overstretch. Avoid sampling from unstable stream banks, poorly anchored railings and slippery rocks. If you have any doubt about the stability of the bank, please do not sample in that site and look for a safer place to do it. Consider these questions:

- Is the waterbody too high or too fast for you to access it safely?
- Are you somewhere stable with good footing?
- Is there somewhere safe for you to carry out the tests away from the water's edge?

While carrying out the tests:

- Maintain a firm footing on solid hard ground. Don't overstretch to reach the sample water. Where possible, a bridge with stable waist-height railings should be used. If lower railings are also present, you can sit down to be more stable. If it is absolutely necessary to enter the waterbody, only enter to ankle level and ensure firm footing at all times.
- Always wear gloves in order to avoid direct contact with your sample water and the potential transmission of waterborne contaminants.
- Be careful of your eyes if using a pole or a stick as part of your water sampling device.
- Carry out the nutrient tests at a suitable and safe distance away from the waterbody.
- Remember that the nutrient tubes contain a strong acid substance which is harmful if inhaled or ingested. If any contact occurs with eyes and skin, or mouth, rinse and wash the areas thoroughly with plenty of clean water. Seek medical advice immediately if an adverse reaction occurs, or if any substances are ingested.

After testing:

- Correctly dispose of the nutrient test tubes and the small yellow pins. Both are made from polyethylene and are fully recyclable. Before you recycle them, make sure to squeeze out all of the liquid into an indoor sink or toilet (not back into the waterbody). Your colour cards and sample cup can be kept and reused again.
- Wash your hands thoroughly after testing, or use an alcohol rub.

How to take your FreshWater Watch measurements

Record your location:

- Give your site a name. If you have been to your site before, try to use the same name as last time.
- Record your location. You can do this using the geolocation on your smartphone (press the 'confirm' button under geolocation in the app). Alternatively, you can use the online map service on the website.

Take a photograph:

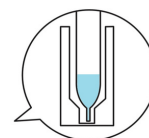
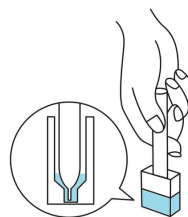
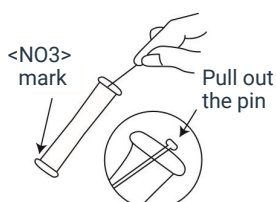
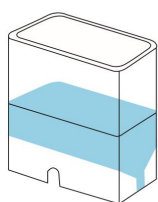
Photos should be taken from the same place on each visit. Try to include as much information as possible.

Visually assess the waterbody:

Record your answers to the series of questions in the app or datasheet. These questions allow you to describe the surrounding land use, vegetation and any visible pollution sources. Please consider only the immediate surroundings (i.e., what you can see today at your site).

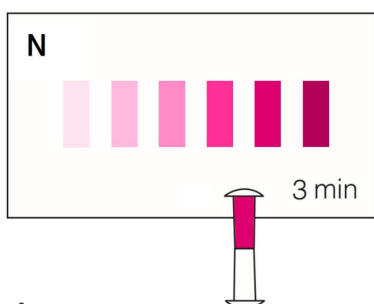
Nutrient tests:

- Collect your sample water, facing upstream if you are testing moving water. Try not to disturb the bottom of the waterbody when you are collecting your sample, as this will impact the accuracy of the test results.
- Rinse out your sample cup twice with the sample water and then fill it up to the halfway line (1.5ml).
- Remove the small yellow pin from the top of the NO₃ tube to open the hole.
- Squeeze the sides of the tube to expel approximately half of the air volume.
- Keeping squeezed, insert the tube fully into the sample cup and then release the sides to suck up the water.
- Shake the tube lightly to ensure that all of the powder has dissolved. Repeat all steps with the PO₄ tube.



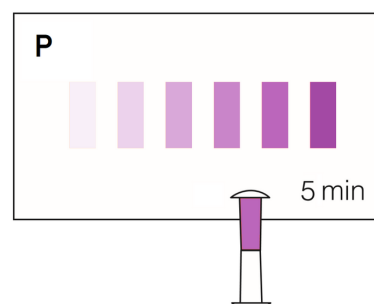
Reading the Nitrate (NO₃) test:

At exactly **3 minutes**, place the NO₃ tube onto the colour chart and compare between the standard colours. Record the range that best correlates.



Reading the Phosphate (PO₄) test:

At exactly **5 minutes**, place the PO₄ tube onto the colour chart and compare between the standard colours. Record the range that best correlates.



Turbidity measurement:

The water clarity can be measured by taking a reading of the Nephelometric Turbidity Units (NTU) on the side of the Secchi tube. Higher readings correlate to higher levels of suspended sediment, algae, micro-organisms and visible pollutants in the water body. Keeping out of direct sunlight, pour your water sample into the Secchi tube slowly and observe how the black and white Secchi disk at the bottom becomes less and less clear. If the water reaches the top of the Secchi tube and the disk can still be seen, record your result as 'less than 14 NTU'.