Information Pack

About FreshWater Watch

FreshWater Watch is a global citizen science project focussing on water quality monitoring, created and led by the charity Earthwatch Europe. The simple methodology and online platform enable citizen scientists to collect vital data on the health of freshwater ecosystems, exploring the impacts of pollution on freshwater quality and evaluating river restoration measures and catchment management practices around the world. Globally, over 38,000 datapoints have so far been collected and over 18,000 volunteers have been trained.

Earthwatch is pleased to offer subscription packages to volunteer groups and small organisations to enable communities to monitor their local freshwater environments and act as stewards for the natural world.

The benefits of running a community group project include:

- Better understanding water quality in your local community
- Measuring the effectiveness of restoration measures
- Engaging and empowering local community members
- Using a recognised methodology to influence management authorities and/or polluters
- Contributing to a unique global research project investigating the health of freshwater ecosystems

What is a FreshWater Watch community group?

A FreshWater Watch community group is a group of local volunteers who regularly monitor the overall health of a chosen waterbody, using our standard global FreshWater Watch methodology. You can read more about our methodology in detail on the next page.

We have community groups all around the world who hold an interest in their local freshwater environment, whether that be a river, stream, lake or pond. Groups generally consist of between 5–20 members, with each member contributing vital research data to our global database by monitoring their chosen waterbody and submitting measurements from one, or more, specific sites on a monthly, weekly, or regular basis.

Why is regular data collection so important?

It is very difficult to determine the overall health of a waterbody if only sporadic measurements are taken. That's why the regular monitoring activities of our community groups are so valuable to our global dataset. Long-term monitoring enables our scientists to more accurately identify changes in water health over time, which can help in determining where sources of pollution originate. Measurements taken regularly from the same site allow scientists to compare unusually high or low readings to previous measurements.

What are the requirements for setting up a community group?

Anyone can decide to set up a FreshWater Watch community group – whether they are a small self-funded local volunteer group with only a few members, or a more established organisation with access to external funding. The requirements for setting up a community group are outlined below.

A group leader must have:

- **A research question** – something that you want to find out about your local waterbody
- **Local interest** – you will need volunteers who are available to collect data for the group
- **Funding** – the exact costs will depend on what you want to get out of your project
- **Time** – you will need to check your group data and make sure it's being uploaded correctly
- **Basic I.T. skills and internet access** – our data platform is managed through our website (and app)

What costs are involved?

FreshWater Watch is a global community and we want everyone to be able to take part. We aim to cover our ongoing fixed costs of updating and maintaining our online data platform by charging different annual prices for small self-funded local groups, compared to larger organisations with access to external funding.

As such, we have created a tiered pricing structure in which larger organisations pay a greater share of the true cost. This ensures that small community groups are able to offer FreshWater Watch to their volunteers and continue their monitoring activities at a subsidised price while they seek out new sources of funding.

Our subscription prices vary from **£400 - £1,000**. Our water testing kits are sold separately, at a current cost of £40 per starter kit and £10 per refill (exc. VAT). These prices are accurate as of June 2022 and we reserve the right to amend them if supplier costs change. You can read more about our kits on the next page.

What does subscription include?

We offer two packages – our 'Basic' package includes full access to our online platform and training, and our more in-depth 'Advanced' package is available for groups wishing to undertake more detailed data analysis.

Basic

- Join a global community of FreshWater Watchers
- Personalised group set up on the online platform
- Use of database, app and data visualisation tools
- Community group leader online training, covering methodology, Health & Safety, responsibilities, kit demonstration and a full website walkthrough
- Access to leader resources, including:
  - How to select your sample sites
  - How to engage your volunteers
  - How to interpret your data
- Access to volunteer resources, including:
  - Detailed FreshWater Watch methodology
  - Training video
  - FAQs document

Advanced

Includes all of the Basic package, plus…

- Personal support from Earthwatch scientists during your initial project design, data analysis, publication and influencing stages of your project
- In-person community group leader training (where geographically possible)
- Networking events
- Matchmaking service between students and research projects
- Additional leader resources, including:
  - Data analysis
  - Promoting and funding your project
  - Publishing your work
  - Identifying and influencing stakeholders

Costs (exc. VAT)

- £400 for new group set up (valid for 12 months)
- £40 per full starter kit (covers first 12 months)
- Optional: £200 annual renewal fee + £10 refill kits

Costs (exc. VAT)

- £1,000 for new group set up (valid for 12 months)
- £40 per full starter kit (covers first 12 months)
- Optional: £500 annual renewal fee + £10 refill kits

What do community groups measure?

Our community groups record ecological, hydrological, chemical and optical measurements of their chosen waterbody. The FreshWater Watch methodology is specially designed to take the whole waterbody into account, including surrounding land use and vegetation. Collecting as much data as possible builds an accurate picture of overall water health, including any influencing factors such as nearby pollution sources.

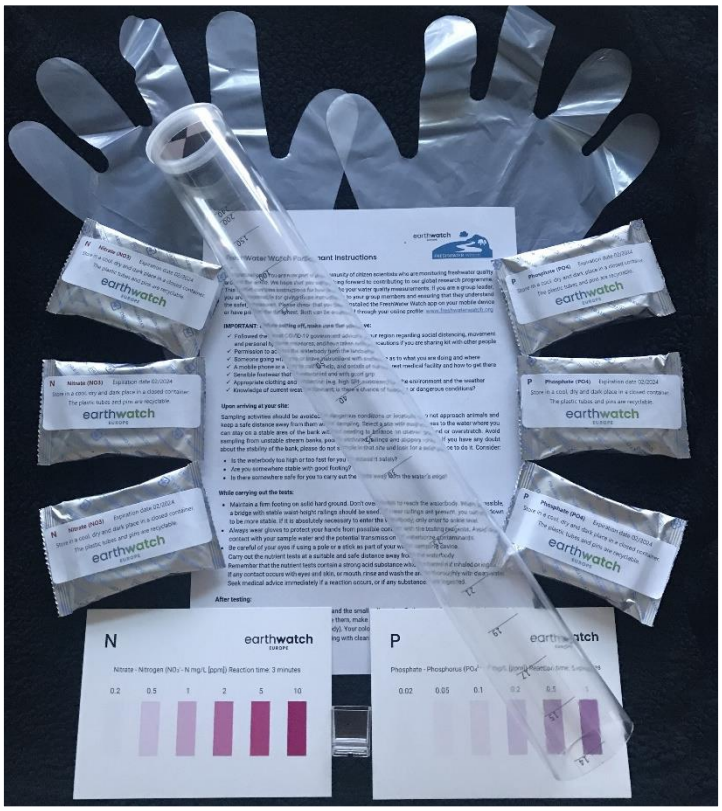
The standard parameters that we measure are listed on the next page. These parameters are recorded by every trained FreshWatch Watch participant around the world, in accordance to a robust, fixed research methodology, which ensures consistency in data collection and subsequent analysis. This allows us to make comparisons between the freshwater quality of a stream in the UK and a river in Brazil, for example.

Ecological	Freshwater body type
	Land use in the immediate surroundings
	Bank vegetation
	Presence of foam, floating algae, litter and oily sheen
	Pollution sources in the immediate surroundings
	Evidence of water uses (e.g. fishing, swimming)
	Presence and type of aquatic life
	Presence and type of algae
Hydrological	Estimation of the water flow
	Estimation of the water level
Chemical	Nitrate level (between 0.2 - 10 mg/L)
	Phosphate level (between 0.02 - 1 mg/L)
Optical	Turbidity/water quality (between 10 - 240 NTU)
	Estimation of the water colour

Community groups have the option to add additional parameter fields to their data recording surveys upon special request, at a cost of £100 per new parameter (exc. VAT). For example, groups can record and upload water pH, water temperature, presence of specific aquatic invertebrates or microbes. Please note that the responsibility for sourcing any additional testing kit for these extra parameters lies with the group leader.

How do the FreshWater Watch starter kits work?

New groups will be trained in how to safely and accurately use our full FreshWater Watch starter kits. Each starter kit includes an instruction leaflet, Secchi tube, packs of nitrate tests and phosphate tests (containing enough to cover a year of monthly sampling), colour charts, a sample cup and a pair of compostable gloves.



How many kits will I need?

Each group member will need a full starter kit. The Secchi tube, colour charts and sample cup are all reusable and can be taken repeatedly to the group's chosen waterbody to conduct regular ongoing measurements. Once the initial packs of nitrate tests and phosphate tests have been used, it is possible to order further refill packs online for £10 (ex. VAT), as and when they are required. Kit orders are fulfilled on a weekly basis.

Please note that the chemical reagents contained within the nitrate and phosphate packs have an expiry date. This is usually 12 months from the date of order, after which the reagent's colour reaction lessens and the results are much less accurate. We recommend that groups create a plan for how frequently they expect to take their measurements over their first year, and to place their kit order requests accordingly.

You can see a short video from our Freshwater Scientist Izzy on how to take measurements with the kit here.

How accurate are the chemical tests?

After rigorous lab testing and thorough comparisons against similar freshwater quality testing equipment, the chemical tests for nitrate and phosphate have been shown to provide an accurate measure of nutrient levels within the specified ranges as given on the colour charts, and have been proven to be a reliable and valuable way of detecting important changes in water quality by citizen scientists.

We further ensure the highest possible accuracy of our FreshWater Watch kits by providing comprehensive training to group members on how to carefully collect and read the chemical test results, which is part of our standardised methodology (for example, measuring a specific quantity of sample water, and reading the colorimetric results at exactly 3 minutes for the nitrate test and 5 minutes for the phosphate test). Extensive notes on quality control are explored in greater detail in our full FreshWater Watch Methods Manual, which is available to all group leaders.

What happens to the data?

All measurements taken by FreshWater Watch participants are uploaded to our global online platform: our FreshWater Watch website. This can be done by any members of the group directly through a group's account on the website, or via our app in the field.

Our data is open-source and free to use by individuals, scientists, policymakers, and organisations around the world. We follow a standardised global methodology, providing robust data that is used as evidence to support efforts to improve freshwater quality.

How do I subscribe as a new community group?

Please complete our group enquiry form and our FreshWater Watch team will be in touch by email to discuss your group's needs further and provide a quote. Once subscribed, we will invite the Group Manager to take online training, covering all aspects of the FreshWater Watch methodology, Health & Safety, responsibilities, and kit demonstration, with full platform access for inviting group members and uploading results.

Thank you for your interest in joining our global FreshWater Watch community network!