GSL Streamwatch Safety Guide

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Introduction

Welcome to Streamwatch

Streamwatch is a citizen science water monitoring program that enables community groups to monitor the quality and health of local waterways. This water monitoring program is run by Greater Sydney Landcare (GSL).

Streamwatch groups, made up of volunteers, engage in the scientific observation of local waterways. Streamwatch data can be used as an early warning system for pollution events and to provide a historical record of how waterway health has tracked over time. The data may also be helpful in evaluating the effectiveness of remediation projects, changed management practices and improved infrastructure. Valid water quality data, collected by Streamwatch groups, can help inform the wider public, landowners, land managers, local councils, universities, research organisations, catchment and water management authorities on the health status of local waterways.

This Safety Guide is to be used by Streamwatch groups that use either an ALERT or SMART sampling kit. Sampling kits enable groups to perform water quality tests covering parameters of temperature, pH, electrical conductivity, dissolved oxygen, turbidity, phosphates and nitrates.

All Streamwatch groups are required to follow the safety instructions in this guide, including the appropriate use of equipment and methodology as detailed in your Streamwatch Kit Manual.

Now you have joined Streamwatch, what's next?

As a registered Streamwatch group you will or have met your GSL or other representative Streamwatch Coordinator and contributed to site hazard assessments, submitted relevant volunteer forms to GSL and received training in the Streamwatch water quality measuring and safety procedures.

Registered groups conduct sampling at approved sites and enter collected data online.

How Does GSL Support Streamwatch Groups?

GSL supports Streamwatch groups in a number of ways:

- Training, technical advice and support in use of Streamwatch equipment and methods.
- Assistance with analysing water quality results.
- Verifying Streamwatch data collected.
- Keeping groups up to date and informed.

You can find useful information about catchments, water quality, biodiversity, events, water quality data, contact information and more on the GSL Streamwatch webpage: https://greatersydneylandcare.org/category/streamwatch/

Streamwatch Volunteer Work Health and Safety

WHS Overview

GSL is committed to providing a safe and healthy working environment for our volunteers. All members of the GSL community have a collective and individual responsibility to work safely and be engaged in activities to help prevent injuries and illness.

The GSL overarching Work Health and Safety Policy aims to have no accidents, injuries, or workplace illnesses caused by our activities, and to improve the health and wellbeing of people working for or on behalf of GSL. The GSL Work Health and Safety Policy defines the principles of this commitment and the GSL approach to the continuous improvement of health and safety in the workplace.

The Streamwatch Work Health & Safety requirements fall under the GSL Work Health and Safety Policy and outlines the safety procedures for the GSL Streamwatch program during field activities and when working in or near water. It identifies hazards and sets out work health and safety resources and responsibilities.

Streamwatch volunteers are those who have registered, been inducted and are signed as a member of a registered Streamwatch group. In accordance with the policy, participants are responsible for their own safety when participating in the program. The Streamwatch Coordinator will advise on and monitor compliance with Streamwatch processes and procedures.

Contextual Framework: Policies and Procedures

All GSL policies and procedures apply throughout the duration of field activity, and in particular, staff and volunteers must be aware of the following policies and procedures, which are accessible on the GSL website:

- Streamwatch Kit Manual
- Streamwatch Fieldsheet
- Work Health and Safety Policy
- Incident Report
- Register of Injuries
- Streamwatch Site Hazard Assessment (SHA)
- Streamwatch Risk Assessment
- WHS Site Management Plan
- Safety Data Sheets (SDS) for relevant chemicals (SMART Kit only)
- Streamwatch Group Agreement
- Code of Conduct
- Emergency Contact Form

This documentation is updated periodically. Streamwatch Fieldsheets must be completed and stored safely each time the group conducts a site visit. Photos of Fieldsheets should also be uploaded to The Atlas of Living Australia.

Site Hazard & Risk Assessments

The Streamwatch Coordinator will carry out a Site Hazard Assessment (SHA) and Risk Assessment on your site(s) using the GSL Site Hazard Assessment and Risk Assessment documents. Each SHA and Risk Assessment captures vital hazards and identifies safety controls. This information is recorded and is readily available to Streamwatch groups. Streamwatch activities can only be conducted at sites with approved SHA and Risk Assessments registered to an assigned Streamwatch group.

The Site Hazard Assessment (SHA) and Risk Assessment will be used by Streamwatch Coordinators to create a WHS Site Management Plan for each site for groups insured by GSL.

When a site is assigned by the Streamwatch Coordinator, the nominated Team Leader(s) representative must accept the conditions described in the SHA and adopt any safety controls identified. Only then, can the group undertake Streamwatch activities at the site.

SHAs and Risk Assessments are performed on approved sites when a Streamwatch Coordinator attends the site, or as required by changes in hazards and / or safety controls. Volunteer Streamwatch Group Team Leaders are then responsible for reporting any changes in these conditions. To do this they must check the site conditions are consistent with the SHA and Risk Assessments every time they carry out a site visit.

Site Closures

Individual sites may be closed temporarily or permanently, due to localised changes in safety conditions or other reasons. These sites remain closed until a follow up SHA and Risk Assessments are performed, and the site is deemed safe.

Safety Advice: Suspension of Streamwatch Activities

Streamwatch activities are to be suspended when environmental conditions make it unsafe to proceed, including extreme weather, flooding, bushfires or other.

In wet weather conditions, the decision of whether or not to proceed should be based on a combination of local conditions and information contained in the site hazard assessment. SHAs indicate whether the site is safe in wet or dry conditions.

These conditions are intended to be indicative only. Group representatives must consider the intensity and duration of rain and potential site conditions when assessing whether or not to perform Streamwatch activities.

Prior to commencing water quality measuring activities Site conditions must be checked. Assessment of the condition of all **Safety Equipment, Personal Protective Equipment (PPE) and Emergency Evacuation Meeting Point(s**) are to be assessed and addressed each time a site is visited.

When not under the immediate instruction of a GSL or other overseeing sponsor organisation's staff member i.e. Local Council, the Streamwatch Volunteer Team Leader(s) is responsible for maintaining safety and PPE equipment and ensuring that it

is taken with the group each time they conduct a site visit. Any lost or damaged equipment must be reported to GSL.

Safety & Personal Protective Equipment (PPE)

Safety Equipment

Streamwatch groups are provided with all safety equipment required to conduct the Streamwatch activities they are trained to perform.

Safety equipment includes:

- Sampling pole
- Sampling claw attachment
- Sampling bottle
- Liquid waste container (SMART Kit only)

Streamwatch Volunteer Team Leaders are responsible for maintaining the safety equipment and ensuring that it is taken with the group each time a site is visited. Any lost or damaged equipment must be reported to your GSL Streamwatch Coordinator.

Personal Protective Equipment (PPE)

As per Safety Equipment, Team Leaders are responsible for ensuring that appropriate PPE is taken to and used by participants during each site visit. Streamwatch Group representatives are also responsible for maintaining supply of PPE.

The group Team Leaders are responsible for maintaining the safety equipment and ensuring that it is taken with the group each time it conducts a site visit. Any lost or damaged equipment must be reported to your Streamwatch Education Project Officer.

Participants must provide their own:

- Protective clothing (long sleeve pants and long sleeve shirts)
- Hats
- Enclosed footwear
- Eye protection
- Sunscreen
- First aid kits
- Disposable Gloves

General Safety Measures

Conduct a visual site assessment – Before beginning any activities, ensure that conditions on your site are safe and match the Site Hazard and Risk Assessments. Sampling for water quality should not proceed if conditions are significantly different to those associated with current SHA or Risk Assessment. Contact your GSL Streamwatch Coordinator if conditions have changed.

Fast moving water – If there has been heavy rain, postpone the testing until the flow has diminished.

Contact with contaminated water – If a preliminary inspection of a site reveals obvious water contamination such as raw sewage, blue-green algae, or a chemical spill, activities must not proceed. Relevant authorities (e.g. local council, Sydney Water, EPA) must be contacted immediately.

Complete volunteer field attendance table – Complete volunteer field attendance table on the Streamwatch Fieldsheet, prior to commencing site activities. This reminds the group to have all the safety equipment and Personal Protective Equipment (PPE) required to safely conduct their Streamwatch activities in the field.

Never test alone – Participants must never undertake water testing activities alone.

Wear appropriate PPE – Participants must wear sunscreen, hats and closed shoes. Always wear eye protection when handling SMART Kit chemicals.

Minimise time at water's edge – Minimise time spent near the water's edge by moving away from the water's edge once you have collected your sample or taken measurements that need to be performed in situ. Take care to avoid slippery surfaces.

Follow methodology set out in the instructions – Always follow the testing methodology.

SMART Kit Chemicals and Equipment

**This section applies only to groups using the SMART Kit, which contains hazardous chemicals.*

As a part of joining the Streamwatch program, participants are trained in relevant work health and safety procedures. This training provides the skills and knowledge required to safely conduct Streamwatch activities in the field.

Participants are observed conducting Streamwatch activities and are retrained in relevant safety procedures and documentation. Retraining is offered on a needs basis. Online training, due to geographic location of groups, may be preferred in some areas.

Training is provided to the entire group; however, where this is not possible or where new members join, responsibility falls to the group Volunteer Group Streamwatch Team Leaders to ensure that safety protocols are followed.

Usage of Chemicals

Streamwatch monitoring with the SMART Kit involves the use of chemical reagents that are potentially harmful if not used correctly.

Hazardous substances contained in Streamwatch SMART Kit includes:

- Manganous Sulfate Solution
- Alkaline Potassium Iodide Azide
- Sulphuric Acid
- Phosphate Acid Reagent
- Phosphate Reducing Reagent.

Safety Data Sheets (SDSs) are provided to each group as a part of the supplemental documentation provided with this manual.

SDSs contain specific information about the chemical reagents supplied, including first aid and clean-up procedures in the event of an accident.

Participants must familiarise themselves with relevant SDS. Team Leaders must ensure that the SDS sheets are kept with the Streamwatch kit at all times.

Participants must **be over the age of 18 years** and be trained in the safe use of these chemical reagents before using them.

Chemical reagents should only be used for the tests that the participant is trained to perform and used according to the approved methodology. Expired chemicals should be returned to the GSL Streamwatch Coordinator.

Safe Storage of Chemicals

All chemicals must be clearly labelled and stored with a copy of the relevant SDS in the protective cases provided. These cases should be stored in a secure area and kept out of reach of children.

Safe Disposal of Chemicals

Liquid wastes produced during Streamwatch activities are stored in a liquid waste container and taken back to base. To dispose of liquid waste, dilute the contents of the liquid waste container with at least twice the volume of tap water and then flush down the toilet.

Contact the GSL Streamwatch Coordinator, for chemical reagents that need to be disposed. These reagents should be stored in the protective cases in a secure area until disposed.

PPE & Safety

In addition to the above general PPE that participants must wear, the following PPE is provided to all groups using he SMART Kit when they first join the Streamwatch program and thenceforth provided by volunteers:

- **Disposable gloves** – must be worn at all times when conducting Streamwatch activities
- **Reusable protective glasses** – must be worn at all times when conducting

Wear waterproof disposable gloves – Always wear disposable gloves when carrying out water activities. Gloves provide protection from polluted water and the chemical reagents used. Gloves also help avoid contamination of water samples.

Read all relevant Safety Data Sheets (SDS) – Participants must be familiar with all SDS sheets carried in the supplemental documentation provided with this manual. Some reagents used in Streamwatch are hazardous. Participants handling chemicals must be 18 years or older and trained accordingly.

Use liquid waste containers – Always use liquid waste containers to capture and store any liquid wastes produced while conducting water testing activities. Dispose of liquid wastes upon return to base.

Dispose of liquid wastes appropriately – Dilute liquid wastes by at least two times and do not dispose of down kitchen sink. Dispose in toilet with thorough flushing.

Solid wastes – Always keep solid wastes separate from liquid wastes. Dispose of solid wastes as per normal rubbish. Follow manufacturer guidelines for E.Coli testing materials disposal.

Hygiene – Do not eat during Streamwatch activities and wash hands thoroughly at the conclusion of Streamwatch fieldwork and testing procedures. Have soap and clean water on hand to deal with spills and to wash hands.

Environmental Risks

Other regulations that field work participants may need to be aware of include:

Sensitive Environments

Sensitive environments are recorded on the Site Assessment form. Follow any environmental management controls listed on the Site Assessment if your site is defined as a sensitive environment.

Heritage Items

Heritage items are recorded on the Site Assessment. Follow any environmental management controls listed on the SHA if your site is associated with any heritage items.

Frog Health: Chytridiomycosis

Chytrid fungus invades the skin of amphibians, causing up to 100% mortality in some frog populations. Chytridiomycosis occurs in over 40 species of native amphibian. There is a risk that Streamwatch activities could transfer Chytrid from site to site. It is therefore important to take measures to reduce this likelihood. It is recommended that

footwear and sampling equipment are thoroughly cleaned and disinfected before entering a site and/or moving between sites.

Environmental Protection

Streamwatch participants should minimise their impact on sites by:

- Using defined paths where possible.
- Avoiding walking on sensitive vegetation.
- Limiting activities to the site and its immediate area.
- Removing all Streamwatch related waste and debris.

Roles and Responsibilities

Streamwatch Coordinator

The Streamwatch Coordinator, is in charge of field work and has particular responsibilities for safeguarding the health and safety of all participants and must:

- Determine the possible hazards that may be encountered during the activity
- assess the risks associated with the possible hazards.
- Incorporate strategies to eliminate or avoid the risks to safety and health and if this is not possible, to minimise these risks.
- Ensure that participants in field work are aware of relevant GSL and Streamwatch policies procedures and other regulations.
- Ensure that safe working practices are developed, communicated and maintained.
- Ensure that all field work participants are adequately trained and instructed in safe and healthy working procedures pertinent to the site.
- Ensure that participants are trained in correct use of safety equipment.

The Streamwatch Coordinator must assess all sites using the Site Hazard Assessment Checklist during a site visit prior to any group commencing work. The records of site inspections must be stored securely.

When working with participants, the Streamwatch Coordinator, will require that volunteers:

- Are not engaged in activities in which they have not received appropriate training/information.

- Conduct Streamwatch activities with a minimum of two people.
- Are aware of the relevant safety information prior to commencing work.

Streamwatch Volunteers

Streamwatch volunteers are those participating in unpaid volunteering with the Streamwatch program. All volunteers must be at least 18 years of age. Following the GSL Work Health and Safety Policy and procedures, Streamwatch participants in field work are responsible for ensuring good safety and health by:

- Undertaking relevant work health and safety training.
- Reading any notices relating to the field activity, attending any briefing sessions and returning any necessary forms to the Streamwatch Coordinator.
- Taking action to eliminate, minimise, avoid or report hazards of which they are aware.
- Complying with all work health and safety instructions.
- Making proper use of safety devices and PPE.
- Maintaining dress requirements appropriate for the work undertaken.
- Not placing at risk the safety and health of themselves or any other person.
- Being aware of the relevant GSL policies, procedures and protocols and other regulations as per the GSL Work Health and Safety Policy and procedures.
- Contact your Streamwatch Coordinator to report any safety incidents or near misses

All Streamwatch volunteers and group representative must ensure that all volunteers in the group adhere to the above responsibilities.

The Streamwatch Coordinator must ensure that Streamwatch volunteers are:

- Engaged only in activities for which they have received appropriate training/information.
- Know and utilise appropriate PPE when conducting field work.

Inducting Volunteers

Prior to commencing volunteer work, Streamwatch Coordinator, must induct the volunteers in:

- General safety requirements of activities outlined in the GSL Work Health & Safety Policy
- Hazards and controls of the specific site where monitoring is to be undertaken, as detailed in the Site Hazard Assessment (SHA), Risk Assessment, and WHS Management Plan.
- Signoff of specific documents, including the Code of Conduct, Group Agreement/ GSL Charter, and Group Induction Volunteer Acceptance.

Streamwatch participants will indicate their acceptance of GSL policies inclusive of current WHS policies, guidelines and protocols, by submitting a fully completed GSL Streamwatch participation volunteers forms and Streamwatch Group Agreement form.

In addition, prior to commencing work, the volunteers must accept the conditions by signing the Field Attendance Table on the Streamwatch Fieldsheet. Those under the age of 18 years can participate in Streamwatch activities under the guidance of a parent, teacher or guardian that has completed the GSL Volunteer Form. However, it is not recommended that those under 18 years handle any chemicals involved in some testing procedures.

Expectations of GSL

For Streamwatch volunteers, GSL will:

- Abide by and ensure staff abide by all relevant policies, guidelines and procedures
- Where applicable provide Public Liability Insurance coverage
- Where applicable provide Personal Accident Insurance coverage
- Provide access to grievance procedures.

As stated previously, GSL does not accept volunteers under the age of 18 years and therefore the above provisions and coverage will not be provided to minors. If groups have participants under the age of 18 years of age, the group themselves must organise their own insurance to these members.

Expectations of Volunteers

The volunteer will:

- Support GSL mission and purpose
- Undertake initial and ongoing training and appraisal if appropriate
- Perform all tasks in a responsible, conscientious, courteous and safe manner
- Abide by all relevant policies, guidelines and procedures
- Not engage in supported activities, while under the influence of drugs including alcohol
- Notify the Streamwatch Coordinator, if he or she intends to stop volunteering or is unable to continue as a volunteer