

ALEP

Aboriginal Landcare Education Program

14

Perform Basic Water Quality Tests



Learning Guide

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Photos on front cover, back cover (middle) and pages 1, 16 and 21 (bottom right) by Jane Ellem from Pularumpi School.

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INTRODUCTION

Welcome to *Perform Basic Water Quality Tests*. Water testing can provide information about how healthy your rivers, creeks and wetlands are. The health of the water is linked to how healthy all the country is, and water quality information can help with planning land management work.

You might need to be able to test water when doing revegetation or other land management work. This could be when you are working for your council, doing ranger work or when managing your own country. Training should be completed on the job, in the field, over an extended period of time.

EQUIPMENT REQUIRED

To complete this training you will need the following:

1. Appropriate Personal Protective Equipment (PPE).
2. Safety gear including first aid kit and water.
3. Water testing equipment.

ASSIGNMENTS

There are three assignments you will need to complete.

Some of these assignments may go towards your final assessment.

Section	Assignment	Competent (C) Not yet competent (NYC)	Date Achieved
Getting Prepared	Assignment 1. Project Risk Assessment		
Testing Water	Assignment 2. Testing Water Bugs		
Finishing Up	Assignment 3. Testing Water Quality		



1A. COLLECTING INFORMATION

This learning guide will teach you some basic water quality tests (the information is based around the Top End of the Northern Territory, if you live somewhere else you will need to get extra information about water in your area). If you want to try more advanced testing, use these manuals from Greening Australia:

- *Community Water Monitoring: Top End Field Manual*
- *Central Australian Wetlands Monitoring Framework*

Suppliers of water testing equipment are listed in Resource 1 on page 25. Further information is online:

1. Greening Australia has the above manuals, and the *NT Waterwatch Education Kit* (see Part 5 for water testing). Go to the Northern Territory page and then the Education and Training link. The Publications link also has information about community based water quality monitoring.



www.greeningaustralia.org.au

2. Waterwatch Australia has a series of seven national technical manuals (see Module 3 for water bugs and Module 4 for water quality). Go to the Publications link.



www.waterwatch.org.au

3. The Northern Territory Department of Natural Resources, Environment, the Arts and Sport has lots of information about water in the NT and contact details for water experts.



www.nretas.nt.gov.au/natural-resource-management/water

4. The Tropical Savannas Cooperative Research Centre has information including *A Field Guide to Assessing Australia's Tropical Riparian Zones*. Go to Publications and then Books and Reports.



<http://savanna.cdu.edu.au>



1B. TESTING WATER SAFELY

There are some dangers associated with testing water. It is important that you be aware of them so you can avoid getting injured or sick. Some of the things you can do to keep yourself safe include:

1. Wear appropriate clothes for outdoors and in wet weather wear waterproof clothing.
2. Wear protective footwear at all times, in some situations you may need rubber boots.
3. Be croc aware – crocodiles inhabit most water bodies in the Top End – do not enter water to take samples – use an extension pole or use a boat on larger water bodies.
4. Never work alone – work with other people.
5. Let someone know where you are and how long you intend to be out testing. Check the weather, road and fire reports before leaving.

6. Be very careful near the edges of water bodies, beware of slippery rocks and banks.
7. In case of an emergency always carry a mobile phone, in remote locations use a satellite phone or vehicle UHF radio.
8. Learn how to maintain and use testing equipment properly and keep your vehicle properly maintained.
9. Know where your first aid kit is stored and make sure someone has a first aid certificate.

Before you begin, use this checklist to confirm you have followed good safety procedures and have all the right resources.



SAFETY CHECKLIST ACTIVITY



Long trousers, shirt and boots		
Waterproof clothing		
Hat and gloves		
Sunscreen, insect repellent and sunglasses		
Water		
First aid kit		
Notified others and have phone/2 way radio		
Checked weather, road and fire reports		
Permits (if required) and maps		
Compass or GPS		

REMEMBER

We should never take our water for granted – we must learn to respect and care for our water so it can continue to give us life.

NOTE

Water testing can help tell you about changes that are happening in your area. Your work might be the trigger to documenting an important pollution incident or land management change.

NOTE

Before you start make sure you have the permission of whoever owns the land. For some projects you will need written permission and/or permits.



1C. ABOUT WATER?

Water is one of our most precious resources – life on earth depends on it. Water places are very important, they are often sacred sites with great cultural significance. They may be places for ceremony, camping, hunting and collecting bush food and medicine as well as drinking water.

People have relied on permanent water bodies for survival in dry times. Many animals and plants depend on water bodies, and many animals, like fish, frogs and insects, live in them. Especially in dry areas, they often have rare plants or animals living around them.

1D. WHY TEST WATER QUALITY?

Testing water quality can tell you how healthy the water in your rivers, creeks and wetlands is. Many things can change the water's health:

- Land clearing, overgrazing, roadworks and maintenance, erosion and changed fire practices can lead to soil entering the water.
- Farming plants and animals can put fertilisers, pesticides and manures into the water.
- Pollution can come from mining, factories, service stations, septic tanks and sewage systems.
- Weeds and feral animals can impact on water bodies.
- Disposal of rubbish and community landfills can pollute water.
- Development of towns and roads can lead to erosion and pollution.

1E. WHERE AND WHEN TO TEST?

WHERE

You should sit down and talk with the landowners and other interested people before deciding where to test. Think about why you are testing and what the information will be used for. You might think about areas that could be affected by pollution or different types of land use.

- Use maps to select sites that appear to meet your needs.
- Go to each site and check that it is easy to get to and safe.
- If you need to cross private or Aboriginal land, first seek the landowner's permission, you may need a permit.
- Leave all gates as you found them.

WHEN

It is best to test water in the dry season because wet season water quality varies a lot. It is also a lot easier to get to sites in the dry season. It is best to test at the same time of day each time you test, because some things (like temperature) vary naturally over the course of the day.

You might want to carry out water testing regularly (like water quality monthly and water bugs yearly) over a long period of time to see if any changes are happening over the years. For yearly testing make sure you test at the same time each year. An event like a pollution spill might prompt you to do additional testing.

1F. EQUIPMENT

Getting the right equipment for your water testing is important. A list of suppliers is found in Resource 1 on page 25.

Tick off the items you will need to test water.

ACTIVITY

Measuring tape and depth measure			Thermometer		
Camera			Turbidity tube		
Dip net (the best is a D-frame with 500-600µm mesh)			Clean sample bottle		
Buckets			pH kit		
White sorting trays (like a cat litter tray) or white bucket			Conductivity meter		
Spoons and pipettes			Clipboard		
White ice cube trays			Data sheets A, B, C and D (use waterproof paper if you have it)		
Magnifying glass			Pencils and pens		
Water bug identification books			Large box to store everything		

