

# 9. Training



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# Introduction

## Overview of this chapter

Chapter 9 provides information for delivering adequate and effective training for community-based waterway monitoring projects.

Specifically, this chapter provides technical information to assist you to:

- understand the importance of training
- improve your awareness of important training topics and different types of training delivery
- implement seven steps to plan and deliver effective training
- maximise your training impact.

## Why this chapter is important

Training is a valuable component of achieving data confidence in your waterway monitoring project, as the skill level and competency of all

monitoring participants will influence the quality of your results. Monitoring participants need to be skilled to the level of data quality defined in your monitoring plan. Records of training activities are also important in demonstrating data confidence to others who may be interested in your data.

## How to use this chapter

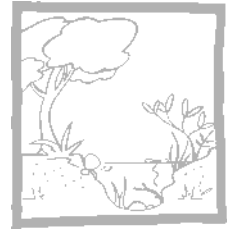
Chapter 9 has been developed to support Question 10 in the development of a monitoring plan (see Table 9–1). Use the information provided to plan and deliver training for monitoring participants.

This chapter is divided into sections covering:

- the importance of training
- training topics for group leaders and group members
- levels of training delivery
- how to plan and deliver effective training
- how to maximise training impact.

**Table 9–1 Steps in developing a monitoring plan**

Key steps	Monitoring plan questions
Set monitoring objectives	Q1 Why are you monitoring?
	Q2 Who will use your data?
	Q3 How will the data be used?
	Q4 What data quality do you require?
Develop a study design	Q5 What is your study type?
	Q6 What will you monitor?
	Q7 Where will you monitor?
	Q8 When and how often will you monitor?
Choose monitoring methods and procedures	Q9 What methods will you use?
Plan data management, interpretation, reporting and communication	Q10 Who will be involved and how?
	Q11 How will the data be managed and reported?
	Q12 How will you ensure confidence in your data?



## Importance of training

The best equipment, procedures and documentation will not provide quality data unless those people involved in monitoring know how to use these tools and techniques in an appropriate manner. Providing training will help to ensure that the participants who collect and manage data have the skill level appropriate for your monitoring project.

Training in correct monitoring methods, use of equipment and data recording will minimise errors and increase confidence in the credibility of your data. Good training should equip group members with skills to produce reliable, credible data and an understanding of why it is being collected and what it means.

Providing training can also bring additional benefits such as increased confidence and motivation in individual group members. Training sessions are viewed by some participants as a reward for participating in the monitoring project, as they facilitate personal development and the acquisition of new skills. Training can also be an important social networking event, as it brings together people who have similar interests or concerns about the state of their local waterways.

Training in health and safety considerations such as first aid and risk assessment is extremely important. Personal safety should always come first when undertaking community-based waterway monitoring projects. On each field trip, at least one person should know first aid procedures. Where fieldwork is being undertaken in remote or isolated areas, group members would ideally have training in four-wheel driving and using vehicle recovery gear. Those in northern regions should also be aware of the risk of crocodiles.

The *Health and safety guidelines for community-based waterway monitoring* (Department of Natural Resources and Water 2006) provide further details on health and safety considerations.

## Training topics

The topics in which to train members of your monitoring group will be dictated by their existing skill levels as well as your monitoring project and plan. The following sections list possible training topics for group leaders and other group members.

## Group leaders or coordinators

Group leaders or coordinators take on additional responsibility in a waterway monitoring project, and therefore require additional skills to those of other group members. Below are some possible training topics for group leaders.

Training on **catchment research** could cover:

- conducting a background investigation
- conducting a catchment survey.

Training on **monitoring plans** could cover:

- understanding the importance of and need for a project monitoring plan
- developing and documenting a project monitoring plan
  - o defining objectives
  - o deciding what, where and when to monitor
  - o choosing monitoring methods and equipment
  - o developing a data management, interpretation and reporting strategy.

Training on **data confidence** could cover:

- developing a data confidence framework for your group activities
  - o what resources you need
  - o what things you should consider (including how to develop tolerable error ranges and how to conduct quality control checks)
  - o what documents you should develop to demonstrate data confidence to others.

**Health and safety** training could cover:

- developing and implementing a health and safety policy for your group's activities
- undertaking risk assessments
- conducting a volunteer safety induction
- meeting insurance requirements
- performing first aid.

Training on **how to train group members** could cover:

- delivering effective training
- delivering accredited training.

Training on **people management** could cover:

- providing leadership
- facilitating the project
- working with volunteers.



## All group members

The topics listed below are those that all group members (monitoring participants) should be trained in.

Training in **background knowledge** should cover:

- identifying natural components of an aquatic ecosystem
- understanding natural processes in your catchment and waterways (physical, chemical and biological)
- understanding issues in your catchment and their impacts on waterways.

Training on **monitoring plans** should cover:

- becoming familiar with the project monitoring plan, including objectives, indicators, duration and area of coverage.

Training on **monitoring methods** and procedures should cover:

- understanding what is being measured and why, and influencing factors
- conducting monitoring using methods and equipment specified in the project monitoring plan, including any quality control procedures
- gaining competency in using field equipment
- maintaining and checking equipment
- troubleshooting when using equipment
- correctly identifying and labelling samples (if samples are being sent to a laboratory).

Training on **data recording** should cover:

- filling in record sheets
- using correct reporting units.

Training on **data management** should cover:

- understanding basic principles of good data management
- following data management procedures specified in the project monitoring plan—for example, what to do with field record sheet once complete.

Training on **data interpretation** should cover:

- knowing baseline ('normal') parameter values for your waterway
- becoming familiar with relevant water quality guidelines and standards.

**Health and safety** training should cover:

- following health and safety procedures for group or project activities
- using personal protective equipment
- knowing site safety issues
- knowing what to do in an emergency.

**Communication** training should cover:

- using monitoring results to raise wider community awareness of catchment and waterway issues
- using different methods of communication
- understanding the needs of different audiences.

Training on **evaluation** should cover:

- evaluating your project's progress
- evaluating your group's overall activities
- evaluating training sessions.

## Advanced or specialised training

The training topics listed below relate to more advanced or specialised training. These skills are usually necessary for group leaders only, but may also be relevant to those monitoring participants undertaking an additional specific task or those with a particular interest in the topic. Training requirements will largely depend on how your group operates.

Training on **mapping** could cover:

- using a Global Positioning System (GPS) receiver and reading a map to determine location coordinates or verify a location
- developing a map using geographical information systems (GIS).

Training on **monitoring methods and equipment** could cover:

- calibrating specific equipment being used for the project.

Training on **data management** could cover:

- using spreadsheets and databases
- following data management procedures specified in your monitoring plan
  - o entering data into a database
  - o using data validation procedures
  - o filing documents.

Training on **data interpretation** could cover:

- calculating simple summary statistics
- using different techniques to graph data
- conducting more advanced statistical analysis
- explaining your results and drawing conclusions.

**Communication** training could cover:

- improving written communication skills such as producing reports
- improving oral communication skills
- learning graphic presentation skills such as using Adobe Illustrator® and other software packages.



## Levels of training delivery

Flexibility is encouraged in delivering training packages, as any training needs to suit the audience, location and expected outcomes. Skills and knowledge can be gained via reading, hands-on experience, local advice, or more formally through training courses. This manual and the *Waterwatch Australia national technical manual* (Waterwatch Australia Steering Committee 2002a, 2002b, 2004) provide a great deal of background information on waterway monitoring. The manuals can be used to provide background theory to group members inexperienced in waterway monitoring by assigning selected topics to read. Your project monitoring plan could also be used as background reading, as it outlines the specifics of your project and how to undertake monitoring. However, this should always be accompanied by face-to-face training of some form.

A training program should involve participants in a way that assists them to understand the objectives of the project, instils in them a sense of ownership in achieving the desired outcomes, and encourages personal responsibility for the reliability and usefulness of the data they collect. The way in which training is delivered can vary from informal on-the-job training to formal accredited training and could include:

- **expert-based on-the-job training.** This is an informal style where participants learn from an experienced person through the process of observation, discussion and participation in work-based tasks
- **specific task-based training.** This involves specific training on a particular task and is more formal and detailed than peer-based on-the-job training. It is likely to include theory and practical components. An example of specific task-based training could be holding a workshop on how to use a new piece of monitoring equipment

- **formal accredited training.** This involves certified training and assessment by a qualified assessor using accredited course material that complies with the national training standards. These are often competency-based modules that require participants to demonstrate that they have acquired new skills or knowledge.

Further information about training can be obtained from the Department of Education, Science and Training (DEST) website <[www.dest.gov.au/sectors/training\\_skills/policy\\_issues\\_reviews/key\\_issues/nts](http://www.dest.gov.au/sectors/training_skills/policy_issues_reviews/key_issues/nts)>.

An example of a national competency-based course that may be beneficial for training purposes is RTD3507A 'Undertake sampling and testing of water', which is one module within the Certificate II/III in Conservation and Land Management (refer to the National Training Information Service website <[ntis.gov.au](http://ntis.gov.au)> for more information). This competency standard covers the process of sampling and testing water quality as part of a monitoring program. It includes planning for sampling and testing, preparing equipment and resources, and completing water sampling and testing activities. Sampling and testing water quality requires knowledge of monitoring schedules, the hydrological cycle, water quality determinations and standards, principles of water quality control, sampling and testing methods, and groundwater salinity.



# Planning and delivering effective training

Planning and delivering training involves seven steps, outlined below.

## Step 1: Understand the learners

- Identify and understand your audience.
- Recognise barriers to how a participant may learn. These barriers may impact on whether the participant will finish the training. Some of these barriers include levels of competence, preconceptions, physical difficulties, language difficulties, learning and numeracy capabilities, literacy skills and learning styles.
- Make sure training sessions are tailored to the needs and expectations of your participants. To help design your training program, you could send a simple survey to participants asking them what their current skill and understanding levels are, where they see gaps, and their expected outcomes of a particular training session.
- If an accredited training course is being delivered, some learners may be able to gain recognised prior learning (RPL) towards all or part of the course.
- Identify the different learning styles of your training participants. Some will learn best by doing, while others will respond best to learning by listening, reading, watching or reflecting. See page 9–9 for tips on engaging different learning styles.
- Create an environment that is collaborative, respectful and informal, as participants learn best in this type of situation.

## Step 2: Define what and how you want to teach

- Identify a program of training that needs to be undertaken. Start with simple topics or skills, and then move on to more complex concepts.
- Clearly defined objectives for each training session are critical. Examples include:
  - establishing the capability among participants to conduct monitoring procedures at an acceptable standard

- providing participants with the capability to interpret and use monitoring data to support management and planning decisions.
- Write a clear statement expressing what the participant should be able to do, the standard required and the circumstances in which it should be applied.
- Teach monitoring tasks with a focus on skill and accuracy.
- Recognise the varying levels of existing knowledge and pitch the sessions appropriately so no one is left behind or bored covering ‘old ground’. Give the high achievers additional tasks to do within some sessions.
- Vary the delivery of training sessions to cater for different learning styles and to maintain interest. Use a combination of lecture, individual work, discussion, and practical hands-on session styles.
- Encourage participants to share experiences and expertise and build this into sessions where appropriate.

## Step 3: Prepare for the training session

- Develop an agenda for the training session, including times, presenters and location.
- Recruit participants for training sessions. Consider the optimum number of participants per session (according to the venue) and the amounts of equipment and time that are available.
- Make sure that the venue is suitable for your needs, taking into account the acoustics and facilities available.
- Inform participants of the time, place (provide directions if necessary) and duration of the training.
- Advise participants what materials they will need to bring and, for outdoor training, any dress requirements or alternative arrangements in case of rain. Outline the content that will be covered in the training session and provide pre-readings if applicable.
- Provide the name and phone number of a contact person to answer any queries.
- Invite guest speakers and provide them with the same information.
- Prepare materials such as sampling kits, manuals, data sheets, handouts, and catering equipment and resources.



- Confirm guest speakers close to the date.
- Send all participants an agenda, and confirm their attendance, once all details are finalised.
- You may also like to send participants a training workbook to read through some of the theory before the day. This will give them time to reflect on content and have questions ready for the trainer.

## Step 4: Conduct the training session

At the **start** of the training day:

- arrive early, set up the venue and prepare for your training session
- greet participants as they arrive and provide them with name tags
- in the welcome and introduction, cover general ‘housekeeping’ and logistics such as the location of toilets and what to do in the case of an accident or evacuation
- acknowledge everyone’s attendance and the time that they are putting into the training session and the monitoring
- establish some ground rules for the training session with participants—for example, mobile phones must be switched off, and only one person speaks at a time in whole-of-group sessions
- present the agenda and overall objectives for the training day
- have an icebreaker activity for the participants and trainer to learn a little about each other
- find out what the participants already know about the training topic (this information may have been received by survey prior to the day and incorporated into the training)
- ask participants to list their personal objectives for participating in the training session. Listen to these and adapt the training session to address these objectives, where possible
- personally introduce guest speakers at the start of each session. Let them explain a bit about themselves and why they are there.

**Within** each training session:

- present the objectives of the training session
- start the training sessions with kits and techniques, keeping the theory until after the practical skills have been attained. Take the car salesman approach: take it for a ride, and then supply the details. Alternatively, theory could be read by the participant at home to allow for reflection and questioning at the training session
- introduce the skills to be learned
- demonstrate the technique to participants

- repeat the demonstration, explaining the technique as you proceed, and allow participants to follow along with their own equipment
- check participant understanding by asking questions about the main points. If there is a wide range of knowledge and skill levels, you will need to manage the session so it goes at the right pace and level without losing people along the way
- clearly explain the link between knowledge and the practical application of knowledge, so the relevance of what is learned can be appreciated
- use local examples
- provide adequate time for participants to practise hands-on techniques and reflect on what they have learned by asking questions
- if workbooks have been provided, allow sufficient time to complete the relevant section
- be prepared to manage situations where participants dominate or disrupt sessions, or are intent on being difficult for some reason
- record any questions that arise that will need to be answered before the end of the training session
- record any useful resources that participants may have used that would help others
- conclude the session with a review of the key steps and points. Allow time for questions and discussion on concepts that were difficult.

**After** each training session:

- review objectives and check that participants’ objectives have been met
- review key messages and concepts of each session
- discuss how participants will apply the knowledge they have learned, and where the project can go now that they have gained new knowledge and skills
- thank participants for their attendance and ask them to participate in an evaluation of the training session.

## Step 5: Evaluate the training session

- Determine whether the objectives of the training session were met. Was the training session effective in increasing knowledge and skill levels of participants to the desired level?
- Determine how well the sessions were run, and assess the suitability of facilities and session presenters/facilitators.
- Identify opportunities for improving the effectiveness of future training sessions.



You should undertake some form of assessment to check how well participants understood the concepts presented during the training course and gained the necessary skills. Informal assessment could involve asking participants to answer questions throughout the session. Formal assessment could involve asking participants to complete a written test or demonstrate a particular skill at the end of the session. Competency-based training courses have a formal method of assessment built into them. Formal assessments lead to greater data confidence for your monitoring project, but will not suit all group objectives.

The best way to evaluate how well the session was run is to ask the participants for direct feedback. A traditional method of collecting feedback is through a survey or form. You may also consider using an interactive method of evaluation at the end of your training workshop, such as:

- **a human chain**—participants stand along an imaginary line across the room with their position indicating their evaluation of that component (1 indicating poor, up to 10 indicating excellent)
- **packs of cards**—cards with numbers (or pictures of faces with different emotions) are spread around on the floor. Participants select one based on their feelings about that component of the training session, then show the group and explain the reasons for their choice
- **discussion**—ask participants to share with the group what they got out of the training session and what could have been improved.

These types of evaluation give instant feedback and allow participants to witness the opinions of all who were involved in the training. Evaluate each section of the training session, as well as generic areas that you require feedback on, such as the skill of presenters, presentation methods and techniques, presenter's ability to answer questions, structure of training session and depth of content.

Anonymous feedback is another possible mechanism for evaluation. It is a good idea to give participants this option, as not all people will be comfortable with providing verbal feedback—particularly if it is negative. Anonymous feedback methods include surveys completed immediately after the event.

Presenters should also complete their own evaluation of training sessions. Presenters can devise their own method to review and evaluate

their training session. However, one method is to set up a table with three columns:

- **plus**—list what you liked and what worked well
- **minus**—list what you didn't like and what didn't work
- **change**—list any suggested improvements.

The presenter should also note any feedback received during the training session so that they can act on this to improve the next training session.

## Step 6: Follow up to maintain motivation

- Be available to answer questions and requests.
- Ensure that participants have opportunities to use newly acquired skills in the field; otherwise, they may lose them.
- Provide opportunities to learn more advanced techniques.
- Maintain contact with the local media to promote good news stories.
- Keep participants up-to-date with new information and techniques.
- Suggest ways in which the group may like to communicate with each other after the training event to share experiences and knowledge and create a learning community.

## Step 7: Maintain a training log book

Training records should be kept to track each group's training progress and to identify current skills and future training needs. These records become a reference system for identifying needs for refresher training and advanced training.

A training log book is a form of data confidence documentation because it provides evidence that those undertaking monitoring for your project have been adequately trained and can produce accurate results. The training log book for your group should be regularly updated to identify current skills and future training needs. Chapter 10 provides an example template for a training log book.

If accredited training is conducted, the log book would include certification and assessment records from a registered training authority (RTO).

**Note:** If accredited training is being delivered, assessment certification is an additional step in the seven-step process outlined.



## Maximising your training impact

- Participants must feel a need to learn. Prior to your training session explain why and how the session will benefit participants. This could be part of the recruitment process to get people involved in the project.
- Make sure that training sessions are tailored to participants' needs and expectations. Participants must set their own learning goals; let them choose what they want to get out of the training session.
- Participants must be allowed to build upon and use their own experience. Connect new learning to existing knowledge and experience—this will make the new information appear less daunting to participants because it won't feel like they are dealing with completely new concepts.
- People learn best when they have base knowledge to build on. Background reading done prior to or at the beginning of the training session provides a good foundation for learning. If appropriate, provide reading material to participants in advance of your training session.
- Participants must feel that their training has been successful. Recognise participants' achievements in learning and reward them.
- Learning must involve two-way communication. This can include the trainer asking questions to gain feedback and suggestions, and encouraging participants to share knowledge and experience. Breaking participants into small groups to discuss what they have learned so far is also another way to stimulate two-way interaction.
- Effective learning is based on good relationships between trainer and participants, and between participants. Encourage participants to introduce themselves at the start of a session if needed. Aim to foster a sense of trust between the trainer and the participants.
- Learning is best achieved in a relaxed environment. Create a comfortable training environment (such as chairs placed in a circle) that promotes a collaborative, respectful and informal atmosphere. The learning environment must be mentally and socially safe so don't put participants on the spot or in a situation where they may become embarrassed or uncomfortable.

## Engaging all learners

People vary widely in how they learn new information and skills. The most effective way of engaging these different types of learners is to use a variety of methods that cater to their varying needs. When planning your training program and sessions, remember to include activities and resources that appeal to a range of learning styles. The following list provides guidelines for planning and structuring your training for different types of learners:

- Structure your training session in a logical, consistent manner. Give participants an overview of what the training session will involve so that they are aware of what content will be covered and its relevance to what they want or need to learn.
- When preparing a presentation, think of a catchy title for your session and identify five main messages that you want the participants to take home. Use key words for each main message, and develop mini-speeches to talk through each. Use colourful pictures and graphics to add interest.
- Appeal to auditory learners by speaking at an appropriate pace and volume. Use pause, intonation and 'signposting' to give emphasis to key points. You could incorporate audio-visual materials such as music or videos where relevant.
- Appeal to visual learners by using drawings, graphs, maps, cartoons and timelines to accompany explanations. You may want to reinforce spoken points by using notes or diagrams on a board or projector.
- Appeal to kinaesthetic learners—those who learn by doing—by including physical activities and hands-on training tasks.
- Allow breaks for movement between activities. This could include moving from one area to another to provide closure for one topic and a fresh approach to the next.
- Use techniques such as pair and group discussions. Ask small groups of around four people to discuss their responses to open-ended questions. Emphasise the outcomes of each group discussion by writing key words on a board or butchers' paper.
- Make connections between what is being learned and the context or bigger picture. Incorporate resources such as newspapers, magazine articles and television programs to emphasise the relevance of what is being taught. Use a range of facts, statistics and real pieces of data.
- People learn best when they can relate to the presenter. Use humour and anecdotes to make the material personally relevant and interesting.



## Using educational tools

A *tool* is a resource, activity, communication method or type of information that can help your training cater to participants' needs and preferences. Information about a wide range of tools, including how to select appropriate tools for your project, is available on the Griffith University Urban Research Program *URP science toolbox* website <[www3.secure.griffith.edu.au/03/toolbox/alpha\\_tool\\_list.php](http://www3.secure.griffith.edu.au/03/toolbox/alpha_tool_list.php)>. You may wish to use simple tools such as:

- **music.** It can have a direct physical, emotional and psychological effect and can help to energise, relax and direct responses of participants. For example, you could use energising music before the training session, up-beat music when groups are moving between activities, soft background music during small group discussions and motivating music after the training session has concluded. Additionally, music can be used to direct the attention and action of participants, such as to indicate when conversations should end and to signal transition between activities or topics
- **variety.** Avoid over-using a particular communication method, such as PowerPoint. Instead, look for other tools such as videos, whiteboards, flip charts, actual samples and photographs
- **change of surroundings.** Change the location of the entire group for different sections of the training session. This provides closure for one section and a fresh start for the next. A change also makes people more alert and attentive, because they have to adjust to their new surroundings. Additionally, smaller groups may move to different locations during group discussions and participants may move around to join other groups
- **fun.** Participants should actively engage in the learning process, so try to make the training session fun, hands-on and innovative
- **displays.** Too much information delivered too quickly will not allow the participants to retain information. One method to encourage participants to retain information is to put butcher's paper up around the room with key concepts and outcomes written on it. Towards the end of a session, give participants time to wander around the room at their own pace to recall and reabsorb information

- **group work.** Mix up the composition of participants at each table for small group discussions. You could use codes such as colours, shapes or animals—displayed on participant booklets or name tags, and corresponding tables—to indicate where each participant should sit for a discussion topic. Use groups of three to four people so that nobody is left out when groups are spontaneously forming
- **timekeeping.** There are creative ways to keep presenters and training sessions to time within the agenda. For example, you could use 17-minute breaks (this unusual number will catch people's attention and remain in their memory), play a piece of music to recall participants, or appoint a timekeeper who can indicate to presenters their remaining time.

## Training adults

Adult learning requirements are different from those of children. Consider the following when planning and running your training session for adults:

- Adults will only involve themselves in learning if you have outlined a clear purpose for how it fits into their aims of participating in the workshop.
- Adults have a wealth of life experience so the more you link the training to it, the better they will learn.
- Adults will feel more comfortable and will learn more effectively if you accommodate their set habits (such as eating lunch at a particular time).
- Be prepared for adults to have strong feelings and opinions regarding your key training messages.
- If they are not effectively engaged in your training session, adults can 'switch off'—they have many other responsibilities and concerns that they could think about during this time.
- If your training involves trying to change the attitudes of participants, be prepared for the fact that adults often have entrenched attitudes that do not easily change.
- Adults will filter information and only listen to what they want to hear if they disagree due to strong feelings or attitudes. This intelligence trap, where participants think that their current view of the situation is right, is a barrier to adult learning. Adults may be defensive about hearing an alternative view.



## Bibliography

Cassidy, M 2003, *Waterwatch Tasmania reference manual: a guide for community water quality monitoring groups in Tasmania*, Waterwatch Australia, Hobart.

Chinn, C, Wallwork, J & Le Grand, J 2004, *Stakeholder capacity building for increased participation in monitoring and application of monitoring results: a scoping study for the Moreton Bay Waterways and Catchments partnership*, Department of Natural Resources and Mines, Brisbane.

Darkenwald, GG & Merriam, SB 1982, *Adult education: foundations of practice*, Harper Row, New York.

Department of Natural Resources and Water 2006, *Health and safety guidelines for community-based waterway monitoring*, November 2006 reprint (first published by the then Department of Natural Resources and Mines, January 2006), Queensland Government, Brisbane.

Knowles, M 1990, *The adult learner: a neglected species* (4th ed.), Houghton Mifflin, Boston.

Waterwatch Australia Steering Committee 2002a, *Waterwatch Australia national technical manual, Module 2—Getting started: the team, monitoring plan and site*, Environment Australia, Canberra.

Waterwatch Australia Steering Committee 2002b, *Waterwatch Australia national technical manual, Module 4—Physical and chemical parameters*, Environment Australia, Canberra.

Waterwatch Australia Steering Committee 2004, *Waterwatch Australia national technical manual, Module 3—Biological parameters*, Department of Environment and Heritage, Canberra.

Waterwatch Victoria 2005, *Waterwatch Victoria data confidence guidelines*, Waterwatch Victoria, Melbourne, viewed 20 November 2006, <[http://www.vic.waterwatch.org.au/file/inform/dc\\_guidelines.pdf](http://www.vic.waterwatch.org.au/file/inform/dc_guidelines.pdf)>.



## Further reading

### Books

Brookfield, SD 1986, *Understanding and facilitating adult learning*, John Wiley and Sons Ltd, Suffolk, England.

This resource analyses current approaches to adult learning, presents a comprehensive review of the research on how adults learn, and proposes ways to develop more innovative adult learning programs.

Rogers, J 2001, *Adults learning*, Open University Press, Buckingham, England.

This resource is a guide on how to teach adults in the 21st century. It answers questions such as, 'How do adults learn?', 'How can I deliver material in a way that will interest people?' and 'How can I manage my group so that confident people do not dominate and the quieter ones are able to join in?'

### Websites

National Training Information Service 2006, National Training Information Service, viewed 20 November 2006, <<http://www.ntis.gov.au/>>.

This website contains information on the module RTD3507A, 'Undertake sampling and testing of water', as part of the nationally accredited training course in conservation and land management.

TAFE Queensland 2006, Department of Education, Training and the Arts, Brisbane, viewed 20 November 2006, <<http://www.tafe.qld.gov.au>>.

This website provides information on where you can complete the module RTD3507A, 'Undertake sampling and testing of water', as part of the Diploma of Conservation and Land Management.

Department of Education, Science and Training 2006, Department of Education, Training and Science, Canberra, viewed 20 November 2006, <[http://www.dest.gov.au/sectors/training\\_skills/policy\\_issues\\_reviews/key\\_issues/nts/default.htm](http://www.dest.gov.au/sectors/training_skills/policy_issues_reviews/key_issues/nts/default.htm)>.

This website contains useful contacts and information on training.

Adult Learning Australia Inc. 2006, Adult Learning Australia Inc., Canberra, viewed 20 November 2006, <<http://www.ala.asn.au>>.

This website contains publications on community engagement along with links to information on different learning and teaching practices.

Smith, MK 2005, Infed, viewed 20 November 2006, <<http://www.infed.org/thinkers/et-knowl.htm>>.

This website includes a copy of the paper, 'Malcolm Knowles, informal adult education, self-direction and andragogy', which deals with some important concepts in adult education and characteristics of adult learners.