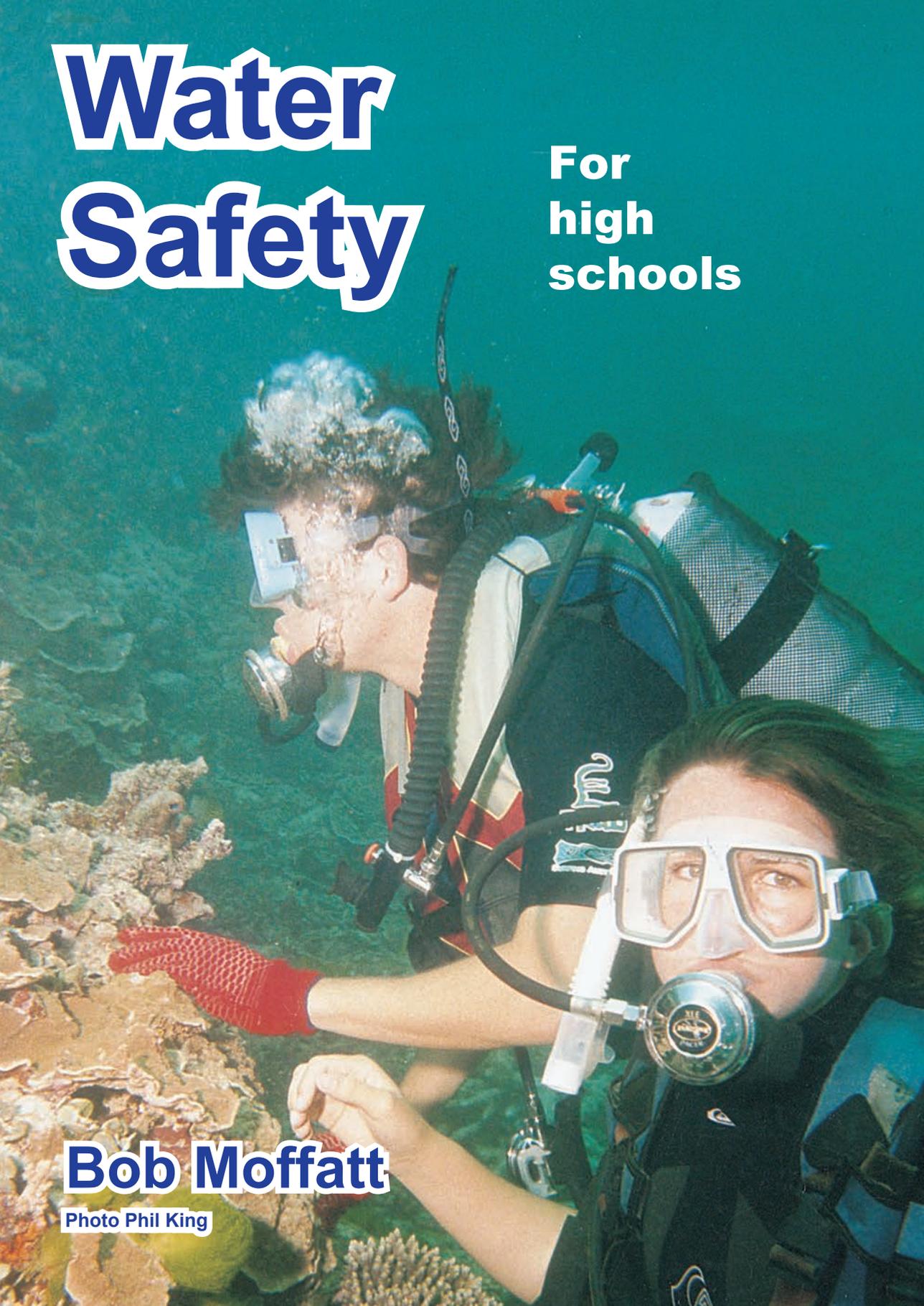


Water Safety

For
high
schools

A photograph of two divers underwater. In the foreground, a female diver with long dark hair is looking towards the camera. She is wearing a black BCD, a black mask with a silver frame, and a silver regulator. In the background, a male diver is looking down at a coral reef. He is wearing a white and red BCD, a clear mask, and a silver regulator. The water is clear and blue-green, and the coral reef is visible on the left side of the frame.

Bob Moffatt

Photo Phil King

© Copyright 2016

Except as permitted by the copyright law applicable to you, you may not reproduce or communicate any of the content on this website, including files downloadable from this web site, without the permission of the copyright owner.

The Australian Copyright Act allows certain uses of content on the internet without the copyright owner's permission. This includes uses by educational institutions for educational purposes, and by Commonwealth and State government departments for government purposes, provided fair payment is made.

For more information, see www.copyright.com.au and www.copyright.org.au

Published by

Wet Paper Publishers and Consultants

PO Box 540

COOLANGATTA 4225

www.wetpaper.com.au



Code

F 00 Sample book.pdf

Title

Water Safety Sample book

ISBN

978-1-86283-167-X

Contents

<i>Our water culture</i>	<i>4</i>
<i>Some causes of drowning</i>	<i>5</i>
<i>Water safety issues.....</i>	<i>7</i>
<i>Regulations in specific sports.....</i>	<i>10</i>
<i>Class activity</i>	<i>13</i>
<i>Key words.....</i>	<i>14</i>
<i>Revision sheet.....</i>	<i>14</i>
<i>Worksheet 1 Safe surfing.....</i>	<i>15</i>
<i>Worksheet 2 Snorkelling safety considerations</i>	<i>16</i>
<i>Worksheet 3 Snorkelling first aid</i>	<i>18</i>
<i>Worksheet 4 Boating safety.....</i>	<i>19</i>
<i>Worksheet 5 Safety equipment.....</i>	<i>20</i>
<i>Worksheet 6 Reducing snorkelling risks.....</i>	<i>21</i>





Murray Waite

Figure 4.1 The sea has become part of our culture.



Wen Paper

Figure 4.2 Specialized safety equipment is required to drive a power boat.



Jan Taylor

Our water culture

Between 1 July 2014 and 30 June 2015, there were 271 drowning deaths in Australian waterways. In 2016, the number of people drowning in Australia has increased year, but remains the second lowest on average since 2002/03.

Over half these drownings were related to swimming, surfing or falling into the ocean.

We use the sea for **commerce** and **recreation**; sports such as sailing, surfing, swimming or boating irresistibly attract many of us to the water.

Water safety is an important part of marine studies because we all need to be aware of the dangers associated with water and its environment. We need to learn how to avoid drowning.

Simple skills such as how to tow someone out of danger using an everyday object, how to operate a powerboat at a safe speed while wearing clothes to suit the situation (Figure 4.2), or more advanced skills how to avoid falling off a yacht at night (Figure 4.3) are essential.

Tourism

Television commercials constantly remind motorists to obey road safety laws and more recently we are starting to see commercials that talk about water safety.

Our rivers, lakes, dams, oceans and seashore have become part of our way of life; the focus of multi-million dollar industries for commercial harvest or tourism and enjoyment. An overwhelming proportion of our population live within 2 hours drive of the coast.

Our internationally renowned fishermen, rowers, water-skiers, sailors, powerboat drivers, surfers, swimmers, sailboarders and scuba divers highlight the widespread use we make of our beautiful water environment.



Murray Waite

Figure 4.3 Special safety equipment is required for sailing

More than any other nation, our love of water has become part of our culture. As part of that culture, we must also learn water safety.

Some causes of drowning

The table in Figure 5.1 breaks down into percentages where drownings occurred in recent years. The following sections look more closely at the actual causes of these tragic accidents.

Poor supervision

Inadequate supervision of young children around water is the cause of most child drownings. Figure 5.1 shows that falls into swimming pools are the greatest cause of drownings and the lack of barriers around water sources must contribute to these figures. This table also shows that people can even drown in baths which underlines the importance of water safety at home.

Surrounding environmental conditions

A lack of understanding of the dangers associated with water and its environment often leads to accidents. For example, the best of swimmers can fall off a rocky headland, be knocked unconscious and drown. People who can swim quite well in the backyard pool often panic when caught in a **surf rip**, become exhausted, black out and drown.

Chapter 18 describes how weather can contribute to dangerous water situations, for example, sailors can drown at sea when strong gusts of wind overturn their dinghies. Surfing or swimming in rough wave conditions like those in Figure 5.3 often leads to the swimmer exceeding the level of their abilities, becoming exhausted, and drowning after being battered on the rocks. Environmental factors such as tides, currents, waves and coastlines are discussed in Chapters 23 and 24.

Failure to observe signs

Ignoring warning signs, such as those shown in Figure 5.2, can lead to people being stung by dangerous marine creatures, suffering a heart attack or shock and drowning. In many swimming places, signs warn people about swimming dangers, the most obvious of these are flags put up on surf beaches to indicate safe swimming areas. Yet, to the amazement of the lifeguards, people still swim outside these managed situations.

Drowning statistics	Percentage
Swimming, paddling or wading	22.0
Surfing, surfboard riding	4.0
Swimming in ocean, river, estuary, bay, lake, lagoon, dam, water hole, irrigation canal, drain or trench	3.0
Water-skiing, surfboard riding	2.5
Swept off rocks, breakwater while fishing	5.0
Skindiving, spear fishing	2.0
Attempting a rescue	1.3
Fall into swimming pool	28.0
Fall into ocean, harbour, estuary bay, lake, lagoon, dam, water hole, irrigation canal, drain or trench	16.0
Drowned in bathtub	2.0
Accident to watercraft causing submersion of motorised craft	9.0
Accident to watercraft causing submersion of non-motorised craft	3.0
Drowning caused by cataclysm or other environmental factors	2.0
Other	0.2
Total	100.0

Figure 5.1 Deaths due to drowning in 2014



Figure 5.2 Warning sign - Dangerous sea creatures



Figure 5.3 Beach rip



Figure 6.1 Don't get sucked in- download the video www.sucked-in.tv



Figure 6.2 Rough sea conditions



Figure 6.3 Not checking for submerged objects



Figure 6.4 Lack of concentration while operating a boat



Figure 6.5 Sand down sharp fin edges before use.

Lack of safety and first aid skills

Bystanders' lack of knowledge of resuscitation and rescue techniques often leads to needless death. Chapter 2 will show you some of the simple steps that can keep a person alive when they have stopped breathing or their heart has stopped.

Many people cannot swim or don't know simple techniques to survive in water. Would-be rescuers risk drowning because of their poor swimming skills. People who use equipment such as boats, jet skis or surf craft may lack the safety skills required for their use. A simple lack of concentration while operating a boat can lead to fatal accidents.

Other factors that cause accidents include failing to think ahead, such as not checking water depth before diving, as shown in Figure 6.3, which can lead to severe spinal injuries and/or drowning.

Faulty equipment

All equipment is important at sea, from the smallest of ropes to secure a torch, to the **life jackets** (personal flotation devices or PFDs) that keep mariners afloat. Always maintain equipment in good working order as your life may depend on it. That worn securing strap on your life jacket may cause the device to come off, leaving you with no flotation, or that too-sharp fin on your surfboard may cut you or others and lead to severe cuts and bleeding (Figure 6.5).

Alcohol

Alcohol and water just don't mix. Alcohol slows reaction time and the ability to think clearly which leads to accidents which increase the chance of drowning. Remember, the 0.05 alcohol limit applies to boating activities as well as to driving a motor vehicle.

Water safety issues

Dangerous situations

Homes should be made safe for young inquisitive children. They are at the age of exploration – of finding out what things are and what they do. Many people lock up poisons, keep medicines and sharp objects out of reach, but forget about water. We all take responsibility for supervising children in or near the water (Figure 7.1). In rivers, lakes and at the beach there are additional dangers. Watch for snakes, sharks and stinging creatures. Currents, submerged objects, weed and unstable overhanging banks are all potential dangers.

Uneven riverbanks and seabeds with deep holes are dangerous for non-swimmers who wade in shallow water to cool down. Large lakes become very choppy with wind. During storms, roads and stormwater drains contain fast flowing water. Never ride surfboards or body boards in these water conditions as you may be sucked into stormwater drains (Figure 12.1).

Walking along cliff faces (Figure 7.2) with their rocky outcrops, slippery rocks and waves can be dangerous. At sea, where conditions can get extremely dangerous, it is important to be familiar with emergency drills and safety equipment (Figure 7.3 and Figure 7.4).

Water safety practices

At home

Here are some simple hints for supervising children:

- always stay with children at bathtime;
- never leave toddlers alone in a paddling pool;
- empty paddling pools when children get out;
- cover and fence swimming pools;
- cover inground fish ponds with heavy steel mesh;
- don't leave buckets, tubs or large bowls around the house with water in them;
- teach young children to swim; and
- display safety guidelines, rules and **cardiopulmonary resuscitation** (CPR) charts wherever there is water danger and encourage all swimmers to note the rules and obey them.

Some water safety procedures for all ages are listed below:

- check the depth markers, exit points (usually steps) and the people in the pool before getting in;
- stay in a depth zone that is comfortable; and
- avoid running, bomb-diving or dunking.

Sample book



Don't cross flooded creeks in 4 wheel drives



Figure 7.1 Supervision near water is essential.



Figure 7.2 Be careful when walking near cliff faces.



Figure 7.3 Inflatable life rafts



Figure 7.4 Life jacket drill



Figure 8.1 Three types of Life jacket

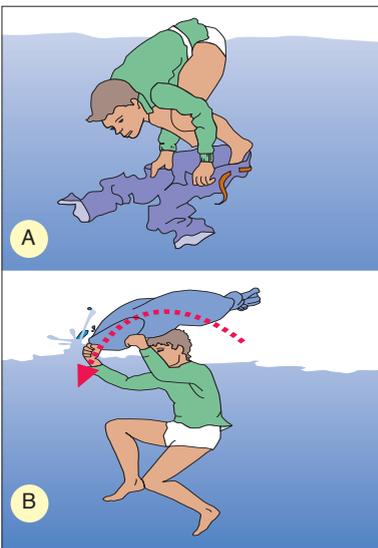


Figure 8.2 How to remove clothing that can be used as a flotation device.



Figure 8.3 You can use everyday objects as floats.



Figure 8.4 Don't exceed the level of your confidence or skill.

At rivers, lakes and at sea

Suggested safety practices are listed below.

- If you are boating, canoeing or water skiing, use the correct Life jacket and wear it all the time. Figure 8.1 shows three types of life jacket listed below:
 - 1 has a neck support to keep your head out of the water if you are exhausted;
 - 2 is often used by people who do water sports where they only need to float for a short time;
 - 3 is often used by water skiers who need a large range arm movement and only need to stay afloat long enough for help to arrive quickly.
- Keep an eye on the weather. Check radio forecasts before setting out. If you are canoeing or sailing in a large lake and the weather looks like changing pack up and go home.
- Never get too close to overhanging cliffs or large breaking waves on a rocky platform and never swim alone.
- Watch out for slippery rocks when walking on a rocky shore.
- In flood situations:
 - avoid crossing flooded creek crossings by yourself and seek local advice; and
 - avoid playing on body boards in flooded parks as you may end up going down a stormwater drain and drown.

General water skills

Learning to float



The shock of falling into water fully clothed can make you panic. Floating can also be a problem if you are being washed downstream. Figure 8.2 shows how to take off your clothes while in the water and use them as a flotation device. Buckets, esky lids, plastic drink bottles or pieces of foam can also be used as flotation devices, as shown in Figure 8.3.

Watch out for slippery surfaces

Water creates a slippery surface on boat ramps, rocks, decks, handrails, stairs or anything that is flat and hard. The right footwear will reduce the chance of slipping.

Know the level of your abilities

Overconfidence and showing off can be deadly at waterfalls, underwater hockey, big surf or snorkelling in caves. Never be afraid to chicken out as it may prevent serious injury or save your life one day (Figure 8.4).

Learn first aid

Training in first aid is essential if you use the sea (Chapter 2).

Learn basic rescue methods

One award you can qualify for in your local swimming pool is the bronze star available from the Royal Lifesaving Society of Australia (Figure 9.1).

Some of the things you will need to do for this award include:

- swim 200 metres in still water and 25 metres fully clothed
- swim 10 metres underwater and tread water for 3 minutes
- identify dangerous local swimming spots and list the conditions that would make them dangerous
- demonstrate some rescue methods as shown in Figure 9.3.

The web pages shown in Figure 9.2 give information about this award. The Surf Life Saving Association, Kids Alive do the Five and Surfing Australia are other associations that have training for school students.

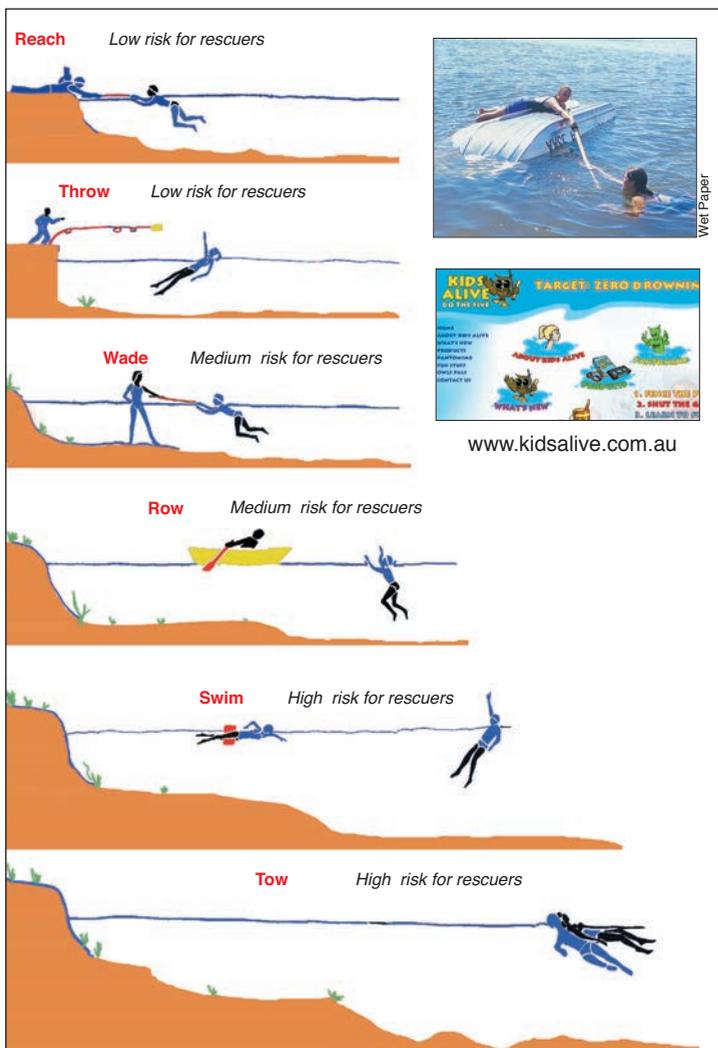


Figure 9.3 Rescue techniques
Illustration after Royal Life Saving Association

Diving deeper

1. Learn to tie some knots used by mariners, such as the bowline.
2. Visit a shop that sells sailboards. What safety equipment is necessary for this sport?
3. What is a *dan buoy* and how is it used in sailing?
4. What is a *heliograph* and how is it used as a safety device?
5. What types of fire extinguishers are used to fight different types of fires?

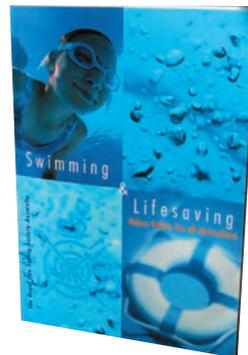


Figure 9.1 Life saving manual
Royal lifesaving society of Australia



Figure 9.2 Life saving web sites

Regulations in specific sports

Boating and sailing



Wet Paper

Figure 10.1 Sailing requires training, safety equipment and skills.



Wet Paper

Figure 10.2 Boating requires a licence, safety equipment and skills.

Sailing and driving a powerboat are two common types of boating. By joining a sailing club you can learn to sail through the Australian Yachting Federation (AYF) training logbook (TL) scheme. Beginners obtain a TL1 **logbook** which enables them to sail a dinghy safely inshore.

Schools, parents and friends, sea cadets, air-sea rescue and coastguard or private providers run excellent programs if you want to learn how to drive a powerboat.

In most states, you need a licence to drive a power-driven vessel and you have to be a certain age to obtain that licence. A government department administers the licence scheme and you will have to sit for an exam, undergo a test or present some type of certification from a training authority to get that licence.

Australian government marine safety agencies

New South Wales

www.maritime.nsw.gov.au

Victoria

www.marinesafety.vic.gov.au

Northern Territory

www.ipe.nt.gov.au

Tasmania

www.mast.tas.gov.au

Western Australia

www.dpi.wa.gov.au/imagine

Queensland

www.msq.qld.gov.au

South Australia

www.transport.sa.gov.au/safety/marine



Wet Paper

Figure 10.3 Attend flare demonstration days.



Lloyd Jones

Figure 10.4 Learn how to get into life rafts.

Because so many people use the water and there are no places for stop signs or traffic lights, everyone must learn a set of common international rules to prevent collisions at sea. People who use the sea are required to know many of these rules before they are issued with a boat licence and the further you go out to sea, the more rules you will need to know.

Boating and sailing have their own safety principles and equipment. You can learn how to use this equipment if you are involved in activities such as:

- water safety days run by marine teachers associations to learn how to set off flares or to use life rafts (Figures 10.3 and 10.4);
- rescuing others as part of your marine studies class
- using life jackets and survival techniques in courses run by volunteer associations; and
- enrolling in marine safety courses run by professional associations such as your state Surf Life Saving Association, the Australian Underwater Federation, the Australian Yachting Federation, your local maritime college, TAFEs or private providers.



Figure 11.1 Some safety equipment

Boating safety equipment

Safety equipment designed for a specific purpose are listed 1-10 below and shown in Figures 11.1 and 11.2:

1. A **fire extinguisher** can put out a fire on a small vessel.
2. The **emergency position indicating radio beacon (EPIRB)** is used to locate mariners at sea.
3. **Flares** attract attention if a boat is in difficulties.
4. A **marine radio** sends and receives safety messages as well as weather forecasts.
5. An **anchor** keeps a boat in position when water is moving due to tides.
6. A **first aid kit** must be able to fix cuts and bruises, and relieve sea sickness, headache or sunburn.
7. A **chart** enables sailors to locate their position at sea.
8. The **signalling light** and V sheet attracts attention if the vessel gets into trouble.
9. **Oars** are used to row the boat if the motor breaks down.
10. **PFD or life jacket** (see your state marine safety agency for up to date regulations)

Snorkelling

Buoyancy vests, wet and stinger suits are just some of the specific safety equipment used by snorkellers and divers. In Chapter 8 you will learn a lot more about the skills necessary for snorkelling and the types of qualifications you need.



1. What is the second greatest killer in our country?
2. Draw a pie chart showing the percentage of people drowned while swimming, paddling or wading in 2004.
3. Why should rules such as no running, no bombs and no dunking be part of swimming pool rules?
4. Analyse the differences between the three types of PFD.
5. How are marine radios used in safety situations?
6. Predict three events when flares could be used.
7. Why do sailors use special lines at night?
8. Propose two reasons why you should not ride your body board or surfboard in flooded drains.
9. Recommend 5 water safety principles.



Figure 11.2 Look for level required and the Australian Standards AS 4758 label.



Figure 12.2 Lycra shirts and arm leashes are used by body boarders.



Figure 12.3 Hooks, knives, fish with spines all create safety issues for fishers.



Figure 12.4 Canoeing and safety gear



Figure 12.1 Surfing requires a high degree of skill.

Surfing

Surfing is one of the few sports that has no government regulations. Surfers have to learn how to paddle out to avoid being run over; how to ride a wave towards the shore without colliding with other surfers; and catch a wave without wiping out, as shown in Figure 12.1. Surfers practise these skills each day, gradually mastering the basics before venturing out into the bigger swells.

Most surfers use a leg rope or leash, so their boards don't get lost, and wear protective clothing to prevent skin cancer (Figure 12.2). Surfing requires a high degree of physical fitness and most surfers maintain this by eating healthy foods and exercising regularly. Some surfers wear helmets and wet suits in colder weather to prevent hypothermia (see Chapter 2).

Fishing

Commercial fishing operators need a licence and are controlled by many safety rules. Recreational fishers who use a boat, follow the boating safety guidelines but recreational shore anglers may use common sense safety rules, such as making sure hooks are not going to harm other people when casting, using gloves when handling fish with sharp spines and not fishing off rocks where waves can wash them out to sea.

Canoeing

A basic canoeing certificate, life jacket and sun protection are requirements for canoeing. Dangers can include submerged rocks, overflows and broken glass on the river bank. If you want to learn advanced skills you should join a canoe club or association.

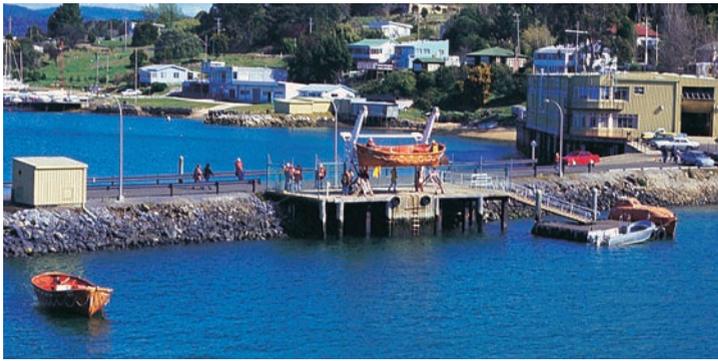


Figure 13.1 The Australian Maritime College (AMC) in Tasmania

Commercial use of the sea

Training is an essential part of any commercial operation at sea and organisations such as the Australian Maritime College specialise in training seafarers.

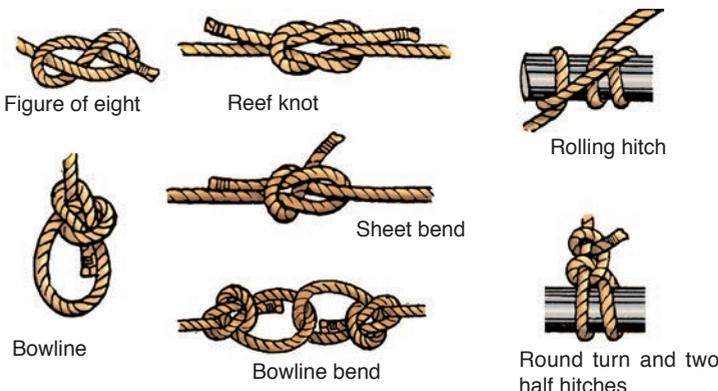
Basic training occurs on land where the trainees learn how to launch and retrieve a lifeboat from a vessel. In special pitch-black rooms (Figure 13.2) filled with jets of water and the sounds of howling winds, students learn to jump into the sea and experience the fear of abandoning a ship at sea, at night and in rough conditions in a marine safety course for mariners. Other courses include the elements of ship board safety, fire fighting, first aid and life raft drill.

Class activity

Building a raft

A common introductory exercise in marine studies classes is to build a raft as shown in Figure 13.3. Learning to tie common knots, working as a group, working with safety gear on are very important skills.

Some common knots used in marine situations are shown below. See if you can decide which ones would be most useful in the raft building exercise.



Diving deeper



6. Explain the procedure for enrolling in a boating or sailing course.
7. Design a water safety brochure for a swimming pool body corporate meeting. Prepare a budget for its production.
8. Make up a list of safety rules for a home pool.
9. Visit Surfing Australia's web site and find out how to do a learn to surf class. www.surfingaustralia.com

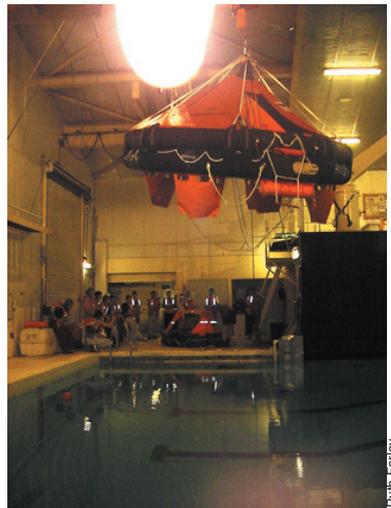


Figure 13.2 Life raft drill AMC



Figure 13.3 Raft building



Figure 14.1 Assess the situation carefully.

Water and weather conditions

The ocean can be a potentially dangerous and inhospitable place for the unwary person. Always take the time to assess the conditions and make a realistic decision in relation to your ability level. There are certain times when the ocean is not suitable for any level of activity. Severe rips, rough conditions, boat ramps and entry points are just a few things to consider before entering the water.

Key words

Alcohol, arm leashes, buoyancy vests, cardiopulmonary resuscitation, chart, commerce, drowning, emergency position indicating radio beacon, fire extinguisher, fishing, flares, flotation device, international law of the sea, life jacket, life raft, lycra shirt, marine radio, PFD, raft building, recreation, resuscitation, rough sea conditions, safety devices and equipment, safety line, signalling light, simple rescue skills, surf rip, surfing, TL1 logbook, warning signs, water safety.

Diving deeper



10. Research different types of flares used by mariners at sea. Describe each one and how they work.
11. Research what an RFD is, what it contains and how it is used .
12. Outline the main reasons for the international regulations for prevention of collisions at sea.
13. What types of signals are used by a water skier?
14. Make a collection of boating safety pamphlets and report on how they are used to improve water safety.
15. Research how to get out of a car accidentally driven into deep water.
16. Design a safety sign for a marine sport eg: surfing, boating, sailing, canoeing, snorkelling.

Revision sheet

1. How many Australians drown each year?
2. Where does drowning 'rate' in the cause of accidental death in Australia?
3. What causes the most accidental deaths in your State?
4. What problems have been identified as being important in these drownings?
5. Draw a pie chart of Figure 4.1 to show the location of accidental drownings in Australia.
6. Are there any differences between number of males and females who drown?
7. Are there any differences between age groups?
8. Suggest some situations where drownings may have occurred when the victim did not mean to go into the water
9. Identify the dangers around a home swimming pool.
10. What items should be at every poolside?
11. Suggest a set of helpful owner rules of pool items/design that may help cut down drownings.
12. List one danger for each of the following
 - a. Rock fishers
 - b. Young children at the pool
 - c. Surfers
 - d. Water skiers
 - e. Snorkellers
 - f. Power boating

Worksheet 1 Safe surfing

1. Before going surfing you should know which of the following weather conditions?
- a. Wind direction and strength
 - b. Tide times
 - c. Size of swell
 - d. All of the above

Give a reason for your answer.

2. List two ways of checking the weather before going surfing.

3. If there were reef exposed on the shoreline, you would expect to find reef under the waves.
- a. True
 - b. False

4. Complete the following sentence: Before going into the surf you should know two things.

Where you will : _____ and _____

5. The safest way to protect your head in a wipe out is to _____.

When surfing and a wipeout is unavoidable you should fall to the _____ of the surfboard.

6. The photograph below shows a popular surf break. Draw arrows to show where you could enter the surf. Give reasons for your answer.



Q3. Justify your decisions to use the following pieces of rescue equipment in a snorkelling program and comment on where you would use each item and in what sort of situation.

Eg: float. Students able to swim to, supervisor able to attach mermaid lines,

• lifebuoy

• pole with looped rope or inflated tube

• dive flag

• safety boat

• float rope

• mermaid line

• marking a snorkel with coloured tape

• VHF radio

• whistle

• snorkel manifest

Q4. Why is oxygen carried onboard a vessel taking people open water snorkelling and how is it serviced?

Worksheet 3 Snorkelling first aid

Q1. List the steps necessary to control shock.

Q2. List the steps you would take to control bleeding from a 40 mm cut to the leg from a propeller.

Q3. Explain how to recognise if a patient was suffering from hypothermia and describe what to do.

Q4. List the treatment for stonefish, blue-ringed octopus and cone shells.

Q5. List the steps you should take if stung by a blue bottle in Sydney. Explain how this is different from Cairns.

Q6. Explain how would you recognise a patient who was stung by a box jelly and describe what would you should do.

Q7. Describe the treatment for Irukandji syndrome.

Q8. Describe the treatment if you were pricked by a spine of a scorpion (lion) fish.

Q9. Explain the difference between the treatment of a cut and a spine.

Worksheet 4 Boating safety

Describe control measures for the skills listed in the table below, by identifying any two hazards and then completing the table.

Skill	Hazard	Control measure
<i>Eg: Mount an outboard motor</i>	1 Waves 2 Boat ramp	<i>Move to a place where there are no waves or mount motor on the beach Wear shoes, work in pairs for support</i>
Mount an outboard motor		
Launch and retrieve a boat		
Start an outboard motor		
Depart a beach		
Return to a beach		
Steer a steady course		
Drive a boat on the plane		
Complete a figure of eight with U and S turns		
Depart a dock		
Dock at a jetty		
Moor at a buoy		

Worksheet 5 Safety equipment

Q1. Identify the letters A - F in Figure 1 and explain why they are necessary makings on a life jacket

- A _____
- _____
- B _____
- _____
- C _____
- _____
- D _____
- _____
- E _____
- _____
- F _____
- _____

Q2. Explain your responsibilities under your general safety obligation for the items in figure 2.

- _____
- _____
- _____

Q3. Explain how the information in the label in Figure 3 helps you determine when and where a life jacket needs to be taken.

- _____
- _____

Q4. Account for the differences in the life jackets shown in Figure 4.

- _____
- _____



Figure 4



Worksheet 6 Reducing snorkelling risks

Describe how each of the following hazards could cause harm to a snorkeller on a school trip you are about to undertake. Then identify the type of control measure used justifying it with a short statement

Hazard	Control measure/s and reasons
Weather <i>Eg: Rough seas</i>	<i>Cancel boat trip, snorkel in pools. Risk reduced, hazard eliminated</i>
Surface conditions	
Waves	
Sun	
Wind and rain	
Turbidity	
Temperature	
Rips and currents	
Hazardous creatures	
Entry and exit points	
Water depth	
Physical exertion	
Other vessels	



ISBN 978-1-86283-167-X

Photo Murray Waite