

3. Safety on the water

<i>Let someone know</i>	32
<i>Your duty of care</i>	33
Care of passengers	33
When to wear a PFD	34
Is your boat seaworthy?	34
<i>Boating with children</i>	34
<i>Speed limits</i>	35
<i>Loading for stability</i>	36
<i>Fuelling and fire prevention</i>	38
The engine	38
The fuel system	38
Bilge/s	38
Refuelling	38
Before refuelling	38
During refuelling	38
After refuelling	38
Refuelling on water	39
<i>Alcohol and drugs</i>	39
<i>Chapter 3. Self-check questions</i>	39

Having an enjoyable and safe day on the water goes well beyond avoiding an engine breakdown. There are lots of variables to consider and, as the boat operator, it's your responsibility to make sure things don't go sour.

This chapter outlines steps you can take to ensure a safe day on the water, including: your duty of care; children aboard; stable loading; speed limits; and the dangers of alcohol and drugs.



Always let someone know

Let someone know

Before you go boating, always tell someone responsible where you are going, your point of departure and when you plan to return. This may be friends, family, your boat club if you're a member of one, or any of the marine authorities in your area.

Give them a description or photo of your vessel, its registration number—and, if it sits on a trailer, that registration number also—and the number of passengers.

Also, log your journey with a volunteer marine rescue group such as Australian Volunteer Coast Guard or South Australian Sea Rescue Squadron.

Use a VHF repeater channel or HF safety working frequencies 2524 or 4483 kHz in the first instance. Different repeater stations operate on different channels or frequencies, so familiarise yourself with the appropriate channels or frequencies for the area, through consulting with the local volunteer marine rescue organisation (refer chapter 13).

Doing this not only records your journey in the event you need help, but also gives you regular practice using your marine radio.

You can also do this by marine radio, using VHF channel 16, HF channels 2182, 4125, 6215, or 8291 kHz, and 27 MHz channel 27.88.

Note that HF channel 2182 kHz may only be monitored by some volunteer marine rescue stations, so use another of the listed frequencies if possible.

Remember to log-off when you return to avoid an unnecessary search being launched.

As these are both calling and distress channels, you will be directed to a 'working' channel once you have made contact.

Your duty of care

As the vessel operator, you are responsible for the safety of the vessel and of your passengers.

This handbook lists the minimum safety equipment required. In deciding if you need more safety equipment, you should assess your vessel's—and your own—capabilities, the weather conditions, the area of operation, and the people who are coming on board.

Throughout the trip you should constantly:

- assess the weather forecast, including sea conditions, to decide if it is safe to continue
- ensure all hatches and doors are unlocked and clear of obstruction
- travel at a safe speed, particularly when visibility is reduced
- monitor your wellbeing and that of any passengers
- check your location/position by referring to charts, navigation markers and beacons (GPS can also be used as a guide, but it cannot be relied on solely)
- watch for potential emergencies or accidents
- observe other vessels nearby to determine right-of-way and to take evasive action if needed
- keep clear of larger vessels that cannot manoeuvre as quickly and easily as you
- follow navigation rules, including local area rules
- adjust the outboard leg trim to suit the direction of travel (generally, you trim the leg in—closer to the stern of the vessel—when heading into sea and out—away from the stern—when running with it)
- monitor the engine gauges
- ensure the vessel is not taking on water, and use your bailer or manual or electric pump if water does come on board
- assess and select safe anchorage sites
- ensure any rubbish is stowed and taken home for disposal.

Care of passengers

As the boat operator, you must be aware of your responsibility to your passengers at all times—and passengers must be prepared to follow your directions, especially in emergencies. In emergencies, always keep your passengers informed about what is going on.

For safety, at least one other person on board should have at least a basic understanding of how to operate the vessel and the safety equipment, including the radio.

Many injuries occur because people fall overboard while the boat is moving. To minimise this risk, ask your passengers:

- to keep to the centre of the boat for stability
- to sit in particular places for better trim and stability
- not to sit on the bow—unless your boat's bow is specifically designed for this—or to dangle legs in the water while the boat is moving.

When to wear a PFD

It's advisable for you and your passengers to wear a PFD all the time, and is essential for any children or weak swimmers on board. As the skipper, you are responsible for advising passengers when to put on a PFD. In hazardous conditions, don't leave it until the last minute, as they are extremely difficult to put on in the water.

At the very least, a PFD should be worn:

- when crossing a bar or rip
- at the first sign of bad weather
- in an emergency
- at night
- during restricted visibility
- when operating in unfamiliar waters
- when operating in a following sea
- when boating alone
- when moving around a vessel without rails
- if you are taking medication.

Refer also chapter 4, [Safety equipment](#).

Is your boat seaworthy?

Your duty of care extends to the basic question of whether or not your vessel is seaworthy, which includes not only the vessel's physical condition, but also:

- correct loading
- carrying all the required safety equipment, in good working order
- if it's to be used at night, fitting your boat with the correct navigation lights.

It's an offence to operate an unseaworthy vessel. As the operator, you may be directed by an authorised officer to take the vessel out of the water until the problems are fixed or, in more serious cases, the owner and/or operator may be prosecuted. For example, failure to carry an EPIRB when required can lead to a fine of up to \$10,000 ([refer chapter 4, Safety equipment, Checklists](#)).

Boating with children

Many children love boating and other water activities. You can improve their confidence—and your peace of mind—by investing some time in training and education before you hit the water.

- Show children around the vessel—especially where PFDs, the first aid kit and other equipment are kept.
- Teach them emergency procedures, particularly that if the boat capsizes everyone should stay with it or an easily seen floating object.
- Teach them about stability, getting on and off the boat, and distributing the load evenly.
- If they are old enough, show children how to use safety equipment such as the radio, EPIRB and flares.
- Before you take them boating, encourage children to learn to swim, and practise emergency positions in the water, such as treading water, HELP (heat escape lessening posture) and Huddle ([refer chapter 9, Emergency action, First aid afloat, Hypothermia](#)).
- Look at ways of rigging lifelines in open areas to give children enough handholds.
- Children should wear a PFD at all times when out on deck. Make sure it is well-fitting and suitable for their size, that they can't slip out of it, and that it is not too tight to move. Check that the type of PFD is appropriate for the nature of activity ([refer chapter 4, Safety equipment, Standards and features](#)). As a further check, make sure they can put on a PFD in darkness and while in the water.
- Though very small PFDs are available, if you can't provide a suitably-sized PFD, toddlers under about one year shouldn't go out on the water.



Children should wear a PFD at all times when out on deck

4 knots

- All vessels within 50 m of:
 - a person in the water;
 - a vessel or buoy displaying a blue and white flag—international flag A (refer chapter 7, **Buoys, marks, beacons, signals & signs, Daymarks**) indicating that there is a diver below; and
 - a person in or on a kayak, surfboard, sailboard or similar small unpowered recreational vessel.
- All vessels within marinas and other restricted areas.
- All vessels within 30 m of any other vessel (whether stationary or underway) that may be adversely affected by your wake or wash.
- All vessels within 100 m of a ferry crossing.
- All vessels within or passing through a mooring area or boat haven.
- All vessels within 30 m of a jetty, wharf or other place at which a boat is being launched or retrieved.
- All PWC operating within 200 m of the metropolitan shoreline (edge of water) between the Outer Harbor southern breakwater and the southern end of Sellicks Beach unless zoned otherwise; and the backwaters of the River Murray (excluding Lake Bonney at Barmera).

7 knots

Speed restriction applied to specified areas, eg. sections of the Port Adelaide River. Refer to Schedule 10 of the *Harbors and Navigation Regulations 2009* for details of these waters.

10 knots

The speed limit applied to vessels being operated by an unlicensed person under the direct supervision of a licensed person, or by a special permit holder without supervision. Unlicensed persons and special permit holders may not operate a PWC.

Speed limits

Travelling at a safe speed means that your vessel can be stopped in time to avoid a sudden danger. This depends on the circumstances and conditions at the time. It's up to you to keep a good lookout and continually assess your speed for safety.

Always drive slowly when visibility is low; that is, at night and in rain, fog, mist, smoke or glare.

Some SA waters have speed limits in areas where high-speed boats can be hazardous to other aquatic activities. These are often signposted near boat ramps. Make sure you know of any local restrictions, particularly if you plan to waterski or use a PWC (refer chapter 11, **Special activities**).

As well as local restrictions, the following general speed limits apply.

Loading for stability

Overloaded and unevenly-loaded vessels or vessels with unsecured loads are unstable and dangerous. To be safe, your boat must have adequate freeboard for all possible weather conditions.

Ensure that the total load, including the passengers, is within the boat's specifications. If your boat is not fitted with a manufacturer's compliance plate or Australian Builders Plate (ABP), use the following tables to calculate the number of people your vessel can legally carry.

The maximum number of adults you can carry safely in calm conditions, based on an average weight of 90 kilograms (75 kg and 15 kg of personal gear), is shown on the tables where the length and width measurements of your boat intersect. Reduce this number when boating in the open sea, in rougher conditions, or when carrying extra weight (eg. diving gear).

Generally, children aged less than 12 can be counted as half an adult when working out safe capacity.

For vessel longer than 10 m, or where length or breadth are not shown on the tables, use the appropriate formula below to calculate the maximum safe capacity in calm conditions.

For single-deck vessels (no flybridge):

Maximum capacity (nearest whole number) = $0.75L\sqrt{B}$

where **L** = length of vessel in metres, $\sqrt{\quad}$ is the 'square root' symbol, and **B** = breadth (width) of vessel in metres.

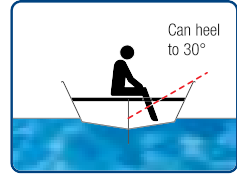
For flybridge vessels:

Maximum capacity (nearest whole number) = $0.6L\sqrt{B}$

where **L** = length of vessel in metres, $\sqrt{\quad}$ is the 'square root' symbol, and **B** = breadth (width) of vessel in metres. (No more than one quarter of the maximum number of passengers allowed on board should be on the flybridge at one time.)

Light load

*Can resist waves
300 mm high*



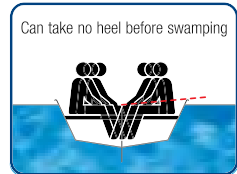
*Lightly loaded
with 2 people*



*Loaded to
maximum 4
people*



*Overloaded
Cannot resist
any wave*



Vessel stability example: Dinghy 1.5 m x 4 m

To load your vessel for stability:

- stow all gear securely
- stow heavy items low
- distribute items evenly, so they won't affect the trim
- don't allow gear to shift; restrain any loose gear with straps or ropes
- advise passengers that their movements may affect stability, especially in smaller boats.

Water in the vessel will increase the total load and cause the 'free surface effect', where free-moving water affects stability out of all proportion to its quantity. To avoid this effect, you should monitor the level of any water on board the vessel and regularly bail water out.

		Length (m)										
		3	3.5	4	4.5	5	5.5	6	7	8	9	10
Width (m)	1	2	3	3								
	1.5	3	3	4	4	5	5	6				
	2			4	5	5	6	6	7	8	10	11
	2.5					6	7	7	8	9	11	12
	3							8	9	10	12	13
	3.5									11	13	14
	4									12	14	15
	4.5											16

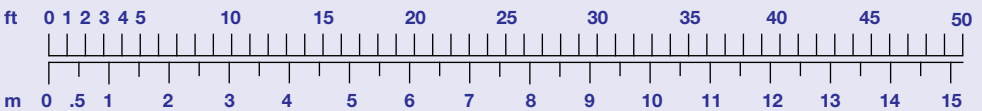
Maximum safe capacity (adults) for conventional vessels without flybridges

Example: A vessel that is 5.5 m long and 2 m wide has a capacity of six adults.

		Length (m)								
		4	4.5	5	5.5	6	7	8	9	10
Width (m)	1.5	3	3	4	4	4				
	2	3	4	4	5	5	6	7	8	8
	2.5			5	5	6	7	8	9	9
	3					6	7	8	9	10
	3.5							9	10	11
	4								11	12
	4.5									13

Maximum safe capacity (adults) for conventional vessels with flybridges

Example: A flybridge vessel that is 8 m long and 2.5 m wide has a capacity of eight adults.



Metric Conversion Chart (feet into metres)

Fuelling and fire prevention

Lack of maintenance, or inattention while refuelling, can cause damage to the environment and increase the risk of fire. Take the following maintenance steps to reduce fire risk.

The engine

- Keep it in good condition, including regular servicing.
- Keep it tuned to reduce exhaust emissions and maximise fuel economy.
- Check the fuel lines for cracks and splits.
- Ensure engine bays are ventilated to reduce the chance of fuel vapour build-up and possible explosion.
- Fit a tray underneath to catch any spills or drips.
- If your engine runs on petrol, ensure it is properly grounded to reduce static electricity build-up, particularly on hot days.
- Lift the cover before the first start-up of the day to clear fume build-up.

The fuel system

- Don't fill the fuel tank to the brim—fuel expands as it warms up.
- Ensure your fuel gauge is accurate.
- Where practical, install an anti-surge valve in the fuel vent line to prevent fuel leaks.
- Improve fuel quality with regular treatment additives to reduce the risk of fuel filter blockage and subsequent fuel leakage.

Bilge/s

- Keep bilges clean.
- Leave automatic bilge pumps on, except when oil is present. Bilge water will appear milky if it is contaminated with oil.
- If bilge contains oil or fuel, turn off pump and remove oil.
- Use polypropylene, rather than biodegradable, bilge socks to absorb any fuel or oil.

- Dispose of used bilge socks and waste oil at a waste oil station ([refer chapter 13](#)), or contact your local council.

Refuelling

Before refuelling

- Check that the dispensing point has appropriate fire-fighting appliances.
- Ensure all passengers and crew are above deck and clear of any areas where fumes may build up.
- Clear any blockages or obstructions from in or around refuelling equipment.
- Turn off pilot lights to gas appliances, and electric power at main switch.
- Close all hatches and openings to prevent fumes entering the hull and bilge.
- Turn off mobile phones.
- Place a discharge bucket under the air/overflow pipe.

During refuelling

- Don't start the dispenser until the outlet nozzle is in the tank.
- Operate the fuel dispenser by hand—don't lock it open. Make sure the hose nozzle is connected to the filler neck to prevent static sparks.
- Carefully monitor the tank as it fills, using your hand to check for air escaping from the vent—a distinct increase in airflow is the signal to stop filling.
- Have a cloth handy to clean up any spills.

After refuelling

- Don't remove the filter hose until the fuel has stopped flowing.
- Lift the filter hose to drain all residual fuel into the tank.
- Clean up all surface spills with an absorbent cloth.
- Be aware that traces of fumes may remain in the hull and bilges.
- If fuel has spilt into the bilges, pump it out manually into sealable containers, or pump them out ashore.

- Leave boat wide open for at least 30 minutes to remove fumes and reduce the risk of fire on board.
- Start the engine only once satisfied the boat is free of fumes.
- Allow the passengers aboard.

Refuelling on water

You should only refuel on water if there is no other option. Ideally, fill up at a service station, where any spills are easier to contain.

If you must refuel on water, take extreme care; use a funnel and hose from the fuel can to the fuel tank, and make sure the area is well ventilated, to safeguard against fire, fumes and toxic spills.

Note: the engine areas must remain well-ventilated at all times to reduce the risk of engine explosion.

For what you should do if a spill or other incident occurs during on-water refuelling refer chapter 9, Emergency action.

Alcohol and drugs

Drugs or alcohol and boating do not mix. A vessel operator with a blood alcohol concentration (BAC) of .05 has double the risk of collision compared with an operator who has not been drinking alcohol.

In South Australia, it's an offence for vessel operators, waterskiers or ski observers to have a BAC of .05 or more or to be under the influence of drugs, and severe penalties apply. Transport Safety Compliance Officers—Marine and South Australia Police can conduct random breath tests for alcohol on waterways and at launch sites.

If a person aged over 14 years is admitted to hospital after a boating accident, a blood test for alcohol and other drugs is compulsory.

If you are on prescription drugs, read the label or ask your doctor or pharmacist if they will affect your ability to operate a vessel or participate in water activities such as waterskiing.

Chapter 3. Self-check questions

1) Below what level must the maximum Blood Alcohol Concentration (BAC) be for a person aged at least 18 to legally operate a recreational boat?

- A. There is no limit.
- B. Below 0.05.
- C. Below 0.08.

2) In which of the following areas does a 4-knot speed limit apply in South Australian waters?

- A. Within 100 m of a ferry crossing on the River Murray.
- B. For Personal Water Craft (PWC), within 200 m of the metropolitan coast and in backwaters of the River Murray.
- C. Within 50 m of a person in the water, or of a "Diver Below" flag.
- D. All of the above.

3) At what maximum speed may an unlicensed person operate a recreational vessel (not a PWC) while under the direct supervision of a licence holder?

- A. 20 knots.
- B. 10 knots.
- C. There is no speed limit.

4) When out on the water, which of the following would be considered "safe boating behaviour"?

- A. Six friends and a cooler full of beer in a small dinghy.
- B. Going boating in unfamiliar waters without telling anyone.
- C. Monitoring weather changes as you go, and preparing to return to shore if the weather starts to turn bad.
- D. Trusting your GPS alone for navigation.