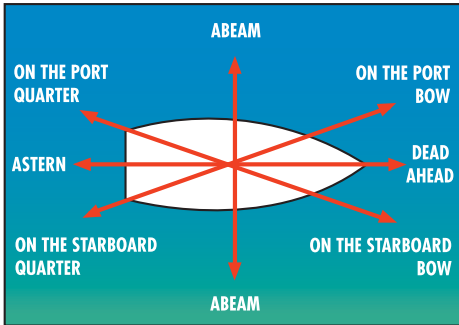


CHAPTER 2

Trip Preparation



Definitions

Boating, like many other activities, has its own language with many terms that you may not be familiar with. It is important that you understand the meaning of some of the more important and common terms.

Aft Area aft of the beam (to the rear of the centre of the vessel).

Abeam Abreast of or at right angles to the fore and aft line of the vessel.

Aft Towards the stern or rear of the vessel.

Astern, to go astern
Go backwards, put the engine in reverse.

Authorised person

A person appointed by the Chief Executive Officer (CEO) of Department for Transport, Energy and Infrastructure to enforce the Harbours and Navigation Act, or a member of the Police Force.

Bar A shallow area formed by sand, mud, gravel or shingle, near the mouth of a river or at the approach to a harbour which is often dangerous.

Boat Any type of craft or vessel which, irrespective of size or type, is being used for recreational or non-commercial purposes.

Boat Operator's Licence

The class of Certificate of Competency appropriate to operate a recreational vessel fitted with an engine.

Bombora

A shallow area where waves may break.

Bow

The front end of the vessel.

Certificate of Competency

A qualification to operate a vessel issued to a person who has met all of the conditions and requirements for the particular class of certificate applied for. The Boat Operator's Licence is the Certificate of Competency appropriate to operate a recreational vessel fitted with an engine.

Chart Datum

As the level of the sea is constantly rising and falling, the depths shown on charts must have a common level from which they are measured. This level is the lowest predictable level to which the tide is likely to fall and is known as Chart Datum.

Coast / Shore

Where the terms 'coast' or 'shore' are used it means the coast or shore of the mainland or of Kangaroo Island only; no other island's shore is to be used in measuring distance out to sea for safety equipment or vessel operation purposes.

Device

For waterskiing purposes, a device is an object that is towed by a rope or by other means directly behind a motor boat. Examples of devices include 'ski biscuits' and tyre tubes. Devices generally have little or no means of controlling the direction in which they travel.

Distance

Where 'miles' are referred to in this booklet 'nautical' miles are meant. One nautical mile = 1.852 km.

Draft

The minimum depth of water a vessel needs to float in.

Ebb Tide

The falling or run out of tide.

EPIRB

Emergency Position Indicating Radio Beacon.

Flood Tide

The rising or run in of tide.

Fore

Situated at or toward the bow (front) of a vessel.

Freeboard

The distance between the surface of the water and the gunwale.

Give Way

Slow, stop, go astern or change course to keep clear of another vessel.

Go astern

To move stern-first (backward) through the water.

Gunwales (pronounced gunnels)

The top edge of a vessel's side.

Heave To

To steer into the wind and sea making minimum headway.

Knot(1)

One nautical mile an hour or 1.852 km/h.

Leads

(Transits) marks used in channels and entrances which when in line indicate the centre of the channel.

Lee Shore

The shore onto which the wind blows.

Leeward

The side of the vessel opposite to that from which the wind blows.

Licence

A certificate of competency known as a Boat Operator's Licence enabling the holder to operate a recreational vessel fitted with an engine.

Making Way

Vessel underway and moving through the water, using sail or power.

Masthead Light

A white light placed over the fore and aft centreline of the vessel showing an unbroken light over an arc of the horizon of 225 degrees and so fixed as to show the light from directly ahead to 22.5 degrees abaft the beam on either side of the vessel.

Motor Boat

Any boat or vessel that is being propelled by an engine (irrespective of size), whether or not the engine is the main means of propulsion. A sailing boat fitted with an auxiliary engine is regarded as a motor boat or motor vessel.

Nautical mile

The International unit of distance over water. A nautical mile is equivalent to 1,852 metres, or about 1.8km.

Operator

The person in charge (control) of a recreational motor vessel whilst the vessel is underway.

Personal Watercraft (PWC)

A device that is propelled by a motor, has a fully enclosed hull, is designed not to retain water if capsized and is operated by a person who sits astride, stands or kneels on it.

PFD

Personal flotation device. Often called a Buoyancy Vest or Life Jacket.

Port Side

Looking forward from the stern, the left hand side on which a red sidelight is displayed.

Power-Driven Vessel

A vessel propelled by an engine and includes a sailing vessel under auxiliary power.

Recreational Vessel

Any vessel (fitted with an engine) used for purposes that are not solely industrial, commercial or scientific. Also commonly referred to as a motor boat, motor vessel, motorised vessel, power-driven vessel or power boat. These vessels are subject to registration requirements and must only be operated by a person holding the appropriate Certificate of Competency.

Sailing Vessel

Means a vessel that is operating under the power of sail only.

Side Light

Lights to be shown at night when underway, showing an unbroken light over an arc of 112.5 degrees from directly ahead to 22.5 degrees abaft the beam.

Skier

Any person who is being towed in any manner behind a powered vessel other than a person on a device.

Special Permit

Authorisation for a person aged between 12 years but not yet 16 years, to operate a recreational vessel fitted with an engine under certain conditions (see chapter 1).

Speed

All speeds are measured in 'knots' One knot = 1 nautical mile per hour.

Standards

All equipment listed in the Handbook must meet standards detailed or listed in the *Harbors and Navigation Act 1993* and its associated *Regulations 2009*.

Stand On

That vessel which has right-of-way during a meeting, crossing, or overtaking situation.

Starboard Side

Looking forward from the stern, the right hand side on which a green sidelight is displayed.

Stem the Tide

Go forward against the current.

Stern

The back end or rear of a vessel.

Sternlight

A white light placed as nearly as practicable at the stern showing an unbroken light over an arc of the horizon of 135 degrees and so fixed as to show the light 67.5 degrees from directly aft on each side of the vessel.

Supervision

A licenced person directly watching over and accompanying an unlicenced person or Special Permit holder while that unlicenced person or Special Permit holder operates a recreational motor boat. The licenced person must at all times be in a position to take over the control of the motor boat should the need arise. This is not possible when operating a PWC.

Tender

A ship or boat used to attend a larger one, especially to supply goods and provisions, convey orders, or carry passengers to and from shore.

Underway

Not at anchor or tied to jetty or shore, or aground. If you are drifting you are underway.

Vessel Any type of craft that can be used as a means of transportation on water, from a small boat to a large ship. Vessels can also include sailboards, surfboards, surf kites, waterskis or other similar devices on which a person rides through the water.

Wake The track left on the water's surface by a moving vessel.

Wash A swell caused by the passage of a vessel through water.

Windward
The direction from which the wind blows (upwind).

Before You Go Boating

With vessel ownership also comes the responsibility for the safety of all your passengers and your equipment.

Be sure you have the right vessel and the right safety equipment for what you plan to do, so that your boating will be safe and enjoyable.

Once you have your ideal vessel and have made sure it meets all the requirements of the regulations, make yourself familiar with its layout and equipment before you go out on the water. Take short trips on calm waters first. Ask an experienced friend along for advice and learn how your vessel responds at different speeds and in different weather conditions.

Remember, obtaining a Boat Operator's Licence means that you know the rules but the knowledge, skills and ability to operate a vessel in all types of conditions comes from experience.

Pre-season Vessel Maintenance

In the interests of safer boating we highly recommend that you give your vessel and equipment a thorough pre-season check before heading out for a day on the water.

Outboard motor service

Manufacturers usually recommend a service by a specialised workshop at least once a year, even if you use the motor very little. This ensures that vital internal parts like the water pump get looked at. If you use the motor often, then you should have the gearbox oil changed every three months.

Inspect fuel system

Once a year the tank from your vessel should be cleaned with a suitable cleaning solvent.

Inspect the fuel tank for any cracks or corrosion. Always replace old fuel with new fuel after periods of inactivity.

Inspect fuel lines, manual priming bulb and connections for cracks, leaks, etc.

Clean out or replace fuel filter.

Refer to engine manufacturer's specifications regarding allowable percentage blends of ethanol in fuel.

Batteries

Top up battery cells with distilled water and check each cell with a hydrometer.

If in an enclosed space, ensure properly ventilated and ensure vented before starting the engine.

The battery should be charged at a suitable rate and should never be overcharged.

Batteries should always be secured in brackets. Terminals, cables or casing should be kept clean. Grease terminals regularly.

Only marine batteries should be used as they are designed to withstand marine conditions.

General check of vessel

Inspect vessel structures for corrosion, cracks, wear and tear.

Test steering gear for stiffness. Treat cable with correct lubricant.

Ensure bung is suitable and in good condition.

Self draining holes must be clear.

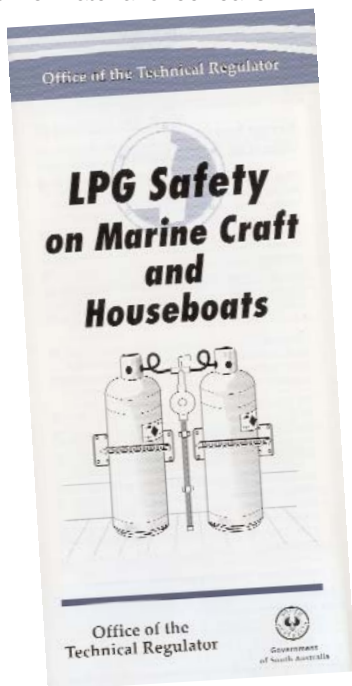
Check drain flaps and lubricate them if necessary.

If Liquefied Petroleum Gas (LPG) tanks are fitted, ensure the system is regularly serviced. For further information contact the Office of the Technical Regulator on telephone (08) 8226 5500 or visit the website www.technicalregulator.sa.gov.au

Inspect propeller, nut and pin.

Ensure bilges are clean and dry.

Check for water and fuel leaks.



General check of engine

Make sure you check:

- for fuel leaks
- for petrol and/or LPG odours
- that the fuel is fresh - and if necessary replace it
- battery and the connection
- the fuel line is not kinked and connected
- spark plugs and clean as necessary to test start the engine.

Inspect safety equipment

Inspect all safety equipment for any deterioration or damage.

Refresh your knowledge of the use of the equipment.

Inspect anchor, shackles, chain and line for any sign of wear and replace if necessary.

Test bilge pump diaphragm for wear and tear.

Test the marine radio. Call a volunteer marine rescue group and make a test transmission.

Check the expiry date on the flares and EPIRB.

Test the EPIRB battery (see section on EPIRBs).

Test your waterproof torch.

Extra checks

Inspect the tool kit for any tools, spare parts, etc.

Replenish water supply.

Ropes and lines should be in good condition and stored ready for use.

Spare parts and tools

Make sure you include:

- engine manual
- new spark plugs, spare fuses and a new spanner
- spare "O" rings for fuel connector
- spare bung
- sharp knife
- spare propeller nut, washer, split pins and socket for propeller nut
- length of soft wire
- spare shackle
- screwdriver (Phillips/Flathead) and shifting spanner and pliers
- de-watering spray, spare oil and a funnel
- spare key and stop harness (lanyard)
- roll of waterproof electrical tape
- starter cord
- spare fuel line
- wire brush.

Notes

Pre-start Checklist

Vessel

It is advisable to check your vessel's equipment and fittings before every journey.

Before setting out make sure your vessel is seaworthy, all gear is well secured and the vessel is capable of making the trip you have planned. Check the engine; if it is not working properly, don't go out until the problem is identified and fixed.

Ensure that you have enough fuel for the return trip. A good safety tip to remember is to use a third of your fuel to get out, a third to get back, and have a third in reserve.

It may be calm when setting out, but the return trip could be into a head wind or sea, and fuel consumption can easily double under such conditions.

Fuel should be fresh (not last year's).

Check engine oil and coolant levels and top up if required. Examine batteries, terminals, etc.

Check that all your navigation lights are working even if you only expect to be out during daylight hours.

On entering the vessel and before operating any switches or engines, check for petrol and/or LPG odours; fix any faults before you go out.

Ropes and lines should be in good condition and ready for use.

Steering cables and connections must be in good working order.

Test any electrics operating from the battery such as radios, gauges and power tilt.

Equipment

Ensure you have the safety equipment required for the area where you intend to operate.

Make sure all safety equipment is easily accessible and in good working order.

If you are not required to have a marine radio on board, carry a pocket radio. You can tune into weather forecasts.

Conduct a radio check to ensure that yours works. Mobile phones are no substitute for a Marine Radio but may be of assistance in some situations, so make sure the battery is fully charged.

Where cooking devices are installed, a fire extinguisher must be carried and stored in an accessible place, away from the stove.

Always ensure that your fire extinguisher is fully charged and is inspected every 12 months by an authorised inspection agent (fire fighting authority or manufacturers agent).

Supplies

Ensure you have sufficient supplies of food and water for the trip and some extra in case of an emergency.

Check that your vessel is not overloaded; take into account heavy equipment and extra fuel cans.

Stow all gear securely and distribute load evenly.

Remember that it is always colder on the water and the sun is stronger; extra jumpers, waterproofs and sun-block cream are never a waste of space.

Ensure the first aid kit is on board.

Clothing

Make sure your skin is not overly exposed to sunlight (direct or reflected), wind and water.

Carry adequate wet weather gear for the trip you are planning.

Clothing should offer protection from the elements and not restrict your movements. Avoid clothing that will significantly reduce buoyancy, or if you need to be rugged up, wear a PFD.

It would be worthwhile to check your ability to swim or float in your clothes. Try it out in shallow water so that you are prepared in case your vessel sinks or you fall overboard.

	Pre Season	Mid Season	Post Season
Fuel Tank	- Avoid using old fuel - Keep clean and dry	- Maintain proper fuel/oil - Check for water in fuel	- Store in dry place (vented) - Metal, swish with 2 stroke oil
Fuel Line	- Check for cracking and loose fittings	- Watch for leaks	- Drain
Fuel Filter	- Check and replace as necessary	- Check and clean	- Check and clean
Fuel System (If you suspect an Ethanol fuel blend has been used)	- Drain and clean out tank - Clean fuel lines - Change fuel filters - Have engine fuel system checked and serviced	- Do not leave ethanol fuel standing in any tanks - Check fuel filters - Monitor engine operating temperature	- Drain all ethanol blended fuel from tanks, fuel lines and carburetors.
Batteries	- Check electrolyte, top up with distilled water - Recharge, Check mountings, clean terminals	- Check electrolyte, top up with distilled water - Recharge, Check mountings, clean terminals	- Check electrolyte, top up with distilled water - Recharge regularly,
Engine			- Store upright
Pull Cord	- Replace if fraying		
Wiring	- Check for cracking, loose wire and corrosion		
Spark Plugs	- Clean and gap or replace	- Watch for fouling, moisture - Keep engine tuned - Clean and gap as necessary	
Cylinders	- Check for compression		
Moving Parts	- Lubricate all moving parts	- Lubricate every 60 days	- Lubricate before storing
Power Unit	- Drain and refill gear case oil	- Repeat every 100 hours of operation or once a season	
Cooling System	- Clean passages	- Check ports for weeds - Flush after use in salt water	- Flush with water - Drain all water by pull starting with plugs disconnected
Propeller	- Sand or file small nicks	- Check regularly	- Check for repairs
Outer Surface	- Clean, - - Replace anodes as appropriate	- Keep clean	- Keep clean, touch up with paint

Navigation

You should know exactly where you are going, how to get there and how long it will take to get back.

Check the tides, weather, river flow as appropriate.

Find out about any local dangers and special rules or regulations for the boating area you are operating in. Information can be obtained from local or official charts, signage at boat ramps or the South Australian Government website www.sa.gov.au/boatingmarine

Coastal navigation courses, run by volunteer groups are highly recommended.

Crew

Ensure all persons onboard are correctly fitted with a PFD.

Ensure that the people onboard who require medication have it with them and that others know how to administer it if necessary.

Ensure everyone onboard knows what safety equipment is carried, where it is stored, how it works and what to do in an emergency.

Children

If you take your children boating teach them emergency procedures. It can be great fun and will improve their confidence and your peace of mind.

Learn to swim and practice emergency positions like treading water and H.E.L.P. (Heat Escape Lessening Posture) and Huddle. (See section on Hypothermia for more details.)

Make sure children have a well fitting PFD, ensure they can't slip out of it, or that it doesn't feel too tight to move. Check the type (PFD 1,2 or 3) depending on the nature of activity. See if they can put the PFD on with a blindfold and while in the water. It is recommended a child wears a PFD at all times while on the vessel.

Show children around the vessel - where PFDs, first aid kit and other equipment are kept. If they are old enough to understand, show them how to use equipment like radios, EPIRB and flares.

Teach them about stability, getting on and off the boat and distributing the load. If the boat capsizes everyone should stay with the boat or an easily seen floating object. It is easier for a rescue team to see the hull (bottom) of a vessel than a person floating in the water.

Taking off

Many injuries occur because people fall overboard while the vessel is in motion. No one should ever stand or sit on the bow of a vessel that is not specifically designed to have persons in the bow, or dangle their legs in the water, while the boat is moving.

Insist that everyone aboard is within the boat itself, not on the side decking, and especially not on the bow or where they will obstruct your view.

Keep to the centre of the boat for stability.

Move off slowly. The same goes for returning to jetty, mooring or ramp.

Always check for trailing ropes that may be caught in your propeller.

Launching Your Vessel

Boat Etiquette

Have a good look at the ramp and note the condition, gradient, depth, mooring cleats and other features and consider the weather and tidal conditions.

Standby to give other boaties a hand if required.

Take your time, relax and be careful.

Do not pull straight into the ramp.

Prepare your boat well away from the ramp and ensure:

- the boat was not damaged during the trip to the ramp
- straps and ties are undone
- everything you need is on board
- the bung is in
- the trailer winch is secure.

Boats coming out have priority over boats going in.

When it's your turn, move towards and back down the ramp

Launch immediately.

Take the trailer out of the way.

Until you and your boat are completely out of the way, away from the ramp, don't fiddle around.

Check the ramp

- How steep is it?
- Is the surface firm?
- Is it slippery?
- Is it wide enough?
- How deep is the water at the end of the ramp?
- What can you tie the boat to once it is launched?

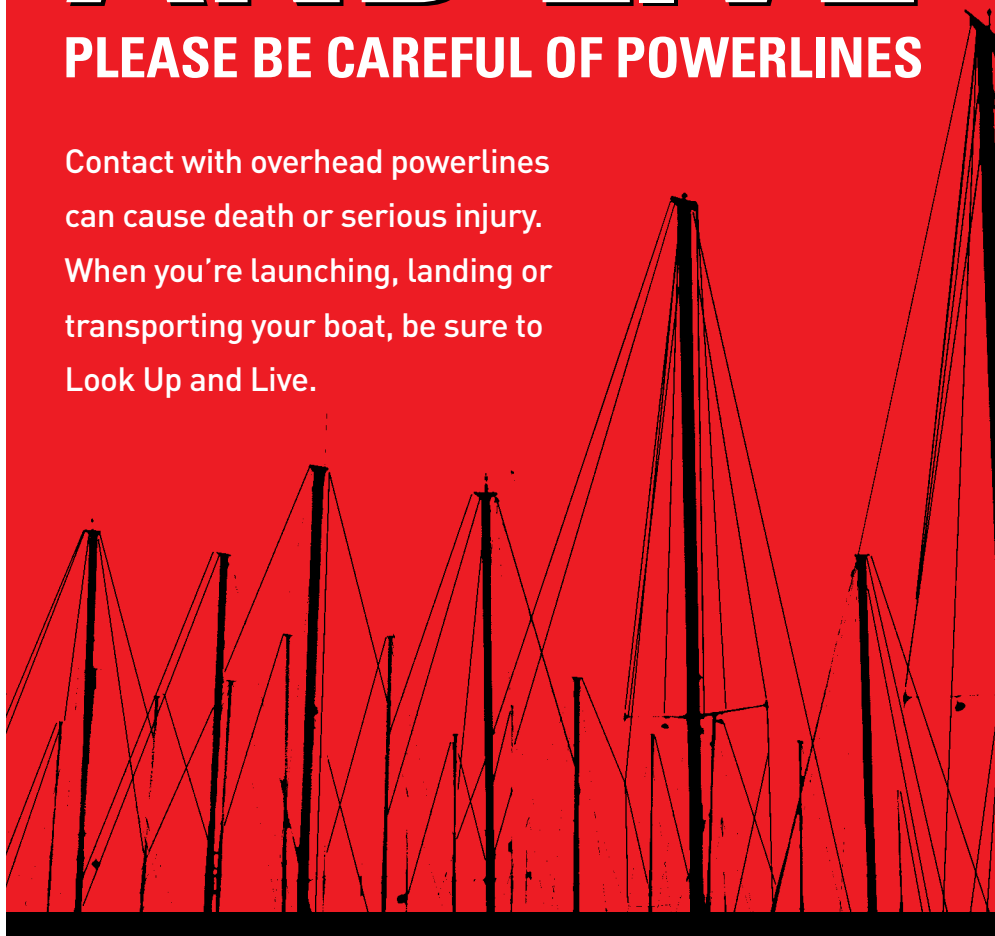
Now is the time to

- remove any tie downs
- put your gear in the boat
- attach a bow line to the boat
- if the boat is stern drive or outboard, tilt the unit up

LOOK UP AND LIVE

PLEASE BE CAREFUL OF POWERLINES

Contact with overhead powerlines can cause death or serious injury. When you're launching, landing or transporting your boat, be sure to Look Up and Live.



- ensure that the drain plugs are in place and tight
- turn the battery switch and (if fitted) the blower on
- generally get ready and then disconnect the trailer wiring.

When you are ready, move towards the ramp at a gentle pace.

If you try to move quickly, mistakes are more likely to happen.

Back the trailer onto the ramp

Have someone stand to one side of the ramp to direct you.

Backing up with the trailer can be tricky.

A good way to simplify this procedure is to grasp the steering wheel with one hand at its lowest point (the six o'clock position).

When you want the trailer to turn right, move your hand slowly to the right, when you want the trailer to turn left, move your hand slowly to the left.

Launching

Back the trailer into the water. Set the handbrake and lock the transmission.

Slacken the trailer winch and with the winch line still connected push the boat slowly but firmly into the water.

Be sure to have a firm hold on the bow line. Don't wrap the bow line around your hand as it is dangerous and injuries can occur.

Detach trailer winch hook and line from the boat and wind the line back onto the winch.

Using the bow line move the boat to the side, away from the launch position.

Secure the boat to this holding position with a bow line.

If a jetty is near a ramp, tie off to the jetty with both the bow line and stern line.

Move your car and trailer to the parking area where they will not obstruct access to the ramp.

Lock your car.

Final step

To reload/retrieve the boat simply reverse these procedures.

Before loading, clean any dirt or sand off the rollers and buffers.

Sand on the rollers and buffers can damage your boat whilst being towed.

Be sure that all tie-downs are properly fastened before departing the ramp area.

Warning

Reduce the Risk of Injury

Do not step inside or on the trailer frame during launching and retrieval procedures.

A winch line can break so stand to the side when winching your boat onto the trailer (use a line attached to the winch switch).

For additional information on selecting your boat trailer, matching your boat to your trailer, trailer equipment, traveling with your boat trailer, and the legal requirements in respect to the vehicle dimensions, lighting and rear vision requirements, boat trailer brakes, vehicle mass and registration requirements refer to the brochure *You and Your Boat Trailer* which can be downloaded from the South Australian Government website www.sa.gov.au/boatingmarine

I'VE GONE BOATING

HERE ARE MY TRIP DETAILS FOR: (DATE) _____ / _____ / _____

I am departing at: _____

am/pm (please circle)

I am departing from: _____

My trip intentions are: _____

I will return no later than: _____

Number of people onboard (including me): _____

am/pm (please circle)

Weather expected: _____

Keep a whiteboard marker handy to enter fresh trip details and **ALWAYS** inform a relative or friend of your boating plans by leaving this card with them. If you fail to return by the time specified they should:

CALL 000 IMMEDIATELY

PLACE PICTURE OF YOUR BOAT HERE - TO ASSIST POLICE WITH VESSEL IDENTIFICATION IN THE EVENT OF A SEARCH



Check the marine weather report and ensure you and your boat are suited to the conditions.



Ensure you have sufficient fuel and reserve fuel. Plan for 1/3 OUT, 1/3 BACK, 1/3 RESERVE.



Ensure there is a PFD 1/appropriate life jacket onboard and wear them.



Fully charge your boat's batteries as well as those for hand-held marine radios and mobile phones.



If you're heading offshore, carry a distress beacon (EPIRB).

VALUABLE INFORMATION ON THE BACK



Australia New Zealand
Safe Boating Education Group



Let Someone Know Before You Leave

Always let someone know where you are going, your point of departure and when you plan to return. If your plans change, let them know.

Also give them a description or photo of your vessel, vessel registration number and details of the number of passengers on board.

A fridge magnet, *I'VE GONE BOATING* is available from any Service SA Customer Service Centre. Refer to page 100 for details. This is a record of your planned voyage.

Liaise with your local volunteer marine rescue groups which can be contacted by marine radio on 27 MHz channel 27.88, VHF channel 16 and HF channels 2182, 4125, 6215 and 8291 kHz.

As these are distress channels, you must change to a 'working' channel once contact has been made.

Tides

It is important that you check the time of high and low tide before you depart.

Tides are the rising and falling of sea levels that result from the gravitational interaction between the earth and the moon and to a lesser extent, between the earth and the sun.

Tides can be predicted with a high degree of accuracy from analysis of long-term tide records variations. However, variations in tidal heights can be caused by strong, or prolonged winds and by unusually high or low barometric pressure.

While tide books are not part of your required equipment, vessel operators should always have a copy onboard.

The tide book will provide the information necessary for you to calculate high and low tide and while this may also be helpful to determine the best times for fishing, it also provides essential information to ensure you do not run aground.

Access to boat ramps may be restricted at low tide. It is important that you calculate the time that you must return to the ramp for

retrieval – leave yourself extra time in case the ramp is busy.

Chart datum

As the level of the sea is constantly rising and falling, the depths shown on charts must have a common level from which they are measured. This level is the lowest predictable level to which tide is likely to fall and is known as Chart Datum.

All soundings on a navigation chart are referenced to Chart Datum. To be able to calculate the total depth of water, you must add the depth obtained from the chart to the tide height at that time and place.

Tides for the major South Australian ports are provided in the *Tide Tables for South Australian Ports*. At locations not referred to in the tide tables book it is essential that you are able to use the tide data and levels provided to determine the approximate time of high and low water.

Tide table booklets can be purchased from most marine dealers, tackle shops or newsagents.

Too Many is Too Dangerous

Overloaded vessels are unstable and dangerous. Legal limits on passenger numbers are detailed below. There are other considerations such as an even distribution of load in the vessel, adequate freeboard for the prevailing weather conditions and unexpected deterioration in weather conditions.

Except where a recreational vessel is fitted with a manufacturer's compliance plate or Australian Builder's Plate (ABP), the following tables determine the maximum number of persons that may legally be carried on board.

To use the appropriate table, you need to know your vessel's length and breadth in metres. The maximum number of adults the boat can carry safely in calm water conditions, based on an average weight of 90kg (includes 15kg of personal gear) per adult, is indicated where the length and breadth measurements intersect.

Length (m)	3	3.5	4	4.5	5	5.5	6	7	8	9	10
Breadth (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

TABLE 1

Maximum safe capacity (adults) for conventional vessels without flybridges.

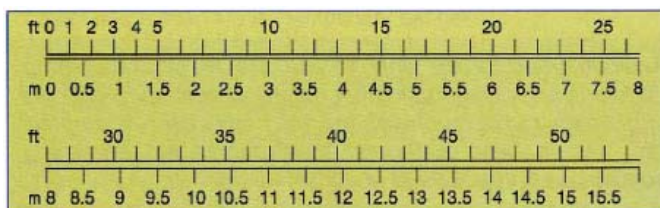
Example: A Boat with a length of 5.5m and breadth of 2m has a capacity of 6 adults

Length (m)	4	4.5	5	5.5	6	7	8	9	10
Breadth (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

TABLE 2

Maximum safe capacity (adults) for conventional vessels with flybridges.

Example: A flybridge vessel with a length of 8m and breadth of 2.5m has a capacity of 8 adults.



METRIC CONVERSION
FEET TO METRES

Interpreting the Capacity

The figures given in the tables, a compliance plate or ABP refer to the maximum number of adults a vessel can carry safely in calm waters under ideal conditions, such as on the River Murray or other protected waters. This number needs to be reduced when boating on the open sea. As a guide, reduce this number by one-third when boating on the open sea or in rougher conditions.

Also, children under 12 years old only weigh half that of an average 75kg adult, so they can be counted as half an adult when adding up the number of people on board. For example, a boat with a capacity of four adults could safely carry three adults and two children under the age of 12.

Vessels over 10 metres length

For vessels over 10 metres in length, use the appropriate formula below to calculate the number of adults it can safely carry in calm water conditions.

For single-deck vessels (no flybridge) the formula is:

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

L = length of vessel in metres, and
B = breadth of vessel in metres

For vessels fitted with flybridge, the formula is:

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

L = length of vessel in metres, and
B = breadth of vessel in metres

For flybridge vessels, no more than one-quarter of the maximum number of passengers allowed on board should be on the flybridge at any one time.

Underway

Maintain a good lookout and continually assess the relative position, speed and direction of other vessels in the vicinity.

Make sure you know all the navigation rules and take action in plenty of time to avoid a collision. Keep clear of larger vessels that cannot manoeuvre as quickly as you.

Travel at a safe speed, particularly when visibility is reduced by sun glare, fog or rain and during the hours of darkness. Remember, your boat has no brakes.

Keep a constant watch on the weather, and if conditions start to deteriorate make sure that everyone on board is wearing a PFD. It is extremely difficult to put one on in rougher conditions or whilst treading water. Don't throw rubbish over the side, stow it and take it home.

Minimum Safety Equipment

All vessels operating in South Australian waters are required by law to carry certain items of safety equipment. Details vary according to the size of the vessel and where it is being used.

Minimum safety equipment requirements for all types of vessel are shown in Schedule 9 of the *Harbors and Navigation Regulations 2009*. The latest version of the Regulations may be viewed by visiting:

www.legislation.sa.gov.au and following the links to 'Regulations and Rules' go to 'H', then from the Alphabetical List select *Harbors and Navigation Regulations 2009*.

Minimum safety equipment requirements vary according to the size and type of boat, whether it has an engine and where it is being used. Areas where a boat may be used are defined as protected waters, semi-protected waters and unprotected waters.

Protected Waters – all inland waters, excluding Lakes Albert and Alexandrina

Semi-Protected Waters – waters up to two nautical miles (3.704 kilometres) seaward of the coast of the mainland and Kangaroo Island, and up to two nautical miles from the shore of Lakes Albert and Alexandrina.

Unprotected Waters – waters beyond two nautical miles (3.704 kilometres) seaward of the coast of the mainland and Kangaroo Island; and beyond two nautical miles from the shore of Lakes Albert and Alexandrina.

In addition to protected, semi-protected and unprotected waters, two other areas are referred to herein, Spencer Gulf and Gulf St Vincent.

Spencer Gulf – the waters in that gulf north of a line drawn from Cape Catastrophe on Eyre Peninsula to Waterhouse Point on Thistle Island and then to Corny Point on Yorke Peninsula.

Gulf St Vincent – the waters in that gulf north of a line drawn from Troubridge Point on Yorke Peninsula to Rapid Head on Fleurieu Peninsula.

All personal flotation devices (PFDs) carried on a vessel must comply with one or more of the standards listed on pages 36-37.

All distress flares and smoke signals required to be carried on a vessel must comply with AS2092 and be stamped indelibly by the manufacturer with its date of expiry and that date must not have passed.

A fire extinguisher is required to be carried on a vessel and must comply with the applicable part of AS1841.

All safety equipment (including fire extinguishers) must be in working order and stowed in readily accessible positions, protected from the sea and weather at all times.

Exemptions

The safety equipment requirements apply to the majority of boats. However, certain types of boat are either partially or totally exempt from these requirements. Some of the more common exemptions are summarised below.

A surfboard, surf ski or racing shell is exempt from the safety equipment requirements listed, however, if using a surfboard, surf ski or similar vessel in protected waters, each occupant must wear a Personal Flotation Device (PFD).

Waterskiers (or persons being towed in any other manner) must wear a PFD Type 2 or 3 at all times when engaged in waterskiing.

For canoes, kayaks and similar small, unpowered boats the safety equipment carriage requirements are:

- a PFD that complies with one or more of the appropriate standards for the area of use (that is: protected, semi-protected, or unprotected waters) and is worn at all times
- suitable bailer (unless the hull is permanently enclosed)
- a waterproof torch or lantern (while the vessel is being operated during the hours of darkness).

A sailboard rider or kite surfer must at all times wear an approved PFD that complies with the area of use.

For tender vessels, while being used in conjunction with another vessel, the requirements are:

- a pair of paddles or oars, or other means of auxiliary propulsion
- a bucket, bailer or bilge pump/s to drain each compartment of the boat
- if the vessel is 1500 metres or more from the shoreline:
 - before 1 June 2010, a PFD Type 1, 2 or 3 for each person onboard
 - on or after 1 June 2010, a PFD Type 1 for each person onboard.

For surf rescue boats propelled by paddles or oars, the vessel must be equipped with a suitable bailer that is attached to the vessel by a lanyard.

For motorised inflatable surf rescue boats involved in rescue work within 1500 metres of the shoreline or patrol work within 1000 metres of the shoreline, the requirement is that the vessel must be equipped with a pair of paddles or oars, or other means of auxiliary propulsion.

For Personal Watercraft (PWC) such as jet skis®, waverunners® and jetboards®, the requirements are:

- all operators and passengers aboard the PWC must at all times wear a PFD Type 2

or 3 that complies with one or more of the approved standards – a PFD Type 1 is not suitable for use when onboard a PWC.

Note: From 1 September 2009, the following vessels may not be operated in unprotected waters, i.e. beyond two nautical miles offshore, without the approval of the CEO:

- Personal Watercraft (PWC)
- Canoes, kayaks or other similar small human powered vessels (other than rowboats).

Vessels under 8 metres in length Protected Waters

- one approved PFD Type 1, 2 or 3 for each person on board
- bucket/s with line attached, or bilge pump/s sufficient to drain each compartment of the boat
- an anchor with cable
- if the boat has an engine or cooking facilities, one fire extinguisher
- one fire bucket (can be the same bucket as for bailing water if that bucket is suitable for collecting water for use in case of a fire of solid combustibles, i.e. it won't distort or break)
- if the vessel is being operated between the hours of sunset and sunrise one waterproof torch or lantern.

While operating in protected waters a vessel that is less than six metres in length must be equipped with all of the above plus one pair of paddles or oars.

Semi-Protected Waters

- before 1 June 2010, one approved PFD Type 1 for each person aboard
- on or after 1 June 2010, one approved PFD Type 1 for each person aboard
- a suitable anchor with cable
- bucket/s with line attached, or bilge pump/s sufficient to drain each compartment of the boat
- if the boat has an engine or cooking facilities, one fire extinguisher

- one fire bucket (can be the same bucket as for bailing water if that bucket is suitable for collecting water for use in case of a fire of solid combustibles, i.e. it won't distort or break)
- a waterproof torch or lantern
- on or after 1 June 2010, two handheld red flares and two hand held orange smoke signals.

While operating in semi-protected waters a vessel that is less than 6 metres in length must be equipped with all of the above plus one pair of paddles or oars or other means of auxiliary propulsion.

Unprotected Waters

- one approved PFD Type 1 for each person onboard
- a suitable anchor with cable
- bucket/s with line attached, or bilge pump/s sufficient to drain each compartment of the boat
- if the boat has an engine or cooking facilities, one fire extinguisher
- one fire bucket (can be the same bucket as for bailing water if that bucket is suitable for collecting water for use in case of a fire of solid combustibles, i.e. it won't distort or break)
- a waterproof torch or lantern
- a two-way marine radio – must be capable of communicating with onshore stations
- two hand held red flares and two hand held orange smoke signals
- four litres of fresh water
- the boat must be fitted with a liquid damped magnetic or a gyroscopically controlled compass.

Note: This requirement is not satisfied by GPS, satellite navigation systems or similar electronic devices, nor by a handheld compass.

While operating in unprotected waters a vessel that is less than six metres in length must also be equipped with one pair of paddles or oars or other means of auxiliary propulsion.

If operating more than five nautical miles from shore in Gulf of St Vincent or Spencer Gulf, or more than three nautical miles from shore in other waters except Lakes Alexandrina and Albert:

- as above, plus
- one 406 MHz EPIRB (Emergency Position Indicating Radio Distress Beacon)
- one V distress sheet.

If operating more than 10 nautical miles from shore:

- all the above, plus
- two distress rockets with parachutes
- a map or chart of the waters in which the vessel will operate.

Note: While auxiliary power is no longer a legal requirement for boats longer than six metres, all boat operators are strongly advised to carry an auxiliary means of propulsion that is suitable for their boat, whether paddles or oars or a spare motor.

Vessels 8-15 metres in length

Protected Waters

- one approved PFD Type 1, 2 or 3 for each person on board
- a suitable anchor with cable
- bucket/s with line attached
- bilge pump/s sufficient to drain each compartment of the boat
- if the boat has an engine or cooking facilities, two fire extinguishers
- one fire bucket (can be the same bucket as for bailing water if that bucket is suitable for collecting water for use in case of a fire of solid combustibles, i.e. it won't distort or break)
- one life-buoy with line
- if the vessel is being operated between the hours of sunset and sunrise one torch or lantern.

Semi-Protected Waters

- before 1 June 2010, one approved PFD Type 1, 2 or 3 for each person on board

- on or after 1 June 2010, one approved PFD Type 1 for each person on board
- two suitable anchors with cables (if less than 12 metres one anchor may be carried as a spare)
- two buckets with lines attached
- bilge pump/s sufficient to drain each compartment of the boat
- if the boat has an engine or cooking facilities, two fire extinguishers
- one fire bucket (can be the same bucket as for bailing water if that bucket is suitable for collecting water for use in case of a fire of solid combustibles, i.e. it won't distort or break)
- one life-buoy with line
- a waterproof torch or lantern
- on or after 1 June 2010, two hand held red flares and two hand held orange smoke signals.

Unprotected Waters

- one PFD Type 1 for each person on board
- two suitable anchors with cables
- two buckets with lines attached
- bilge pump/s sufficient to drain each compartment of the boat
- if the boat has an engine or cooking facilities, two fire extinguishers
- one fire bucket (can be the same bucket as for bailing water if that bucket is suitable for collecting water for use in case of a fire of solid combustibles, i.e. it won't distort or break)
- one lifebuoy with line
- a waterproof torch or lantern
- a two-way marine radio capable of communication with onshore stations
- two hand held red flares and two hand held orange smoke signals
- four litres of fresh water
- the boat must be fitted with a liquid damped magnetic or a gyroscopically controlled compass.

Note: This requirement is not satisfied by GPS, satellite navigation systems or similar electronic devices, nor by a handheld compass.

If operating more than five nautical miles from shore in Gulf of St Vincent or Spencer Gulf, or more than three nautical miles from shore in other waters except Lakes Alexandrina and Albert

- as above, plus
 - one 406 MHz EPIRB (Emergency Position Indicating Radio Distress Beacon)
 - one V distress sheet.

If operating more than 10 nautical miles from shore:

- all the above, plus
 - two distress rockets with parachutes
 - a map or chart of the waters in which the boat will operate.

Full detail of safety equipment requirements and the standards that apply are in the *Harbors and Navigation Regulations 2009*.

Vessels more than 15 metres in length

All of the safety equipment required for a vessel 8-15 metres in length in Unprotected Waters, plus:

- One EPIRB.
- One V distress sheet.
- Two distress rockets with parachutes.
- A map or chart of the waters in which the boat will operate.
- An additional lifebuoy with line attached.
- A liferaft.

Personal Flotation Device (PFD)

A Personal Flotation Device (PFD), suitable for the type and area of operation must be carried on the vessel for every person on board. In addition, any person water skiing must be wearing a PFD. A PFD must also be worn at all times by occupants of canoes, kayaks, sailboards and similar small unpowered vessels, when kite surfing or operating a personal watercraft (PWC).

While it is not a requirement that a PFD be worn at all times on vessels (with exception of the type previously listed) it is recommended that you wear one when you are boating.

At the very least, you should wear a PFD on the following occasions:

- when crossing a bar or rip
- at the first sign of bad weather
- in an emergency situation
- between sunset and sunrise or during restricted visibility
- when operating in unfamiliar waters
- when operating with a following sea
- when boating alone
- when moving around the sides of a vessel that is not fitted with rails
- if you are not a strong swimmer
- if you are taking medication that may affect your balance.

It is extremely difficult (and in some circumstances impossible) to put a PFD on if you are in the water, so prevent yourself and your crew from being in this situation by wearing your PFD.

Safety Equipment Standards

All items of safety equipment must comply with certain standards to ensure they will do the jobs required of them. These standards are outlined below.

All personal flotation devices (PFD) required to be carried on a vessel must comply with one or more of the following approved standards.

SAFETY EQUIPMENT REQUIREMENTS FOR RECREATIONAL VESSELS

AREA OF OPERATION	VESSEL UNDER 8 METRES			VESSEL 8 METRES AND OVER		
	PROTECTED WATERS	SEMI-PROTECTED WATERS	UNPROTECTED WATERS	PROTECTED WATERS	SEMI-PROTECTED WATERS	UNPROTECTED WATERS
Approved PFD PER PERSON	✓	✓ ¹ (PFD Type 1, 2 or 3)	✓ ¹ (PFD Type 1)	✓	✓ ¹ (PFD Type 1, 2 or 3)	✓ ¹ (PFD Type 1)
BUCKET & LANYARD OR BILGE PUMP(S) ^Δ	✓	✓	✓	AT LEAST 1 OF EACH	AT LEAST 1 BILGE PUMP	AT LEAST 1 BILGE PUMP
FIRE BUCKET	✓Ω	✓Ω	✓Ω	✓Ω	✓Ω	✓Ω
Approved FIRE EXTINGUISHER (IF MOTOR FITTED OR COOKING FACILITIES ON BOARD)	✓	✓	✓	2	2	2
PADDLES / OARS (UP TO 6m ONLY)	✓	✓ or auxiliary propulsion	✓ or auxiliary propulsion			
ANCHOR & CABLE	✓	✓	✓	✓	++ 2	2
BUCKET & LANYARD				✓	2	2
WATERPROOF AND BUOYANT TORCH OR LANTERN		✓	✓	✓ ¹ if operating at night (sunset and sunrise)	✓	✓
Approved COMPASS			§ ✓			§ ✓
4 LITRES FRESH WATER			✓			✓
Approved FLARES & SMOKE SIGNALS		•• 2 EACH	2 EACH		•• 2 EACH	2 EACH
Approved ROCKET PARACHUTE FLARES			• 2 EACH			• 2 EACH
CHART OF THE AREA OF WATER			• ✓			• ✓
EPiRB (Radio Distress Beacon)			# ✓			# ✓
"V" SHEET			# ✓			# ✓
MARINE RADIO (Capable of communicating with stations ashore)			✓			✓
LIFEBUOY WITH LINE [∨]			✓		✓	✓

Where 'Low Water Mark' is mentioned in reference to a coast it refers to the coast of the mainland or Kangaroo Island only.

✓ Compulsory item.

• When the vessel is more than 10 nautical miles seaward of the low water mark.

When the vessel is more than three nautical miles seaward of the low water mark, or more than five nautical miles seaward of the low water mark in Spencer Gulf or Gulf of St Vincent. Excludes Lakes Albert and Alexandrina.

Ω If a bucket with lanyard is carried as a bailer and is suitable for use as a fire bucket (ie, it won't distort or break when collecting water for use in case of a fire or solid combustibles), that bucket can double as the bailer and the bucket.

•• From 1 June 2010, a PFD Type 1, as well as two red hand-held flares and two orange smoke signals, must be carried in Semi-Protected Waters.

Δ Enough bailers or pumps must be carried to drain each compartment of the vessel.

++ If the vessel is less than 12 metres in length one anchor may be carried as a spare.

∨ Vessels that are more than 15 metres in length must carry an additional lifebuoy with line and a literail.

§ A GPS does not meet compass requirements. An approved compass must be affixed to the vessel near the steering position and either liquid damped magnetic or gyroscopically controlled.

Vessels that are more than 15 metres in length must also carry an additional lifebuoy with line and a literail.

Note: Australian Standard AS 4758.1 incorporates all of the former Standards AS 1512, AS 1499, AS 2259 and AS 2260. For this reason, only the specified section of AS 4758.1 applies to each of PFD Type 1, Type 2 and Type 3.

PFD Type 1 Lifejacket

Must comply with one of the standards listed below.



AS 1512-1996 (as in force on 1 January 2008)

AS 4758.1 as applied to PFD providing level 100 or level 150 buoyancy (or more)

Appendix R of the *Uniform Shipping Laws Code*

European Standard EN399-1993
Lifejackets-275N

European Standard EN396-1993
Lifejackets-150N

European Standard EN395-1993
Lifejackets-100N

ISO 12402-2, 12402-3, or 12402-4

Canadian General Standards Board
CAN/CGSB-65.11-M88 (for adults)

Canadian General Standards Board
CAN/CGSB-65.15-M88 (for children)

Underwriters Laboratories Standards UL1180

New Zealand Standard NZ5823:2001
Type 401

Any other standard or specification that may be approved by the Chief Executive Officer (CEO) of the Department for Transport, Energy and Infrastructure (DTEI), once such approval has been included in the *South Australian Government Gazette*.

A personal flotation device that complies with the requirements of *Australian Maritime Safety Authority Marine Orders Part 25* related to the type of life-jackets required to be carried on Australian registered ships.

PFD Type 2 Buoyancy Vest

Must comply with one of the standards listed below,



AS 4758.1, as applied to PFD providing level 50 buoyancy

AS1499.1996 (as in force at 1 January 2008)

European Standard EN393-1993
Lifejackets-50N

ISO 12402-5

Any other standard or specification that may be approved by the CEO of DTEI, once such approval has been included in the *South Australian Government Gazette*.

PFD Type 3 Buoyancy Vest

Must comply with one of the standards listed below.



AS 4758.1: Personal flotation devices. General requirements in relation to a PFD classified as providing level 50 special purpose (50S) buoyancy

AS 2260.1996

(as in force on 1 January 2008)

Any other standard or specification that may be approved by the CEO of DTEI, once such approval has been included in the *South Australian Government Gazette*.

One PFD must be carried for each person on board.

SOLAS Lifejacket

(SOLAS – Safety of Life at Sea)



A very bulky lifejacket, designed to keep the body afloat for long periods. Has a light and whistle attached to attract attention. Carried by commercial vessels and recommended for use on larger vessels operating long distances offshore.

COASTAL Lifejacket Multi Fit



Has more flotation than a PFD1. Has a whistle attached for attracting attention. Recommended for use on larger vessels operating long distances offshore.

Other Safety Equipment Standards

Minimum standards for many items of safety equipment (e.g. PFDs, Flares and Fire Extinguishers) are listed under headings related to those items.

Minimum requirements or standards have now been applied to many other items of required safety equipment, and these requirements or standards are listed here:

- a torch or lantern must be waterproof and buoyant
- an anchor must be:
 - of a kind and size appropriate to the vessel, regarding to both the size and the area of operation of the vessel; and
 - attached to a length of chain or rope or both appropriate (in respect of both length and breaking strain) to the waters in which the vessel is being operated
- a compass must be marked with the cardinal points
- a bilge pump must be:
 - of a kind, and with a pumping capacity, appropriate to the vessel; and
 - fitted with a strainer on the suction pipe with mesh of a suitable size to prevent choking of the pump
- a bailer must be:
 - suitable for bailing water from the vessel; and
 - attached to a lanyard suitable to prevent loss of the bailer from the boat
- a marine radio must be of a kind approved by the Australian Communications Authority
- paddles, oars or other means of auxiliary propulsion must be of a kind and size capable of propelling and manoeuvring the vessel

Emergency Position Indicating Radio Beacon (EPIRB)

An EPIRB is a compact, buoyant, self-contained radio transmitter designed for marine use which, when activated, continuously emits an alert signal for a minimum of 48 hours.

In a marine emergency, time is often a critical factor. The quicker an alarm is raised, the search area identified and a rescue coordinated, the more likely it is that those in distress will be safely rescued.

Your initial distress alert should be made by radio where possible, but an EPIRB can be activated if you fail to make radio contact and human life is in imminent danger.

Once activated, a distress beacon transmits an alert detected by both a series of satellites that form part of an international search and rescue system known as COSPAS-SARSAT, and by overflying aircraft. EPIRB alerts detected off the South Australian coastline are received by the Australian Maritime Safety Authority's Rescue Coordination Centre (AMSA's RCC) in Canberra and acted upon immediately.

The satellite system can locate a distress beacon to within a radius of about 5 kilometres for a 406 MHz beacon without GPS and to within 120 metres with GPS.

Each 406 MHz beacon transmits a unique code that identifies which beacon has been activated. This enables the RCC to access the registration database and find contact details, details of registered vessels and details of up to three nominated emergency contacts who may be contacted if a beacon is activated and contact cannot be made with the registered owner.

These emergency contacts may be able to provide valuable information to the RCC that can assist with a more expedient rescue.

Details of distress beacon activations in South Australian waters are passed by the RCC to South Australia Police to coordinate

a rescue. Specially equipped aircraft and/or rescue boats are then used to home in on the beacon's signal and rescue those in distress.

Vessels Required to Carry an EPIRB

All recreational vessels venturing more than five nautical miles from the shore in Gulf St Vincent or Spencer Gulf, or more than three nautical miles from the shore in other State waters, except Lakes Alexandrina and Albert, are required to carry a 406 MHz EPIRB which complies with legal requirements.

Legal Requirements for EPIRBs

Your EPIRB must meet AS/NZS 4280.1:2003 406 MHz satellite distress beacons - Marine emergency position-indicating radio beacons (EPIRBs).

Some Personal Locator Beacons (PLBs) which meet AS/NZS 4280.2 are being marketed as EPIRBs, however these beacons are not designed for marine use and do not meet the legal requirements.

Your beacon must be capable of transmitting on the 406 MHz frequency. Previously, beacons could transmit on a 121.5 MHz frequency, however from 1 February 2009, this frequency will no longer be monitored by satellites and will not automatically instigate a rescue.

All 406 MHz beacons must be registered with the Australian Maritime Safety Authority (AMSA) and have the registration sticker displayed on the beacon.

Beacon registration is free and can be done online or in writing via mail, fax or email using AMSA's registration form. For more information, visit www.beacons.amsa.gov.au or call 1800 406 406 during business hours.

Beacons must be maintained in good working order (including having a battery that is not past its expiry date) and be suitably located and secured on the vessel to protect it from accidental damage or loss, but positioned so that it is accessible in an emergency.