ABC BOAT & PWC GUIDE

AUSTRALIAN BOATING COLLEGE

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Disclaimer:
This book contains at time of printing, current boating information as per Victoria, New South Wales, and Queensland government regulations. Best efforts have been made to ensure accuracy, but no warranty, either expressed or implied, is given as to the material within. Check the respective state government web sites for latest updates.

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Introduction & Aims

This course aims to give applicants the required competencies to obtain a Queensland, New South Wales, or Victoria general boat licence. It covers the units of competency required by the state authorities.

The course should be conducted with an approved instructor.

Additional Information Sources

The respective state government departments have web sites for recreational boating information.

These sites should be used for further information regarding specifics of exemptions, licencing, and other state regulatory specifics not contained within these notes.

Training DVDs:

- How to Cross Coastal Bars Safely
- Small Craft Navigation Made Easy
- The DVDs are available at **www.abcboating.com**

State Government Marine Acts legislating recreational boating:

Queensland

The Marine Safety Act 1994
The Marine Safety Regulations 2004

New South Wales

The Marine Safety Act 1998
The Marine Safety Regulations 2015

Victoria

The Marine Safety Act 2010
The Marine Regulations 2012

Font Legend:

These Notes use a font colour code to assist in the location of information: -

Maroon is for Queensland Rules and Regulations

Blue is for New South Wales Rules and Regulations

Green is for Victoria Rules and Regulations

BLACK is general information for all states.

Useful Web Addresses

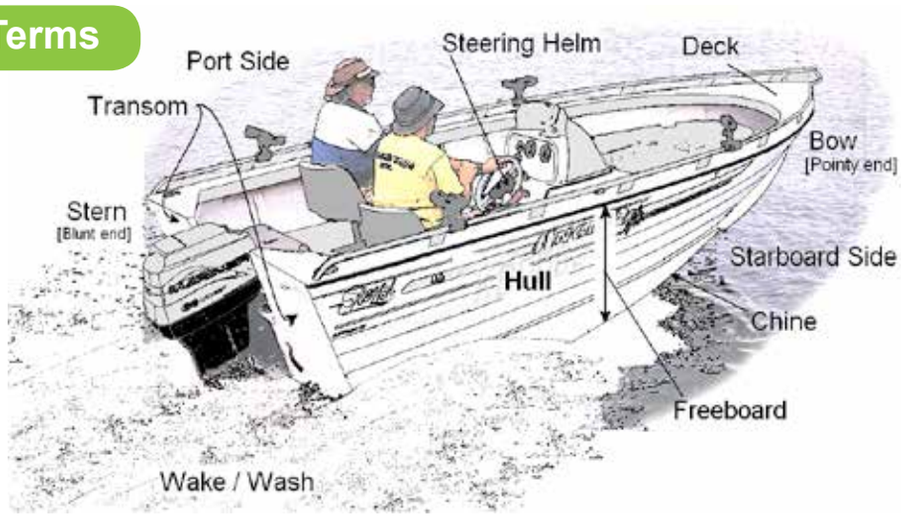
National - Bureau of Meteorology
www.bom.gov.au

QLD
Maritime Safety Queensland
www.msq.qld.gov.au
Marine Parks
www.nprsr.qld.gov.au
Department of Primary Industries
www.dpi.qld.gov.au

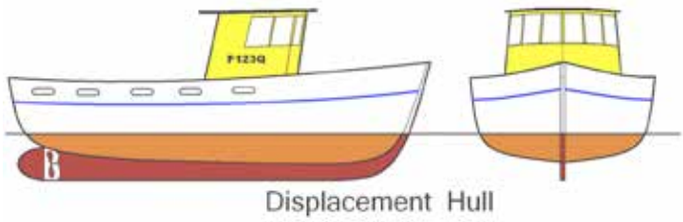
NSW
NSW Maritime
www.maritime.nsw.gov.au
Fisheries Information
www.dpi.nsw.gov.au

VIC
Transport Safety Victoria
www.transportsafety.vic.gov.au
Fisheries Information
www.dpi.vic.gov.au

1.1 Common Boating Terms

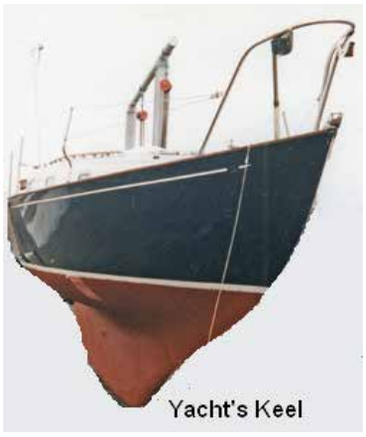


Port side	the left hand side of a vessel when looking forward
Starboard side	the right hand side of a vessel when looking forward
Bow	the forward end of a vessel
Stern	the 'aft' (rear) end of a vessel
Transom	the stern cross section of a square sterned boat
Hull	the structural body of a vessel
Keel	the bottom of the vessel's hull structure located along the centre line
Chine	the intersection of the bottom and sides of a flat or v-bottomed boat
Gunwale	the upper edge of a boat's sides
Freeboard	the minimum distance at any point around the vessel from the water line to the gunwale or transom e.g. outboard motor cut-out
Draft	The depth of the vessel below the water line, measured vertically to the lowest part of the hull, propeller, or other reference point
Cleat	a fitting having two arms or horns around which ropes may be made fast
Helm	the wheel or tiller controlling the rudder or outboard motor
Nautical Mile	1 nautical mile is an International measurement of distance at sea level (1.85 klms).
Knot	a measure of speed equalling 1 nautical mile per hour



Displacement Hull

Planing Hull



A PWC (Personal Water Craft) has a planing hull

Twin hulled planing vessels offer some comfort in rough seas, due to the cushioning effect of the air trapped between the hulls

1.2 Powers of Authorised Officers and Shipping Inspectors

Various state government bodies perform enforcement of the water traffic regulations, and fisheries regulations

- Boating Safety Officers
- Water Police
- Certain other officials (eg DPI, Marine Parks, National Parks and Wildlife rangers, customs, authorised council inspectors)
- Authorised Harbour Masters

Boating Safety Officers perform the following functions on the water

- they manage and enforce the various marine Acts and Regulations, for all navigable waters
- they monitor and enforce EPA regulations, and
- manage any oil spill or pollution emergencies.

It's quite normal that a person from one of the above authorities will come alongside your vessel to ensure

that you're in accordance with law. Therefore, with this in mind, you'll enjoy your time on the water if you are operating and equipped appropriately.

Normal things which you'll be requested to show are:

- Safety gear
- Registration
- Licence

The Water Police, DPI and Boating Safety Officers are empowered to board your vessel to investigate the above. They will also ensure that your boat is not overloaded, and that the number of persons on-board complies with the allowable number for the size and type of vessel. They will also enforce any local water-skiing, or noise reduction regulations applicable to the area.

In addition, Fisheries inspectors may also inspect any fish caught - current fish size & bag limit pamphlets are available from your local Fisheries office, or via their web sites.

DRUGS

QLD: The Traffic Operations Act 1995 also applies on the water. This means it is an offence to be in charge of a vessel if you have a blood alcohol level of .05 or over, or if you are under the influence of any mind altering drug. This also applies to any crew required to safely operate the vessel when underway and at anchor.

Under the Marine Safety Regulations 2004 any Marine licence can now be suspended or cancelled in the event of the licence holder being convicted of a breath analysis offence (drink driving) in a Road Motor Vehicle.

NSW: It is an offence to be in charge of a vessel if you are over the blood alcohol limit of .05, (.00 for vessel operators aged under 18 years) or under the influence of any mind-altering drug.

VIC: It is an offence to be in charge of a vessel if you are over the blood alcohol limit of .05, (.00 for vessel operators aged under 21 years) or under the influence of any mind-altering drug. This also applies whilst a vessel is at anchor, and to water skiers and water ski observers.

1.3 A Master's Duty Of Care

The Marine legislation places total responsibility on the Master and/or Owner of a recreational vessel, for the equipping & safe operation of that vessel; and for the duty of care to the passengers and to other vessels.

There are 4 main areas comprising a Master's Duty of Care:

- The ship is safe
- The ship is properly equipped
- The ship is properly crewed
- The ship is operated properly

The duty of care is illustrated by the example of proceeding to sea without some form of adequate communication. In the event of breakdown it is the Master's duty to carry some form of adequate signalling or communication device, taking into account the locality, the weather and sea conditions on the day, even though they may not be required by regulation.

Under the Act, a vessel should not be operated unless the vessel is safe. ie.. it is seaworthy, and is appropriately equipped and crewed to meet the ordinary perils of the voyage on which the vessel is undertaking.

In another example, if the vessel was lent to another person at night, and the lights on the boat were inoperable, which in turn led to a marine accident occurring, then the Owner could also be held partly responsible. (Vessel wasn't safe to be operated at night)

From time to time, information will be put out by the state maritime authorities. Continuously reviewing their boating legislation to improve safety levels, the authorities are progressive in maintaining adequate and effective legislation, and as an Owner and/or Master of a vessel, you should stay abreast of changes.

An **Australian Builders Plate** is fitted to all new vessels and details the vessel's:

- max horsepower
- carry capacity
- buoyancy type

All new boats are required to have either flotation material or buoyancy compartments.

If you modify the boat's design it may compromise the boat's flotation or other aspects essential to it's safe operation.

1.4 Pollution and Noise Abatement Regulations

Rubbish

The Environment Protection Act makes it an offence to offload any pollution into the water.

Take particular care not to allow plastic bags, fishing line, drink cans, etc, into the water, and avoid spillage when refueling.

Check your state's sewerage discharge laws. It is an indictable offence to discharge either treated or untreated sewerage in many localities, and within certain distances from shore.

Noise

The marine authorities have introduced nuisance laws to help make Australia a more liveable place. The laws govern noise made by power boats and Personal Water Craft.

For full details see the web sites:

QLD: www.derm.qld.gov.au
NSW: www.maritime.nsw.gov.au
VIC: www.transportsafety.vic.gov.au

Also check local signage and council by-laws for any local restrictions which may be in place.

1.5 Boating Accidents

QLD: If you are involved in an accident, all Marine Incidents must be reported with 48 hours to either Maritime Safety Queensland, Boating & Fisheries, the Water Police, or authorised Harbour Master.

NSW: If you are involved in an accident, you must stop and render all possible assistance as applicable. All marine accidents where an injury; death; or damage greater than $5000 has occurred, must be reported with 24 hours to the NSW Maritime Authority, or the Police.

VIC: If you are involved in an accident, you must stop and render all possible assistance as applicable. All marine accidents where damage has occurred, or where there is an injury or death, must be reported as soon as possible to the nearest Police station where the accident occurred.

QLD

Before heading out on the water, there are rules a Master needs to know governing licensing, registration, vessel carrying capacities, and what to do in the event of an accident. The questions and answers below reference these topics.

1. **What vessels require a licensed driver?**

   All vessels with greater than a 6 HP motor. A separate licence to operate a PWC is required.

2. **At what age can a person obtain a Recreational Marine Drivers Licence (RMDL)?** 16 years of age

   NB.. The Statement of Competency issued at the completion of the course is not a licence. It needs to be presented to Queensland Transport within 6 months of course completion to obtain the licence. It becomes void after 6 months and complete re-assessment is required. Fees apply.

3. **Can an unlicensed operator drive a power boat under control of a licensed operator?**

   Yes, no age limit. Normal speed limits apply. Responsibility falls on the licenced driver.

4. **Can I loan my boat to another operator?**

   Yes. As the vessel owner it is your responsibility to ensure the other person is appropriately licensed.

5. **Does the licensed operator need to carry their RMDL on board?**

   The Water Police and DPI officers advise you to carry proof of your RMDL on board. Otherwise you may have to present yourself and the evidence in person, within 48 hours.

6. **What vessels require registration?**

   All vessels with greater than a 4 horse power engine

7. **Where should the registration numbers be displayed on a vessel capable of planing?**

   Numbers must be displayed on both sides of vessel. Must be in contrasting color to the vessel and clearly visible and legible from minimum distance 30 metres.

8. **What height should the registration numbers be on a planing capable power boat?**

   Planing capable vessels – minimum height of numbers 150mm. Non planing vessels, minimum height of numbers 75 mm and displayed on sides or the stern.

9. **Where should the registration label be placed on a vessel?**

   Planing capable vessels - Label needs to be placed on the exterior port side, adjacent to the registration numbers.

   Non-planing vessels – Label to be placed on stern adjacent to registration numbers.

10. **How many people are allowed to be in a boat?**

    As many as the Australian Builders Plate states, and as there are lifejackets on board, and is safe for the conditions.

11. **What is it, and what should you do in the event of a Marine Incident?**

    A Marine Incident is an accident where danger to, or a personal injury, or vessel or property damage has occurred. It must be reported within 48 hours to Maritime Safety Queensland. A Marine Incident report form must be completed. Report forms are available online at www.msq.qld.gov.au

Before heading out on the water, there are rules a Master needs to know governing licensing, registration, vessel carrying capacities, and what to do in the event of an accident. The questions below reference these topics.

NSW

1. What vessels require a licensed driver?

Any powered vessel driven at speeds of ten knots (18k/hr) or more. Anyone who drives a personal watercraft (PWC) at any speed must have a PWC licence.

2. At what age can a person obtain a General Power Boat Licence?

A general licence may be obtained by a person aged 12 years and over.

A Licensed operator less than 16 years of age must:

- be accompanied by a holder of a general licence over 16 years of age when travelling at 10 knots or more
- never exceed 20 knots (36k/hr)
- never travel at 10 knots or more after sunset and before sunrise
- never travel at 10 knots or more when towing a skier/tuber/wake boarder etc
- never operate a PWC travelling at over 10 knots unless the holder of a PWC Licence, and accompanied by a PWC licensed operator 16 years or older

- **3. Is a licence indefinite?**

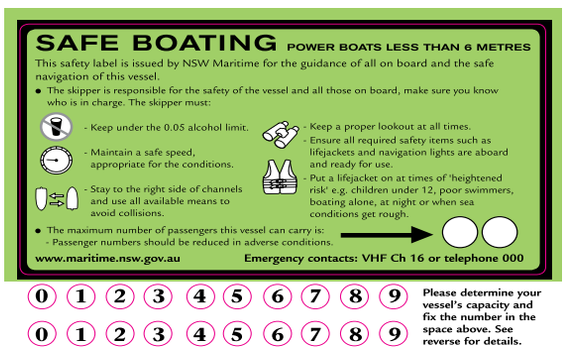
A general licence or PWC licence is available for either 12 months, three, five, or ten years.

4. Does the operator need to carry their licence on board?

Yes when operating a powered vessel at 10 knots or more.

5. Do vessels have maximum carrying capacities?

Yes. Safety labels must be displayed clearly near the operator on all powered vessels (except PWC).



6. What vessels require registration?

The following vessels must be registered within NSW

- any commercial vessel
- Power driven vessels that are powered by an engine with a power rating of 4.0 kilowatts or more (greater than 5hp
- any mechanically propelled or sailing vessel of 5.5 metres or longer
- every vessel subject to a mooring licence
- every vessel subject to a permissive occupancy (includes marina berths)
- every Personal Watercraft (PWC).

For vessel exemptions see www.maritime.nsw.gov.au

7. Where should the registration numbers be displayed on a power boat?

Mechanically propelled vessels must show registration numbers on each side of the vessel at least 150mm high and clearly visible while underway. They should be located on the forward section of the vessel's hull on each side of the vessel.

New law proposal- Registration labels will no longer be issued

Sailing vessels must show registration numbers on the transom or on both sides of the hull adjacent to the stern.

In the case of multi hull craft, the numbers must be on the outer faces of the external hulls adjacent to the stern. The figures must be at least 100mm high and be visible when the vessel is underway. For registration purposes, a "sailing vessel" means a vessel which has sails as its primary means of propulsion.

Registration numbers must be clearly visible at a distance of 60m.The numbers should be of contrasting colours to the boat's hull. Black numbers are standard on a light coloured hull, but on a dark coloured hull you should use white or pale figures.

Licence, Registration and Safety Equipment

VIC

Before heading out on the water, there are rules a Master needs to know governing licensing, registration, vessel carrying capacities, and what to do in the event of an accident.The questions and answers below reference these topics.

1. What vessels require a licensed driver?

Any person who operates a registered recreational powerboat must have a licence.
Operators of personal watercraft (PWCs) must have their licence endorsed accordingly.

2. What is a general marine licence?

A general marine licence may be obtained by a person aged 16 years and over.

A restricted marine licence is required by any person over the age of 12, but under the age of 16, who is operating a powered recreational vessel. Holders of a restricted marine licence may act as master of a recreational vessel only if:
a. operating during daylight hours between sunrise and sunset
b. operating at speeds of less than 10 knots and
c. not operating a vessel that is towing a person, another vessel or object.

An unlicensed person may operate a vessel under the direct supervision of a person who is:
a. over the age of 18 years
b. licensed and endorsed appropriately for the vessel being operated (for example, if a PWC is being operated, the licence must be endorsed for PWC operation)
c. on board the vessel in a position where they are able to take immediate control of the vessel.
Once a restricted master turns 16 years old, the restricted marine licence automatically becomes a general marine licence.

- The Statement of Competency issued at the completion of the course is not a licence. It needs to be presented to the VicRoads within 12 months to obtain the licence. The Statement of Competency becomes void after 12 months.

3. Does the licence need to be renewed?

A fee is payable to VicRoads every 5 years.

4. What vessels require registration?

The owners of recreational vessels equipped with an engine that is capable of being used for propulsion are required to register their vessel with VicRoads, acting as an agent of Marine safety Victoria.

5. Does the licensed operator need to carry their licence on board?

Yes at all times.

6. Where should the registration label and numbers be displayed on a power boat?

The registered owner or operator of a recreational vessel must ensure that the registration label issued by MSV is fixed and remains fixed in a conspicuous position on the outside or upper position of the vessel.

The registered owner or operator of a vessel must ensure that the registration numbers painted or displayed on each side of the bow as high as practicable above the waterline in characters that are: no less than 150mm high (or 100mm on a PWC) in proportional breadth; colored in contrast to that of the surface on which they are displayed.

7. Do vessels have maximum carrying capacities?

Yes. The capacity is normally calculated by the manufacturer and is often shown on a special plate attached to the hull. This capacity is the maximum number for good conditions. A reduction in the maximum number must be made in adverse weather conditions or when on open waters. If not, the Master may be guilty of negligent navigation.

In determining whether your vessel complies with the capacity limits, the following applies:

- children up to one year of age are not counted (although you still require safety equipment for them)
- each child between the ages of one and twelve equals one half of an adult and
- capacity of a person is assessed at 75kg per person with an additional allowance of 15kg per person for personal gear.

Unless the maximum number of persons is specified by the manufacturer on a capacity plate attached to the vessel, the following capacities apply:

Length Less than 3m	2;	
3m to less than 3.5m	3;	
3.5m to less than 4.5m	4;	For vessels greater than 6 metres, refer to the manufacturer's specifications or MSV
4.5m to less than 5 m	5;	
5m to less than 5.5 m	6;	
5.5 m to less than 6 m	7	

1.7 Safety Equipment Descriptions

All Masters have a responsibility to carry the right safety equipment, and to know how to use it. Regulations specify mandatory equipment to carry, which varies depending on the type of water being travelled.

LIFEJACKETS & Personal Flotation Devices (PFDs)

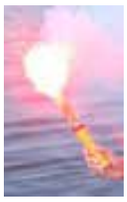
Coastal	Type 1	Type 2	Type 3
Level: 150	100	50	50S

- PFDs come in different sizes – small/medium/large
- Appropiate fitting PFDs are required for all persons
- PFDs must have the required Australian Standard stamp. The current standard is AS4758.
- PFD1s are designed to keep the head above water
- PFDs 2 and 3 are more suitable for skiing and watersports as there is less risk of neck injury
- All occupants must wear a PFD1 or lifejacket when crossing a coastal bar.

DISTRESS SIGNALS

Use appropriate signal

If other boats or aircraft are in the area you can attract their attention by using :



A **Red hand-held flare:**

is visible up to ten nautical miles on a clear night at sea level

An **Orange smoke flare:**

is visible up to two nautical miles during daylight in good conditions at sea level.

SIGNALLING DEVICES

Waving a torch or cyalume sticks at night is very effective. Slowly and repeatedly raise and lower arms outstretched to each side. One of the simplest signalling devices is a whistle, or waving your arms.

If you've broken down in a river and can't restart the motor your first action to attract the attention of other vessels anchored up to 100 metres away would be to shout, whistle and wave your arms.

A **V-SHEET** should be displayed to attract the attention of other boats or overpassing aircraft. It is more visible than a person waving their arms, and therefore more effective for distances 100-1000 metres.

EPIRBs – 406MHz

(Emergency Position Indicating Radio Beacon) should be used as a last resort. Switch it on and allow it to float beside the vessel until help arrives, then alert all SAR that the emergency has ceased. AS/NZS 4280.1 requires EPIRBS to transmit minimum 48 hrs and to float in an upright position.

EPIRBS need to be registered with AMSA See **www.amsa.gov.au**

Personal Locating Beacons (PLBs) do not satisfy a vessel's EPIRB carriage requirements, as their Standard AS/NZS 4280.2 requires them to only transmit for minimum 24 hours, and they don't have to float in an upright position.

FIRE EXTINGUISHERS

All mechanically powered vessels should carry at least one suitable fire extinguisher, in the event that either your vessel, or another nearby vessel catches fire. Service as required.

LIFEBUOY

Larger vessels should carry one or more lifebuoys, stowed so as to be immediately deployable if needed.

OARS AND PADDLES

Smaller craft should carry a set of oars or paddles with rowlocks. These enables another form of propulsion in case of engine failure.

Important Points to Remember

Safety Equipment:

- must be readily accessible in case of emergency
- be stowed so as not to adversely affect the vessel's stability
- should be stored in accordance with manufacturer's recommendations, and used appropriatedly
- must be in good condition and serviced as required, for the vessel to be deemed properly equipped
- where applicable, must be approved under an Australian Standard.

A Master may choose to carry more safety equipment than the legal minimum.

Vessels carrying safety equipment whose expiry date has passed (e.g. flares & EPIRBS), are not deemed to be appropriately equipped.

QLD

Queensland Safety Equipment Requirements

All Masters have a responsibility to carry the right safety equipment, and to know how to use it. Definitions of required safety equipment rely on an understanding of the categories of water types applicable in Queensland.

- Smooth waters – include rivers, creeks, streams, lakes, waters within breakwaters and within half a nautical mile of land within partially smooth water limits and other waters specified in legislation
- Partially smooth waters are determined by Maritime Safety Queensland as specified in legislation
- Open water is the area beyond Smooth Waters and Partially Smooth Waters.

SAFETY EQUIPMENT REQUIRED TO BE CARRIED BY REGULATION			
EQUIPMENT	**SMOOTH WATER**	**PARTIALLY SMOOTH WATER**	**OPEN WATER**
406 MHz EPIRB (Emergency Positioning Indicating Radio Beacon) Must be registered with AMSA and registration sticker attached			All boats (including non-registrable) operating in these limits when more than 2 nautical miles from land.
SIGNALLING DEVICES e.g waterproof buoyant torches, fluorescent light, lantern and cyalume stick	All boats between sunset and sunrise.	All boats between sunset and sunrise.	All boats between sunset and sunrise.
PFD'S / LIFEJACKETS One of the appropriate size for each person (12 months & over) on board, except if a person is wearing an inflatable diver jacket and wet suit.	PFD types 1,2 or 3. Except in rivers, creeks or streams, waters contained within revetments if the boat has grab lines/rails and a certificate of positive flotation	PFD types 1 or 2	PFD type 1
FIRE FIGHTING EQUIPMENT Capable of extinguishing a fire quickly and effectively.	All boats over 5m	All boats over 5m	All boats over 5m
V SHEET		All boats	All boats
FLARES		2 red hand flares 2 orange smoke flares	2 red hand flares 2 orange smoke flares

OTHER EQUIPMENT TO BE CARRIED AS A SAFETY OBLIGATION			
EQUIPMENT	**SMOOTH WATER**	**PARTIALLY SMOOTH WATER**	**OPEN WATER**
NAVIGATION e.g. navigation chart or map, liquid damped compass, other direction finding or position equipment	All Boats	All boats	All boats
PUMPING / BAILING Under 5m: Suitable bailing equipment. 5m - 8m: Bilge pump 45L/min capacity 8m or more: Bilge pump 70L/min	All boats	All boats	All boats
ANCHORING Under 5m: Cable can be chain or rope Over 5m: Cable can be chain of at least 2m attached to anchor and rope	**Under 5m:** 1 anchor with 18m cable **5m - 8m:** 1 anchor with 27m cable **8m or more:** 2 anchors with 37m cable each	**Up to 8m:** 1 anchor with 27m cable **8m or more:** 2 anchors with 37m cable each	**Up to 8m:** 1 anchor with 27m cable **8m or more:** 2 anchors with 37m cable each
DRINKING WATER Sufficient for everyone on board for duration of trip	All boats	All boats	All boats
MANUAL PROPULSION Oars or paddles	Under 6m	Under 6m	Under 6m
MARINE RADIO & Mobile Phone as auxiliary	All boats	All boats	All boats

It is compulsory to wear an appropriate PFD:

- **When crossing a coastal bar in an open boat that is less than 4.8m in length**
- **If you are under the age of 12 in an open boat that is less than 4.8m in length, whilst it is underway**

Owners/masters must give each person on board information about where the safety equipment is kept.

PFDs must be clearly visible, or stored with a sign 'Life Jackets' on white background with red letters or vice versa.

New South Wales Safety Equipment Requirements

NSW

Definitions of required safety equipment rely on an understanding of the categories of water types applicable in New South Wales. There are 2 types of water:

Enclosed waters - include rivers, creeks, streams, lakes, waters within breakwaters
Open waters - all areas beyond the areas of Enclosed waters

NSW SAFETY EQUIPMENT REQUIREMENTS		
EQUIPMENT	ENCLOSED WATERS	OPEN WATERS
Life Jacket Level 50S or greater	1 per person	
Life Jacket Level 100 or greater		1 per person
Anchor and chain/line	1	1
Bucket/Bailer (vessel with open bilges) or Bilge Pump (vessels with covered bilges)	1 1*	1 1*
Magnetic compass		1
Distress signal - orange hand held distress flare		2
Distress signal - red hand held distress flare		2
406MHz EPIRB (required if two nautical miles or more offshore)		1
Fire bucket (if no bailing bucket carried suitable for fire fighting)	1	1
Fire extinguisher (vessels with electric start, electric motors, gas or fuel stoves)	1*	1*
Map/chart of area (paper not electronic)		1
Marine radio (required if two nautical miles or more offshore. (Operator Certificate required if carrying VHF)		1
Paddle or oars/rowlocks in vessels under 6 metres unless a second means of propulsion is fitted	1	1
Safety Label	1	1
Sound signal (air horn/whistle/bell)	1	1
V Sheet (orange)		1
Drinking water		2L per person
Waterproof buoyant torch	1	1

It's also a good idea to carry a mobile phone, to be used as an auxiliary form of voice communication.

New law proposal - The operator of a vessel <4.8 metres in length must wear a 'kill switch' (an automatic engine cut-off device) if one is fitted to the vessel and the engine is on and in gear.

NSW compulsory wearing of Life Jackets. It is compulsory for all occupants to wear an appropriate Life Jacket when

- **Crossing a coastal bar, or at times of heightened risk**
- **Children under 12 years of age in a vessel less than 4.8m, and in open areas of a vessel less than 8 meters underway**
- **All occupants of a vessel less than 4.8 metres at night; boating alone; in open or alpine waters**
- **Occupants wearing waders on alpine waters**
- **when being towed by a vessel**

Lifejackets must be suitable for the intended wearer, in good condition, accessible, and inflatable units serviced in accordance with the manufacturer's instructions.

* Additional bilge pumps and fire extinguishers may be required for larger vessels.

VIC

Victoria Safety Equipment Requirements

Minimum Safety Equipment requirements for Mechanically Powered Vessels	INLAND (rivers, lakes & dams)	ENCLOSED (bays, and estuaries)	COASTAL INSHORE (<2nm from coast)	COASTAL OFFSHORE (>2nm from coast)
PFD (per person on board/towed)	Type 1, 2 or 3	Type 1	Type 1	Type 1
Approved Fire Extinguisher	√	√	√	√
Waterproof buoyant Torch	1	1	1	1
Anchor and chain or line or both		1	1	1
Bailer (if no electric or manual bilge pumping system)	1	1	1	1
Bucket with lanyard (can also double as a bailer)	1	1	1	1
Bilge pump – electric or manual (if vessel has covered bilge or closed under floor compartments	1	1	1	1
Pair of oars with rowlocks or pair of paddles (if vessel is up to and including 4.8 metres)	1	1	1	1
Hand held orange smoke signals		2	2	2
Hand held red distress flares		2	2	2
Lifebuoy (if vessel more than 8m but less than 12m in length)	1	1	1	1
Lifebuoy (if vessel more than 12m in length)	2	2	2	2
Dinghy or life raft (if vessel more than 12m in length)			1	1
Compass				1
Marine radio Operator Certificate required if carrying VHF				1
Red star parachute distress rocket				1
406 MHz EPIRB. Must be registered with AMSA				1

It's also a good idea to carry a mobile phone, to be used as an auxiliary form of voice communication.

VICTORIA Compulsory Wearing of PFDs

All occupants of power driven vessels up to and including 4.8m in length are required to wear a specified PFD when under way and when in an open area of the vessel.

Children under the age of 10 must wear a specified PFD at all times on any vessel when the vessel is underway and they are in an open area of the vessel.

Wearing PFD (all occupants) at times of heightened risk when under way and when in an open area of the vessel:

• Yachts (including monohull, trailerable and multihull yachts, excluding off-the-beach sailing yachts)

• Power driven vessels greater than 4.8 m and less than 12 m.

Heightened Risk Situation

1.8 Marine Radio

Whilst primarily used for boats travelling in open waters, a marine radio is a useful safety device to carry on all boats as it enables voice communication of distress, obtaining up to date weather forecasts, and general ship to ship and ship to shore communications. It is used extensively by the volunteer marine rescue organisations as a log on/log off mechanism for recreational craft; for search and rescue co-ordination, and for issuing weather advices.

A marine radio is preferable to using a mobile phone, as it is a general broadcast communication, rather than one to one communication facility. This means that a vessel close to you may pick up your distress call and be able to render immediate assistance.

Phonetic Alphabet			
A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliett	W	Whiskey
K	Kilo	X	X-Ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

There are 3 types of Marine Radios

(Each type is monitored by Volunteer Marine Rescue Groups)

VHF

- Most manufacturers now installing these
- Require operators certificate for routine calling
- Fines exist for non-certified operation

27 MHz

- No operators certificate required
- Monitored by Volunteer Marine Rescue groups
- Range not as good as VHF

HF

- Greater range for long distance travelling
- 100 miles plus off coast. Require operators certificate
- Large fines exist for non-licensed operation

Example of a typical logon call when reception is clear to Coast Guard/Marine Rescue. If reception was not clear the call signs would be repeated three times:

Using channel 73 for VHF radio, channel 88 (depending on location) for 27MHz radio

Boat Skipper:- "Coast Guard Sydney, Coast Guard Sydney, this is (Boat Name, Boat Name, e.g. SeaQuest) Over"

Coast Guard Sydney:- "SeaQuest, SeaQuest, this is Coast Guard Sydney Over"

Boat Skipper:- "Good Morning Sydney, just wanting to log in for the day. We are a 5 metre aluminium boat with 3 adults on board, departing from Fort Denison and heading over to the Heads. We plan to be back at Fort Denison about 5.00pm. Could you put us on the log please? Over"

Coast Guard Sydney:- "Romeo to that SeaQuest. We have you on the log. Have a nice day and remember to log off when you return, or call us to extend if you are staying out later. Over."

Boat Skipper:-
"Thanks very much Sydney. SeaQuest out"

Coast Guard Sydney:-
"Coast Guard Sydney standing by"

Distress calls

The distress call 'Mayday Mayday Mayday' should only be used if the boat is threatened by grave and imminent danger and immediate assistance is required. Give the boat's name, location, nature of distress, and assistance required. The signal 'Pan Pan' should be used in other serious situations such as man overboard.

Weather and navigational warnings – use 'Securite' signal. Monitor and relay another vessel's Mayday, if a shore station fails to respond.

Emergency Procedures

In the event you need to use your marine radio in an emergency situation, the following information must be communicated to would-be rescuers:VHF ch16 / 67

- Vessel position and name
- Nature of emergency
- Number of Persons on board
- Assistance required
- Any other relevant information as applicable

Remember to advise all parties once the emergency has ceased.

To obtain your VHF or HF Operator Certificate see www.vhfradioonline.com

2.1 Overview – International Regulations for the Prevention of Collision at Sea

Everyone using the waterways should know the International Regulations for Preventing Collisions at Sea, which all vessels must obey on the water. A full description of the regulations can be obtained from most chandlers or a boat books shop.

This course focuses on the rules which are relevant to recreational boating. Most boating mishaps can be avoided if a Master exercises care, courtesy, and commonsense, and satisfies the obligation to keep a proper lookout, travel at a safe speed, and correctly assesses the risk of a collision and takes the appropriate avoidance action.

The Master is responsible for keeping a lookout for dangers. Be aware of the boating environment, especially in bad weather, restricted visibility and darkness.

Good passengers also keep a lookout on a recreational boat and inform the Master if needed.

A proper lookout includes maintaining a situational awareness of the movement of passengers and equipment on your vessel, and the affect this may have on vessel stability and safety.

2.2 Steering and Sailing Rules

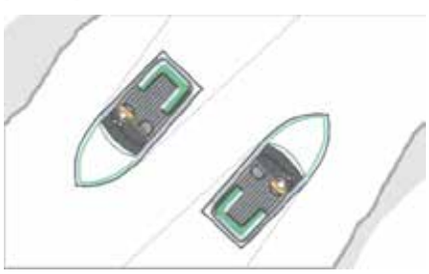
Navigation rules are often called “Rules of the road at Sea” and apply to all boats (and PWCs). These rules give clear indication about passing, approaching, giving way and overtaking to avoid collisions with other boats.

Keep a Proper Lookout

A proper lookout, through sight, sound, and situational awareness, must be kept at all times. More difficult at night as many dangers are unlit.

Rules of the Road

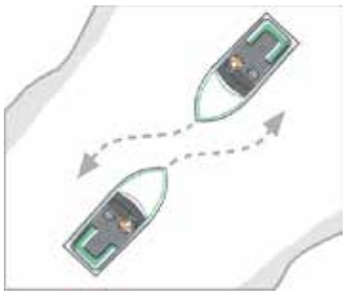
Q8. What side do you travel down a channel or river?



Rivers and channels

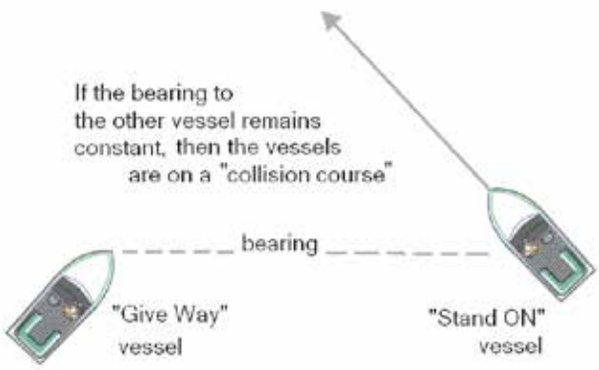
A vessel should always be navigated on the Starboard (right side of a river or channel)

Q9. Another vessel is approaching you head on. What should you do?



Approaching head on to another boat.
Each boat alters course to starboard (right)

Q10. A power boat is approaching your power boat from the port side. What should you do?



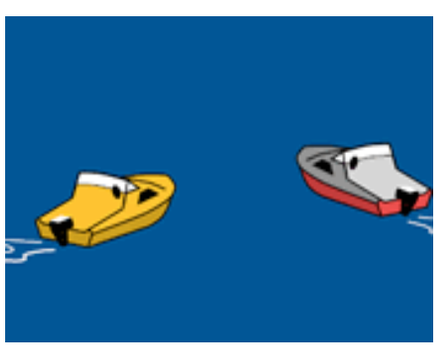
Power driven boats crossing

The boat approaching from the starboard (right) has right of way.

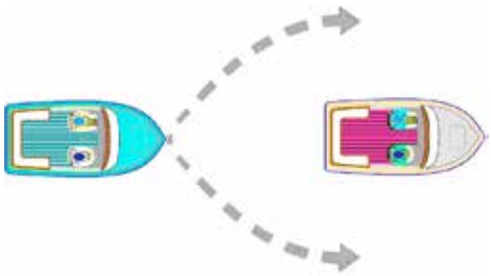
However, if the other boat does not give way, the boat with right of way must take action to avoid collision.

Q11. You are the driver of the yellow boat What should you do?

You should give way to the other vessel, making your intentions early, and very clear so as to avoid confusion.



Q12. You wish to overtake a boat in front of you. Who has right of way, and which side(s) can you overtake on?

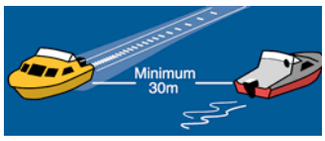


When Overtaking

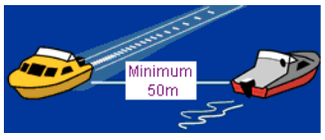
A vessel may overtake on either side so long as it is safe, and is required to keep out of the way of the boat being overtaken until clear ahead, such that its wash and wake does not interfere with the boat being overtaken or any other vessel. All rules on wake and wash apply.

Always apply common sense and seamanship by giving them a wide berth.

NSW Regulation: Min vessel passing distance 30 metres if travelling at speed greater than 6 knots.



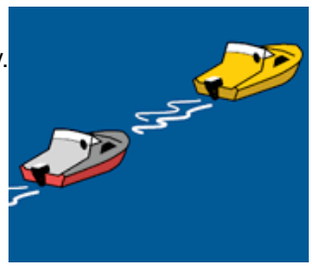
VIC Regulation:
Min vessel passing distance 50 metres if travelling at speed greater than 5 knots.



When is a boat considered to be an overtaking vessel?

When a boat is gaining on a vessel ahead and is approaching from a direction that is more than 2 Points (22.5 degrees) abaft of the beam of the vessel ahead then an overtaking situation exists. This applies to both sail and power.

Q13. You are driving the yellow vessel.
What should you do?



Maintain course and keep a lookout. You have right of way.

Always give way to larger recreational boats that may be restricted by draft or have difficulty manoeuvring.

Always give way to and keep well clear of any commercial vessel carrying out operations.

That includes rescue, commercial fishing, ferries, diving, all the way up to container ships and the like.

Q14. Your power boat is approaching a yacht on its starboard side. What should you do?

Recreational powered vessels give way to all sail vessels, wind surfers, kite surfers, etc

Sailing Vessels and Sailboards

When each has the wind on a different side, the vessel which has the wind on the port side shall keep out of the way of the other.
When each has the wind on the same side, the vessel which is to windward shall keep out of the way of the vessel which is leeward.
When a sailing vessel with the wind on it's port side sees another sailing vessel to windward and cannot determine with certainty whether that sailing vessel has the wind on its port or its starboard, it shall keep out of the way of that other sailing vessel.

2.3 Distance & Speed Regulations Overview

Always travel at a safe speed. A safe speed is where proper and effective action can be taken to avoid a collision and the vessel can be stopped in time to avoid any danger that arises suddenly.

Safe speed considerations include:

- **Visibility** – drive slowly in rain, fog, mist, smoke and glare. Take special care at night as potential hazards may not be lit or be easily seen and the background lighting may be confusing.
- **Other boats** – slow down in busy areas and when near moored or anchored boats, working boats and larger ships that may have difficulty manoeuvring.
- **Navigation hazards** – slow down in narrow channels, shallow areas and in unfamiliar areas. Water depth can vary and change quickly.
- Be aware that navigation marks may have shifted or been vandalised. Mark lights may not be working.
- **Wind, waves and currents** – may affect the boat's stopping and turning ability. The type of motor, hull and design will all impact on the boat's manoeuvrability.

International Code Flags R over Y:

R Proceed at a slow speed when passing and make no wash.

Y Commercial vessels that require you to slow down when passing so they can safely carry out their work.

QLD

Some Queensland Regulations

Speed limits are enforced on Queensland waters.

Local signage will indicate any applicable speed limits.

In Harbours and Marinas

Marks the Left Limit

Usually at the Ramp

Marks the Right Limit

Unless otherwise signed, **Smooth Waters** are limited to 40 knot speed limit.

Some local waters may be exempted from the 40 knot limit. Check local signage or with local authorities.

Q15. How far should you keep from swimmers, jetties or anchored boats, when travelling at speeds in excess of 6 knots in a power boat?

Keep a minimum of 30 metres from all of the above.

Q16. What do you do when taking your power boat near swimmers or anchored boats?

Slow to 6 knots when 30 metres distant. Approach with due care and courtesy.

Q17. What is the speed limit in a harbour, or marina?

Signs usually indicate “6 knots, No Wash”. Respect others and travel slowly without causing wash.

Q18. What do you do if you see a diver’s flag?

A divers flag (Code Flag A) is white and blue, with blue to the Fly. Keep well clear. Min distance is 30 metres

Q19. When approaching a boat ramp, what should you do?

Slow to 6 knots when 30 metres distant. Approach with due care and courtesy, causing No Wash.

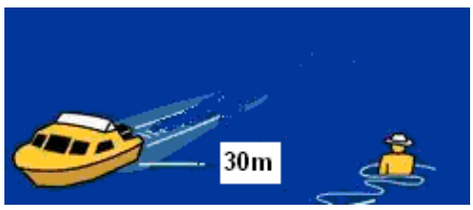
Q20. Unless otherwise gazetted or signed, what is the maximum speed limit on all smooth waters?

40 knots.

QLD Speed Limits

Maximum six knots, and no wash within 30m of:

- boats anchored or moored to the shore or aground
- jetty, wharf, pontoon or boat ramp
- people in the water, surfboard riders, etc



Queensland Waterskiing Regulations

Q21. Can an unlicensed driver drive for water skiing?

No, not under any circumstances

Q22. How many skiers can a boat tow?

Skiers are included in the vessel’s carrying capacity. Therefore answer is as many as Australian Builders Plate states, including driver and observer, and is safe

Q23. Can a skier wear a PFD Type 1?

No, there is risk of serious neck injury. A PFD 2 or PFD 3 must be worn whilst skiing

Q24. What is the minimum age of a water ski observer?

13 years of age.
The observer’s job is to immediately alert the driver if the skier falls, or if the skier signals, or if any approaching traffic from behind. Everyone should be familiar with the skiing signals.

Q25. Where are you allowed to water ski?

In areas which are not prohibited for skiing. Local signage will usually indicate prohibited areas.

NSW Distance Off and Speed Limit Regulations

NSW

Q26. How far should you keep from power driven vessels, moored vessels, land or structures when travelling at speeds in excess of 6 knots or towing a person?

Q27. How far should you keep from a swimmer?

You must keep minimum:

- 60 metres from any person
- 100 metres from a dredge or work barge, if you are travelling faster than 4 knots. Pass astern if passing.

Q28. What is the speed limit in a harbour, or marina?

Speed restriction signs are used regularly. In a No Wash zone, travel at a no wash speed.

Q29. What do you do if you see a diver's flag?

The diver's flag must be shown when people are engaged in diving activities from a vessel. It is recommended that this flag be shown when diving/ snorkelling from shore. Keep minimum 60 metres away. When you see this signal slow down, keep well clear and keep a proper lookout.

It is an offence to allow a person to bow ride, or to extend any part of their body over the bow, side or stern whilst underway.

NSW Water Skiing Regulations

Q30. Can an unlicensed driver drive for water skiing?

The driver must have a General Licence if operating at 10 knots or more

Q31. How many skiers can a boat tow?

Maximum of 3 skiers can be towed at once. Min tow rope length 7m

Q32. Does the skier need to wear a PFD?

Yes, an approved PFD must be worn whilst skiing

Q33. What is the minimum age of a water ski observer?

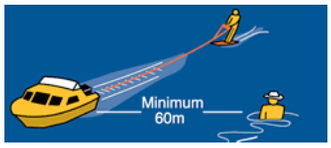
16 years of age, or the holder of a General licence. The observer's job is to immediately alert the driver if the skier falls, or if the skier signals, or if any approaching traffic from behind. Everyone should be familiar with the skiing signals.

Q34. Where are you allowed to water ski or wake boat?

In areas which are not prohibited for skiing or wake boating. Local signage will usually indicate prohibited areas.

Q35. When towing a skier, what do you do when taking your power boat near swimmers in the water?

You must keep 60 metres from a person in the water, if you are towing a water skier or aquaplaner.



VIC Victoria Distance Off and Speed Limit Regulations

Q36. How far should you keep from another vessel when travelling at speeds in excess of 5 knots?

You must keep:

- 50 metres from any person or anything in the water when you are travelling at 5 knots or more
- On coastal waters or bays keep 200 metres from the waters edge if you are travelling faster than 5 knots.

Q37. What is the speed limit in a harbour, or marina?

In many areas, speed restriction signs are used for safety reasons. In a marina, travel at a no wash speed.

Q38. What do you do if you see a diver's flag?

Keep 100 metres away when travelling at greater than 5 knots.

Victoria Water Skiing Regulations

Q39. When towing a skier, what do you do when taking your power boat near swimmers in the water?

You and the skier must keep 50 metres from a person in the water, if you are towing a water skier or aquaplaner.

Q40. Can an unlicensed driver drive for water skiing?

The driver must have a General Operators Licence.

Q41. How many skiers can a boat tow?

Maximum of 3 skiers can be towed at once

Q42. Does the skier need to wear a PFD?

Yes, an approved PFD must be worn whilst skiing.

Q43. What is the minimum age of a water ski observer?

12 years of age.

The observer's job is to immediately alert the driver if the skier falls, or if the skier signals, or if any approaching traffic from behind. Everyone should be familiar with the skiing signals.

Q44. Are any time constraints placed on water skiing?

Skiing is only permitted in the period from one hour before sunrise and to one hour after sunset.

Q45. Where are you allowed to water ski?

In areas which are not prohibited for skiing. Local signage will usually indicate prohibited areas.

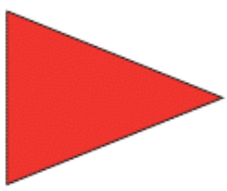
ON WATER SIGNAGE

The waters between these buoys are unrestricted to allow the picking up or dropping off of a waterskier

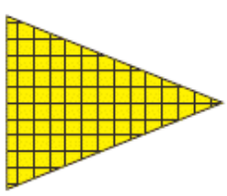
The yellow buoys may be placed because of local or general requirements for slower speeds

These unmarked buoys are used to signify regatta areas, hazards, channels, etc

OTHER ONSHORE SIGNS



No Boating



Access Lanes

Special Purpose
(water skiing, PWC, kite surfing, etc.)

2.4 Vessel Lights

Navigation at night requires special care. It is essential for you to see other boats and have them see you. A white light was the first navigation light and dates back hundreds of years. It is still used today as the main international aid to navigation.

White lights were traditionally used to mark all vessels and hazards you should avoid, that still applies today.

Around 200 years ago, a white light was displayed at the stern of ocean-going vessels and is still known as the Stern Light.

On a moonless night it is not possible to see the silhouette of objects at sea and on land.

The FIRST rule at night is:
You must keep clear of or give-way to any white light because it will be attached to something you don't want to run into!

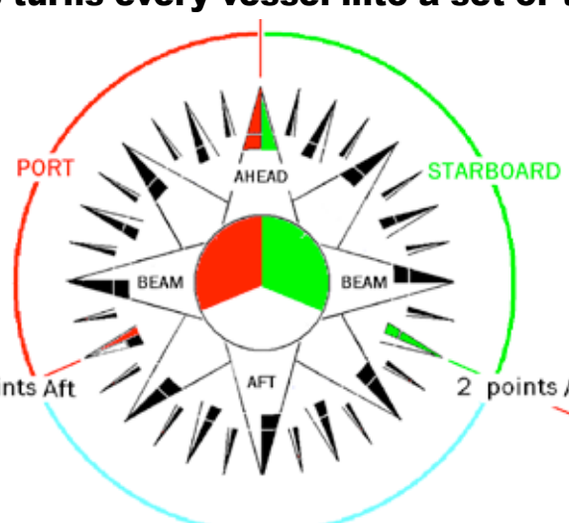
Port and Starboard Navigation Lights

About 150 years ago red and green lights, called port and starboard navigation lights, were added at the forward end of large sailing vessels to indicate size and direction of travel.

The arc of visibility of these lights was determined by reference to the peripheral vision of the helmsman. When you are in the helm position with your front facing the bow you can turn your head and eyes fully to the left or right and see from the bow to 2 points (22.5deg) aft of the beam on either side. Any vessel approaching you from aft of your peripheral vision (2 points aft of the beam) will see your white stern light and must keep clear.

In effect, at night, this turns every vessel into a set of traffic lights

All vessels in your
Port Peripheral Vision
See your **RED** navigation light
RED tells them to **GIVE-WAY**



All vessels in your
Starboard Peripheral Vision
See your **GREEN** navigation light
GREEN tells them
PROCEED with Caution

All vessels aft of your stern, that is 2 points aft of your beam, see a WHITE Stern light and must KEEP CLEAR

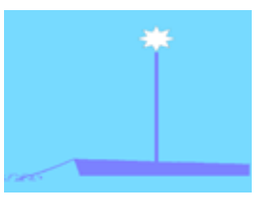
NIGHT LIGHTS Cont.

Q46. What lights are displayed by a travelling (includes drifting) power boat between sunset and sunrise, and in restricted visibility?

Sidelights (Port and Starboard), and either an all-round white light, or a stern and masthead light.

Q47. If you're at anchor at night, what lights should be displayed?

All vessels at anchor must show an all round white light only.



Q48. What lights are displayed on a row boat, or a sailing boat less than 7 metres?

A torch or lantern showing a white light, ready to display in time to prevent a collision.

Q49. What lights are displayed on a sailing boat greater than 7 metres?

Sidelights (Port and Starboard), and a stern light. In addition, two all round lights in a vertical line, red over green, may be shown at the top of the mast.

Q50. You're out at night and see a red non blinking light 400 metres ahead off your left bow. What is It?

We are seeing the port light of a sailing vessel. It must be a vessel under sail, as we cannot see a white all round light, which is a requirement of all powered vessels. Power must give way to sail in a crossing situation.

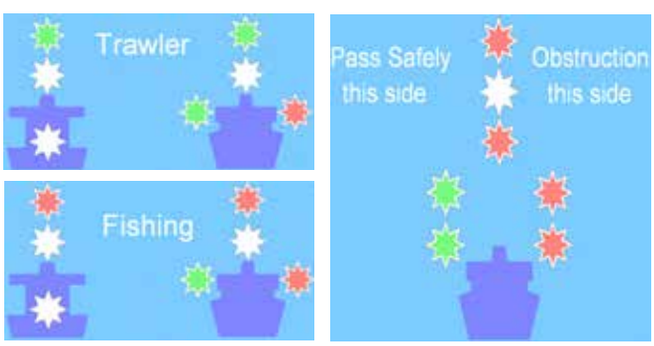
Q51. On Sydney Harbor you see a ferry displaying an orange diamond. What does this mean?

The orange diamond signifies that this commercial vessel has priority over sail. Keep clear.

Q52. You see a vessel approaching which is displaying normal navigation lights, plus a flashing yellow light. What is it?

The vessel is a Jetcat or Rivercat. These vessels normally display the flashing yellow light when travelling at planing speed.

2.5 Other Commercial Vessel Lights



Q53. What would you do if you came across any vessel displaying these lights?

2.6 Sound Signals

Sound Signal remembrance hint: SPA

S = Starboard	**1 short blast**
P = Port	**2 short blasts**
A = Astern	**3 short blasts**

5 = What are you doing/ Get out of the way?

Q54. You hear 3 short blasts from another vessel. What does it mean?

Larger vessels sound three short blasts when they are reversing or stopping

Q55. You hear 5 short blasts from another vessel. What does it mean?

Larger vessels sound 5 short blasts when they are unsure of your attentions, or require you to provide them clear passage.

2.7 Day Shapes

Commercial vessels also use our waters. Some of the day shapes and lights they show are depicted in the diagrams below. Give way and keep clear of all commercial vessels.

Boats restricted in their ability to manoeuvre

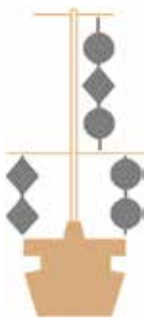
Used by boats engaged in servicing navigation marks, towing, underwater operations, cable laying.

Q56. If you see a vessel displaying a black ball over a black diamond over a black ball, what does it mean?

Commercial vessels, due to the nature of their work, may be restricted in their ability to manoeuvre. A commercial vessel displaying these shape is asking you to keep clear.

Boat engaged in underwater operations or dredging :

Must display day shapes and lights to indicate it is restricted in its ability to manoeuvre. If there is an obstruction on one side, it should also carry two black balls or two all round red lights on the side of the obstruction, and two black diamonds or two all-round green lights on the side where boats should pass.



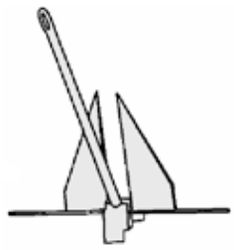
Q57. You are approaching a dredge in a channel, which is displaying day shapes to indicate that one side of the dredge is blocked for passing. What are the shapes, and how do you know which side to pass?

The dredge would display two vertical black diamond shapes indicating the side to pass, and two vertical black balls indicating which is the obstructed side.
Pass on the side of the diamonds.

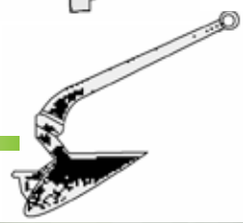
2.8 Anchoring

Anchors are important safety equipment. Even if you do not plan to use them, anchors are imperative if a boat breaks down. An anchor and drogues will keep the boat in the one location or reduce the rate of drift until help arrives. These are types of anchors which are generally used for recreational boating:

Danforth
for sand and mud bottom

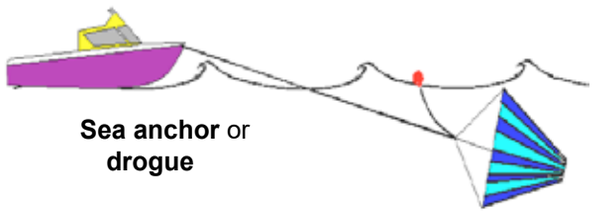


Plough/CQR
for larger boats



Sarca
Suitable for most bottom types and for small and large vessels

Reef
for rocky and reef areas



Sea anchor or **drogue**

A Danforth, or a Sarca anchor, would be more reliable than a reef anchor to hold a 4-metre aluminium boat on a sandy river bottom.

Precautions before anchoring:

- Select a suitable anchorage, allowing for conditions, traffic, weather, swinging room, bottom type, signage, channels etc
- Display anchor light (all-round white light) by night and in poor visibility

When dropping anchor:

- Approach slowly into wind or tide
- Stop vessel and gently go astern
- Let out plenty of anchor line and check your position regularly to ensure anchor not dragging
- Length of anchor line should be 3 times depth of water in calm conditions and 5 times depth in choppy conditions, plus an allowance for the rise of tide
- Once anchored securely, then turn engine off

When retrieving anchor:

- Start engine first
- Go gently forward up to anchor
- Untie from cleat
- When anchor line vertical engage neutral and retrieve anchor
- Stow and secure anchor

Most anchoring problems can be avoided by the following:

Use an anchor of sufficient size for boat. The manufacturer or your local dealer can advise what size anchor you need. Use an anchor in accordance with the type of bottom to which you're anchoring. Reef anchors don't work very well on sand bottoms.

Sufficient length and weight of chain is most important. Chain is used to keep the direction of pull at a deeper angle on the anchor. Boat size, currents and conditions will impact on the size and weight of chain you use. It's better to have too much chain, rather than not enough.

Let out enough rope so that anchor will hold. Usually at least three times the amount of rope as the depth being anchored in is suitable. Tidal height, flow, and sea conditions may increase this to five times or more.

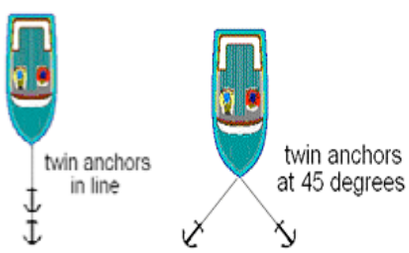
The anchor rope must have a thimble to prevent the rope from chafing on the shackle. A rope without a thimble can be worn through, leaving your boat at the mercy of wind and tide.

It is the Master's and Owner's responsibility to check and maintain anchoring equipment, ropes, and all berthing equipment.

2.9 Heavy Weather Anchoring

The diagrams below illustrate anchoring options for rough weather and overnight situations, where the conditions may be such that 1 anchor only, cannot be trusted to hold.

Especially on overnight trips, always be prepared for bad weather, and have at least one spare anchor & rope in the boat.



2.10 Overnight Anchoring Tips

Many off shore boaties plan weekends and holidays where they camp on an island overnight, and head off shore at first light. This reduces the time to get out to fishing grounds, and enables staying on land and getting a comfortable night's sleep. Anchoring your boat in crystal clear waters in a quiet and protected bay and having a combined boating and camping holiday is one of life's joys, and a great family activity.

If you're staying overnight on land and leaving your boat in the water, here are a few tips.

Theft Management

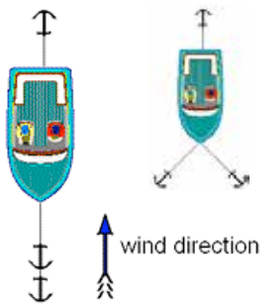
- Take the boat key with you – minimise risk of boat theft
- Take any valuables or gear which you're worried about to your camp. (may include sounders/radio etc).
- In an isolated location, take your safety equipment incl EPIRB with you in case the boat drifts off.

Anchoring in an open bay

- In open bays, anchor your boat far enough off shore so that there's no way it can touch the bottom during the night. Especially important in rougher weather
- Let out plenty of anchor line to allow for rise and fall of tides
- Before dark, keep an eye on the boat to ensure anchor not slipping
- Don't use a stern anchor as you'll always want the bow to face the wind and current
- The most likely time for your anchor to slip is at the turn of the tide, so wander down and have a look – day or night, to check if all okay.
- Keep a weather eye on the wind strength and direction, and check your boat if it changes
- In rough weather, string two anchors out; either in line one after the other, or on separate anchor lines and strung out at 45 degrees to the bow. This doubles the holding power.

Anchoring in a calm inlet where there is no current or waves

- To keep the boat near the shore, anchor with 2 anchors, 1 bow and 1 stern, with the bow out to sea
- Work the tides so that boat will be floating when you want to use it
- If rough weather/storm coming, anchor off shore with two bow anchors (and possibly a stern anchor)



3.1 Introduction to Charts

A chart or map of the area is an important safety item to carry on board. It allows the Master to obtain knowledge of the area to be travelled, and indicates the navigable channels and hazards. Charts are produced in Australia by the Hydrographic Office and sold through licensed chart agents along the coast.

Australian charts are kept up to date by the issue of Notice to Mariners, a Hydrographic Office publication available to the Mariner. Updates should be recorded on the chart and the correction number and year noted on the chart in the bottom right hand corner. Coastal stations broadcast urgent information, often as a Securite message

Marine authorities produce local maps for many inland waterway and coastal locations. Likewise many rescue organisations produce maps that often have detailed location names. The state marine authorities issue navigational warnings on marine radio.

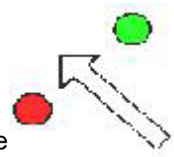
Title	Depths	Legend	IALA Buoys
Scale	Buoy Lights	Reefs	Lighthouses
Wrecks	Leads	Tidal flows	Compass Rose
Currents	Latitude Lines	Anchorages	Longitude Lines
Ship Lanes	Buoyage arrows		

3.2 Chart Features

Maritime maps and Admiralty charts have these features:

Direction of Buoyage arrows indicates the direction towards 'Home Port' for Lateral Marks

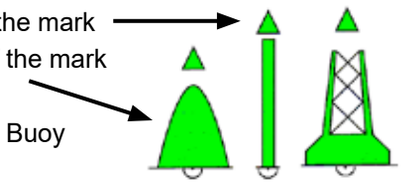
i.e. If travelling in the same direction as the arrow, keep Starboard Marks on your starboard (right)



If travelling in the opposite direction to the arrow, keep Starboard Marks on your port (left)

IALA Marks have three means of identification

- Day shape atop the mark
- Colour pattern of the mark structure
  i.e. Pole, Spar or Buoy
- the light colour



eg.. this mark flashes a green light at night

IALA marks come in many sizes, some very high, up to 25 meters, while others are quite small such as a 44 gallon drum at a river mouth. They are there for the safety of all vessels.

A vessel must not:

X tie up to a navigation buoy or mark
X anchor or linger near a navigation buoy or mark
X anchor in a navigable channel or shipping lane

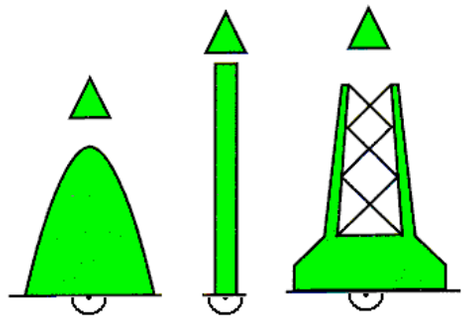
3.3 IALA Buoyage System by Day

There are 5 types of marks in the IALA System 'A' (International Association of Light house Authorities) Each type has variations in size and configuration e.g. floating Buoy or Tower or a Spar or Pole.

Lateral Marks - Port and Starboard Marks

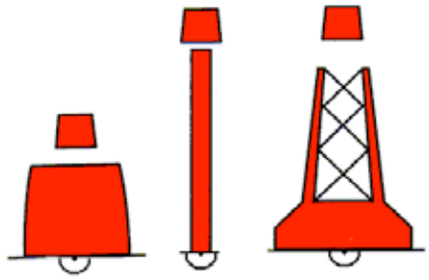
Starboard Marks

- Coloured green
- Triangle (or Cone) top mark
- Flashing green light at night
- Indicates right side of channel when approaching from seaward



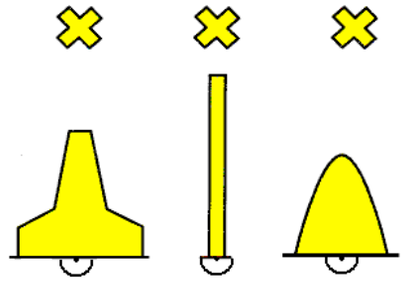
Port Marks

- Coloured red
- Can (square) top mark
- Flashing red light at night
- Indicates left side of channel when approaching from seaward



Special Mark

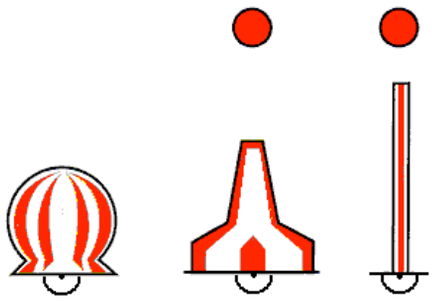
- Coloured yellow
- X top mark if present
- Flashing yellow light at night
- Used to indicate a feature such as channel change in direction or intersection, spoil ground, cable or pipe line. You must consult the chart for more information.



Safe Water Mark

(Remembrance hint: Red and white barber's pole)

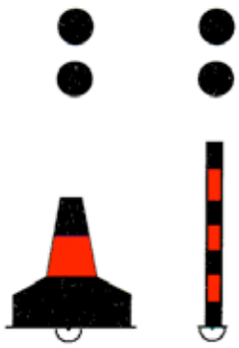
- Coloured white with red vertical stripes
- Single red sphere top mark
- Iso/Occ/LFl10s white light at night
- Indicates there is navigable water all around the mark



Isolated Danger Mark

(Remembrance hint: Red-back spider)

- Coloured black with one or more red horizontal bands
- Two vertical black spheres top mark
- White light at night in groups of 2
- Indicates an isolated danger of limited extent which has navigable water all around it



Cardinal Marks

indicate which side to pass

North Cardinal Mark

- Coloured black band above yellow band
- Double vertical black cones pointing up top mark
- Indicates safe water to the north

East Cardinal Mark

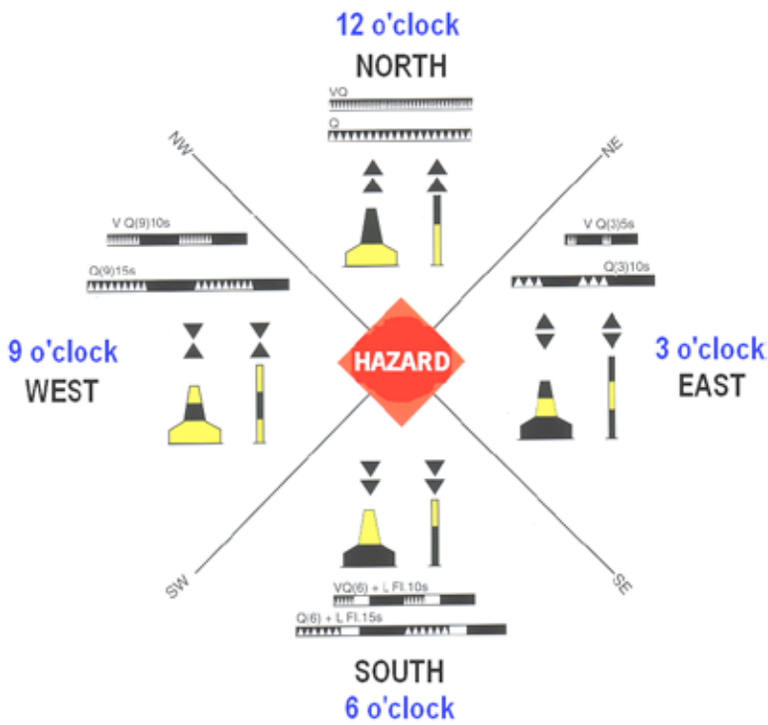
- Coloured black bands above and below yellow band
- 2 cones pointing outward top mark
- Indicates safe water to the east

West Cardinal Mark

- Coloured black band between yellow bands
- 2 cones pointing inward top mark
- Indicates safe water to the west

South Cardinal Mark

- Coloured black band below yellow band
- Double vertical cones pointing down top mark
- Indicates safe water to the south



3.4 IALA Buoyage System by Night

Not all marks have lights. Those that are lit will have a light description adjacent to the symbol on the chart.

Chart Light Examples

Fl G 3s

Means Flashing Green every 3 seconds

QY

Means a Quick Yellow flash (approximately once per second)

Fl G(2) 5s

Means Flashing Green (in groups of 2), every 5 seconds

Fl Y 4s 25m 3M

Means Flashing Yellow every 4 seconds, the light is 25 metres above the high water line, and in clear visibility can be seen for 3 nautical miles.

Where a light's colour is not indicated the default is white.

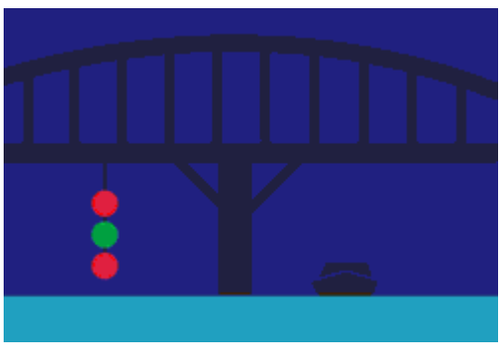
In this example the light emits a long white flash every ten seconds.

CLASS OF LIGHT Chart	Illustration of flashing sequences over a period of time
Symbol	
Fixed (constant light)	F
Occulting (light is On for more time than it is Off – it 'blinks')	
Single-occulting	Oc
Group-occulting eg.	Oc(2)
Isophase (time On and Off are equal)	Iso
Flashing (light is on for less time than it is off)	
Single flashing	Fl
Group flashing eg.	Fl(2)
Long flashing (flash is 2s or longer)	L Fl
Quick (about 1 flash per second)	
Continuous quick	Q
Group quick	Q(3)

Mid Channel Markers

Fixed blue lights of a bridge are identified as mid channel markers and are used to mark the channel between the piers of a bridge.

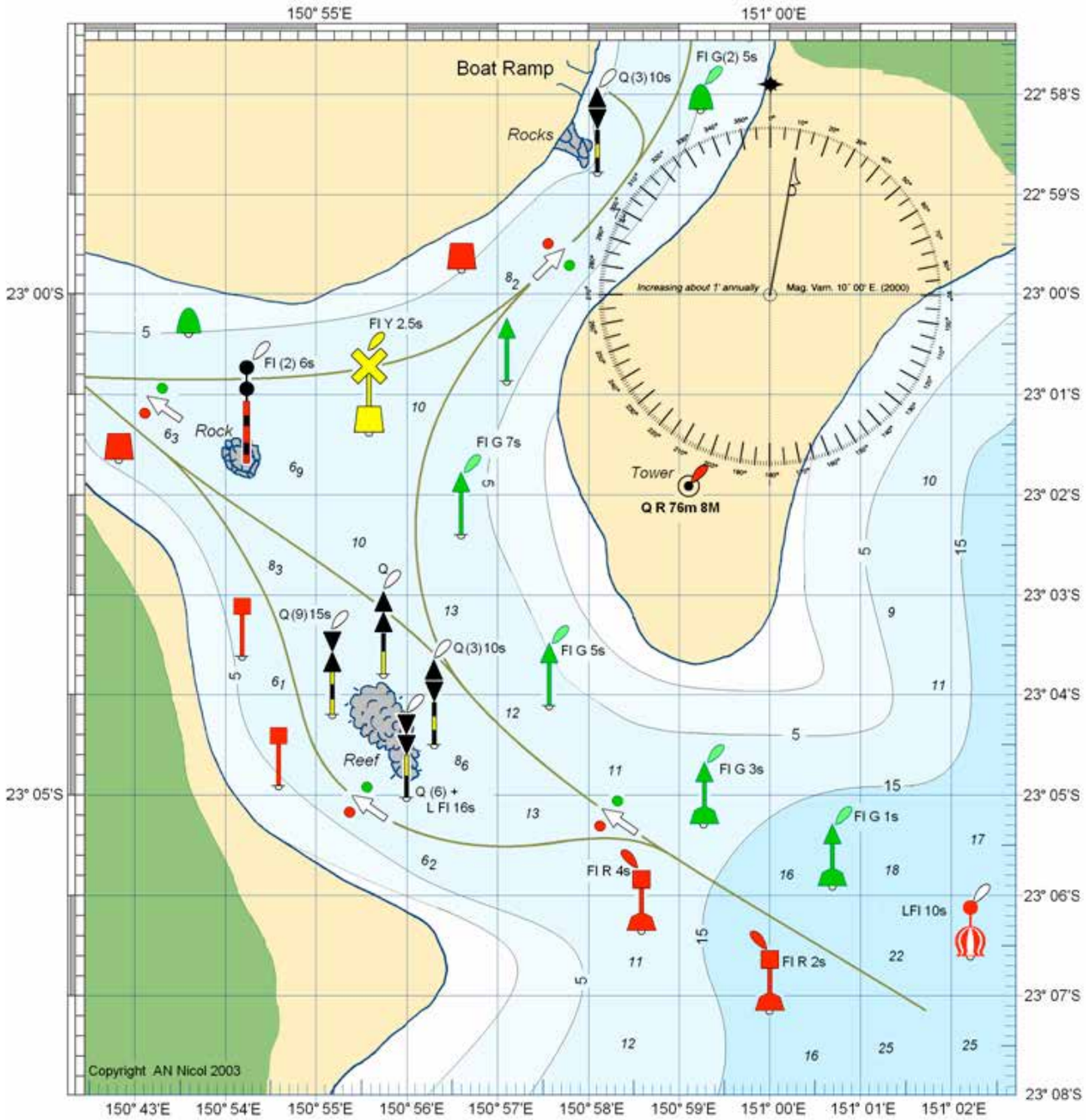
'Port Closed' or 'Channel Blocked' Mark



Lead Marks will be found on a chart and when in line, mark the centre of the channel.

3.5 IALA Buoyage Example

The chart below depicts a typical river system coming in from the ocean.
The river has a side channel heading northwest inland and a main channel heading northeast past the boat ramp.



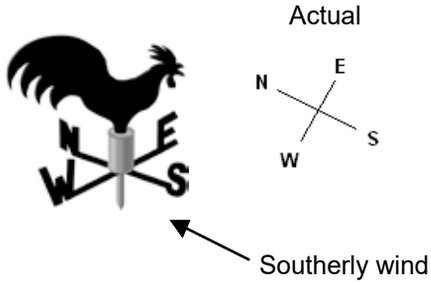
Important points to remember:

- Charts provide an indication only of an area, and do not replace the need to keep a proper lookout for hazards, changed conditions etc
- Marks indicated on a chart may have moved or be missing
- If depth information is missing from a chart, the area has not been sounded
- Lights indicated on a chart may not be actually functional on the Mark itself (broken)
- If you are unsure as to the meaning of a Mark, stop and refer to the chart, or use all possible means at your disposal to navigate safely thru the area
- Sand bars around river mouths frequently shift, and though the authorities frequently relocate them accordingly, the Marks may not necessarily reflect the current deep water channels
- Avoid travelling over shallow weedy areas, which may contain endangered sea grasses

3.6 Weather

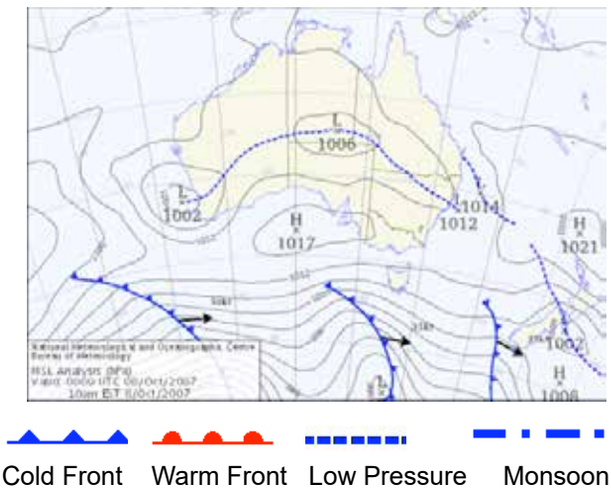
- All Masters have an obligation to check the weather, especially if planning an off shore or open water trip.
- Many a boat has been lost because the weather turned bad, and the boat was not able to cope with the rough conditions.
- The ideal powerboating offshore conditions are when there is no wind, and no swell. Unfortunately, these conditions occur rarely, and skippers going off-shore should plan their trip around the weather conditions expected to occur on the day.
- Generally, for most skippers, if there are white caps visible from shore, then it is not worth while venturing out in a small craft. White caps are wind driven waves, and usually occur when the wind is around 15 knots. It may be possible to shelter from rough conditions behind an island or headland, but if these shelters are not available in your area, then call the trip off, or alter your trip to a day on the river or dam, rather than going off-shore.
- In a small planing power boat it is always easier to travel with the wind, rather than into the wind. So when planning a trip off shore, plan to head out early and into the wind first up, so that on the way home later in the day when the wind has picked up, you will be heading home travelling in the same direction as the wind and the waves. This is the key to off shore boating. Always plan your trip around the expected conditions of the day.
- Strong wind or current from side quarters will tend to drift your vessel off course.
  This affect needs to be taken into account:
  - in bad visibility
  - at night
  - when operating offshore
  - in narrow channels
  - in confined areas with other vessels/obstacles
- In rough weather, you can expect your engine's fuel consumption to increase by 30%, so carry plenty of extra fuel for all off-shore trips.
- The Bureau of Meteorology issues a strong wind warning when the winds are expected to reach 25-33 knots. Check your insurance policy. Most insurance companies void their cover if a boat is taken into open waters when a strong wind warning is issued.

Winds blow from the direction indicated.
For example, a southerly wind blows from the south.



Daily Weather Conditions, caused by the daily pattern of large varying land temperatures and more constant sea temperatures, are categorised by the following typical situation:

- Light Offshore breeze early morning
- Stronger Onshore (Sea breeze) late morning/afternoon
- Lighter breezes in the evening



Low-pressure systems (rotating clockwise) tend to move southwards into Queensland during summer, and move northwards towards Asia during winter.
A cyclone is an intense low-pressure system.

High Pressure Systems (rotating anti-clockwise), and causing South Easterly winds along the East Coast of Australia, tend to move northwards into New South Wales and Queensland in winter, and move southwards as summer approaches. High-pressure systems tend to move across the continent from West to East, generally following a Perth to Melbourne direction.

Sources of Weather Updates

- The Bureau of Meteorology web site www.bom.gov.au
- Other sources include TV/Radio/ Volunteer Marine Rescue
- Telephone

Your marine radio can be used whilst at sea to monitor any weather alerts or changes

3.7 Offshore Boating

Offshore boating requires extra care, knowledge and experience. All offshore trips require careful planning. They should be treated with caution. If you are new to offshore boating, join a club, or get an experienced skipper to take you out. The further away from shore you are, the further you are from assistance. Adequate communication, safety gear and vessel, are essential.

3.8 Coastal Bars

Crossing a coastal bar is a hazardous activity, where many lives have been lost. If planning to cross a coastal bar there are a number of things to check.

These include swell size, tide, the bar, and your boat.

As skipper of the boat you have a legal and moral responsibility for your passengers and craft, so always plan for an emergency on the bar. Emergency planning includes for such things as breakdown, swamping, being overturned, and losing a person overboard. Your lack of planning or inexperience may cause personnel from rescue organisations to endanger themselves whilst attempting to rescue you.

One of the more dangerous times to cross a bar is on an outgoing (ebb) tide. Each state now requires all occupants to be wearing an approved PFD Type 1 or life jacket when crossing a bar.

3.9 Tides

A tide is a cyclical rise and fall of sea level. The extent of the rise and fall and the frequency with which it occurs varies from place to place. Some places have virtually no tides. Others have one high and one low tide in a day.
Mostly tides comprise two high and two low tides each day.
Spring tides occur on New and Full moons, the effect is to increase high and decrease low tides.

Neap tides occur when the Sun, Moon and Earth are at right angles, first and last quarters, the affect is smaller high tides and bigger low tides.

There is a 28 day pattern of tides – Spring – Neap – Spring – Neap that occur at New Moon – 1st Quarter – Full Moon – 2nd Quarter.

The time lapse between a high water and a successive low water (or between low water and a successive high water) is known as the tidal period or the period of the tide and is generally around 6 hours.

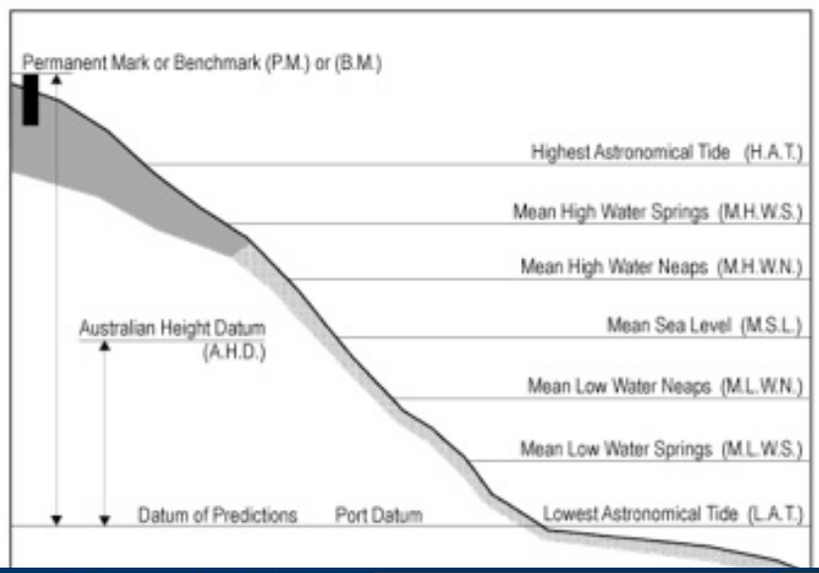
Tides

Tide heights are added to chart depths to give total water depth.

eg. If a chart showed the depth of a location to be 5 metres, and the tide height at the location was 2 metres at the time we were travelling over it, then the total depth at that time of us travelling over the location would be 7 metres.

Secondary places - add or subtract the appropriate hours and/or minutes to the times predicted for the primary port, to obtain the times of high and low tides at secondary places.

eg Noosa Beach is -1.30 from times at primary port Brisbane Bar



Australian Government
Bureau of Meteorology

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Brisbane Bar - Times and Heights of High and Low Waters
November - 2013

Sunday 24		*Monday 25*		*Tuesday 26*		*Wednesday 27*		*Thursday 28*	
Time	Height	Time	Height	Time	Height	Time	Height	Time	Height
0102	1.58	0158	1.55	0309	1.57	0424	1.67	0529	1.82
0654	*0.67*	0749	*0.76*	0858	*0.82*	1014	*0.82*	1127	*0.77*
1330	2.06	1420	1.99	1518	1.95	1621	1.93	1721	1.94
2010	*0.70*	2107	*0.69*	2207	*0.64*	2306	*0.55*		

4.1 Trip Planning

When planning any boat trip, the plan needs to include the following assessments:

- What is the distance and duration of the trip
- How much fuel will be used
- How much spare fuel to carry
- What safety equipment is required, and what extra safety gear will be carried
- What is the weather condition expected
- What is the wind/tide/swell doing
- Is the boat safe for the trip – including working navigation lights and fitness for purpose
- Is the engine serviced and ready for the trip
- Is it's oil reserve sufficient
- Are the passengers and crew ready, comply with carry capacity, and properly briefed for the trip
- Are provisions such as food and water on board
- Will the tides be right for passage, and for crossing a bar if required
- What is the nearest safe haven if the weather turns bad
- Will we log in with the Marine Rescue service on departure, or inform an appropriate person (eg family member/friend/neighbor of our trip plan and scheduled return, and advise them of what action to take if we are overdue. Remember to inform them of return.
- Are the tools and any spare parts on board
- Is there a medical kit on board, and someone with first aid training

All planning needs to be done on the basis of self-sufficiency..ie.. if something goes wrong, what is the backup plan to solve the problem.

Trip Time Example

Trip Time= $\frac{\text{Distance}}{\text{Speed}}$ eg $\frac{\text{20 Nautical Miles}}{\text{10 knots per/hr}}$ = 2 Hrs

4.2 Pre-Departure checks - Passengers

- Have you identified the location and accessibility of safety equipment to all personnel on board
- Have you explained the usage and function of safety equipment to all personnel on board
- Have you explained safety aspects of the vessel to all personnel – such as seating requirements, movement whilst underway etc
- Have you enquired if any on-board personnel has any special medical or dietary requirements, or as to their swimming ability or boating knowledge
- Have you explained procedures to deal with an emergency situation on board – eg order of command, second in command, communications to rescue services and other vessels
- Have you explained how to identify your position in case of emergency – eg chart, GPS
- Have you explained where the First Aid Kit is located and how to assist an injured person
- Have you explained the procedures for abandoning the boat, including donning a PFD, communicating nature of emergency and vessel position with rescue services or other vessels, flares, EPIRB, drinking water, provisions and clothing, deployment of anchor and sea anchor, staying together, and other information relevant to the area and type of boating
- Have you explained if in cold water, limit body heat loss by assuming the Heat Escape Lessening Posture (HELP) and do not remove clothing.
- Have you explained the need to cancel any emergency broadcast once the emergency has ceased
- Have you explained how to recognise distress signals from another vessel and an appropriate action plan. This plan will be based on factors such as your vessel's capacity, the area, the conditions, and the nature of the distress, whilst at all times maintaining your vessel's safety.

4.3 Emergency Management

If you have never been on a boat that has broken down, your turn is still coming. The more often you go boating, the odds increase that you will eventually suffer a breakdown. Therefore all planning needs to be done on the basis that it might be this trip on which you break down. With a backup plan already in place, the situation becomes less stressful for both you and your passengers.
The nature of the emergency must first be identified.
This must be communicated to all personnel on board.
Any actions you wish personnel to perform to combat the emergency need to be communicated to them – eg.. bail!
Thereafter the appropriate distress signals or emergency management procedures can be enacted.
Your highest priority in combating an emergency should be the safety and protection of all persons on board.
In the case of a fire on a small vessel, this might mean having to make an 'abandon ship' command.
Your ability to manage an emergency comes back to how prepared you are and what safety and other equipment you have.
You should maintain regular communication with rescuers during the emergency, and once the emergency ceases, all personel on board, and any rescue services or other vessels with which emergency communications had been established, need to be advised.
For example if you have lost a person overboard, you should immediately contact the rescue services so an immediate search can be commenced. If you thereafter locate your person, inform the rescue services.

4.4 Let Responsible Person Know

Let a responsible person know:

- Your trip plan
- What to do in event of your non-return at a certain time

This takes the responsibility from them and leaves it with you – the Master.

These trip cards are available for free at marine outlets and VMR's

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: am/pm (please circle)

Number of people onboard (including me):

Weather expected:

Keep a whiteboard marker handy to enter fresh trip details and **ALWAYS** inform a relative or a friend of your boating plans by leaving them with this card. 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

NOTICE TO SKIPPERS

Please keep this information up-to-date.
It will greatly assist in the event of a search for you and your vessel.

SKIPPER'S DETAILS

Name:

Address:

Phone – Home: Mobile:

VESSEL DETAILS

Boat Name: Type/Make:

Hull Colour: Deck Colour:

Length: Registration No:

ENGINE TYPE

☐ Diesel ☐ Petrol ☐ Other

☐ Inboard ☐ Outboard ☐ Size of Motor

COMMUNICATION AND SAFETY EQUIPMENT ONBOARD

Radio: ☐ 27MHz ☐ VHF ☐ HF

EPIRB (406) Carried: ☐ YES (Expiry Date: / /) ☐ NO

Flares Carried: ☐ YES (Expiry Date: / /) ☐ NO

CAR DETAILS

Registration:

Type/Make:

Colour:

TRAILER DETAILS

Registration:

Type:

4.5 Mechanical Breakdown

The following points should be considered in preparation for managing a mechanical breakdown

- Is the vessel in immediate danger (being swept onto rocks, into path of oncoming vessels etc)? If so, use appropriate safety gear (anchor etc) to negate danger
- Are you able to identify the cause of the fault (fuel/spark/engine/steering, etc)
- Are you able to remedy the fault with appropriate action or tools
- Are you likely to be rescued by a passing boat
- How will you flag down a passing boat (V sheet/waving arms/whistle etc)
- Where is the closest volunteer rescue organisation
- How will you contact that rescue organisation
- Will somebody report you as missing if you are overdue
- Do you have local knowledge of your position, or a chart or GPS on board so as to be able to inform rescuers of your location
- Do you have sufficient water and provisions on board whilst awaiting rescue
- Before departing, have you planned for possible worsening weather conditions during a breakdown

Remember that if someone has to rescue you, they may have to endanger themselves in the process. Think and plan ahead, for the safety of everyone concerned.

4.6 Medical Emergency

The following points should be considered in preparation for managing an onboard medical emergency:

- Is there a First Aid kit on board
- Does anyone on board know First Aid
- Is there a way to contact aid if the boat is unable to be moved (e.g. back injury)
- Are you aware if any of your passengers or crew have a medical condition. Do they need special medication which needs to be available on board

If you have not yet done a course in First Aid, there's no better time than now to do it.

4.7 Assisting Others in Distress

- If you notice another vessel's distress signal, whether that be a flare, V sheet, persons waving arms, reflective mirror, light signals, radio call etc, you have an obligation to assist
- Your first priority is not to endanger your vessel or your personnel
- Your next priority is to identify the assistance the vessel in distress requires, and the best way to help them. eg. If they have mechanical failure:-
- Is there a way to remedy the failure. Often VMRs go to callouts and it's the simple things such as people not realising their kill-switch is engaged
- Is your vessel capable of towing the other vessel to a safe port. A 4 metre tinnie should not tow a 12 metre catamaran at anything above idle speed, due to the strain the tow creates. Tow cleats have a weight rating.
- Do you have sufficient fuel to perform the tow
- Are their wind/tide/weather affects to consider, such as an approaching storm or strong current
- Is the best way to help, simply communicating the distress to a rescue service, and providing personnel assistance as required – eg mother with young children taken to shore

4.8 Person Overboard

- The Master must be immediately advised, and the person in the water must be kept in constant sight
- Immediately deploy a flotation device or life ring if the person is struggling in heavy clothes/gear etc
- If a person is falling off the side of the vessel and the Master notices, the vessel should immediately be turned towards the side where the person has fallen. This will push the stern and propeller away from the person in the water.

To retrieve the person:

- slowly approach into the wind
- engage neutral when close enough
- switch off engine if person is to climb over the stern, or if propeller danger exists
- do not enter the water to assist unless as a last resort. You are best able to assist by aiding them from the vessel, rather than being in the water with them

4.9 Capsize

Vessels can capsize for a number of reasons including:

- Overloading, allowing water to come over the sides
- Uneven weight distribution of persons or equipment
- Waves over the bow, sides or stern

If your boat capsizes:

- stay with the boat. Most boats have at least some level of flotation, and a swamped or capsized vessel is easier to spot from the air
- take a head count and ensure all persons are accounted for
- check for injuries with all persons

If a small runabout, you may decide to attempt righting the vessel and bailing it out. Do this by grabbing the keel and rolling the boat towards you. Maintain the roll until the boat is upright.
It may be possible with a medium size vessel to run rope(s) under the gunnels, and by standing on the upturned hull and leaning backwards, establish enough ballast to roll it upright.

4.10 Fire on Board

Any mechanically powered vessel or vessel equipped with a stove can experience a fire, so all Masters need to have fire management planning in place.
Fire prevention is far better than fire management:

- keep the bilge and engine area free of oily rags, paper, and any other combustible material
- ensure all electrical wiring is in good condition
- ensure all fuel lines and fuel storage systems are in good condition and stored away from batteries or any other electrical device likely to give off a spark
- don't allow smoking on or near fuel tanks
- have a suitable fire extinguisher on board, and know how to use it
- regularly check for fumes around fuel systems and fuel lines, gas lines and gas powered appliances
- use only fuel systems and gas powered appliances which are approved for marine use
- wipe up all spills before starting engine

4.11 Engine Maintenance & Pre-Start Checks

Your engine should be serviced by a qualified person In accordance with the manufacturers recommendations, or sooner if the engine shows any signs of malfunction. Do not wait for something to happen on the water.
Before starting a vessel's engine you should check

- That the manufacturer's operating procedures were being observed
- That it was safe to do so, taking into account people's proximity to moving parts, depth of water, obstructions, cooling systems, fuel systems, exhaust systems and fumes, ventilation
- That the vessel's battery and electrical system was safe, and ready for the engine to be started
- That any gas appliances were safe, and ready for the vessel to be started
- Bilge water levels – just to be sure the bungs or a sea-cock havn't been left open
- When running the engine, check that the kill-switch functions properly
- When running the engine, maintain awareness of all systems including oil and cooling.

eg if running an outboard motor, keep regular watch on the 'tell tail'

a

4.12 Refuelling

The danger of fire or explosion increases at times when a boat is being refuelled.
The following safety precautions should be adhered to:

- Turn off all electrical and gas appliances
- Don't smoke
- Remove any passengers off the vessel to a safe distance
- Avoid any spillage of fuel. Have an effective transfer method pre-organised such as a jiggle-syphon
- Start engine before passengers re-board

4.13 Fuel Consumption

What factors are likely to increase a vessel's fuel consumption?

- Travelling at high engine revolutions
- Having the vessel heavily loaded
- Travelling in rough sea conditions, or towing

4.14 Launching

Prepare your boat in the car park, not on the ramp. Prior to launching at the boat ramp: -

- Bungs in
- Battery connected
- Fuel ok/oil ok
- Weather ok/safety gear ok
- Water/money/food/phone/clothing / provisions on boat
- Check for overhead wires if launching a trailer sailer, before moving the rig
- Any tie-downs or brackets/lighting boards removed and stowed
- Winch handle stowed after use
- Have a line ready from the bow of the boat so you can control the boat once it's floating
- Walk carefully down a boat ramp you've never tried before. It may drop off or be slippery. Boat ramps are normally slippery. Do not wear thongs etc
- Back the car down so as to float the boat's stern, but try to keep the trailer axles above the water line
- Release the winch and launch the boat slowly, and using the bow line, drag the boat away from the ramp to the beach
- Remove your car and trailer from the ramp

4.15 Retrieving

- Back the trailer in so as to keep the axles dry
- Maneovre the boat onto the trailer using bow and/or stern lines
- Connect winch cable to boat and engage the winch lock
- Winch boat onto trailer
- Connect safety chain from trailer to boat
- Move the boat and car to the car park away from ramp
- Remove the bungs and prepare the rig for towing
- If there is mud or slime on the ramp, slow spinning of the car tyres may dry it out and enable the car to claw its way up.
- If you are retrieving with waves, wash, or current affecting the boat ramp, getting someone to hold the boat in line will greatly assist. If water is too deep for them to stand in, run a line from the stern cleat or bollard to a person on the shore so that they can keep boat in line

4.16 Mooring

Picking up a mooring buoy can be achieved by following the process:

When approaching mooring:

- Approach into wind or tide
- Stop vessel at mooring
- Retrieve mooring line by hand or using boat hook, and fasten to bow cleat
- Turn off engine

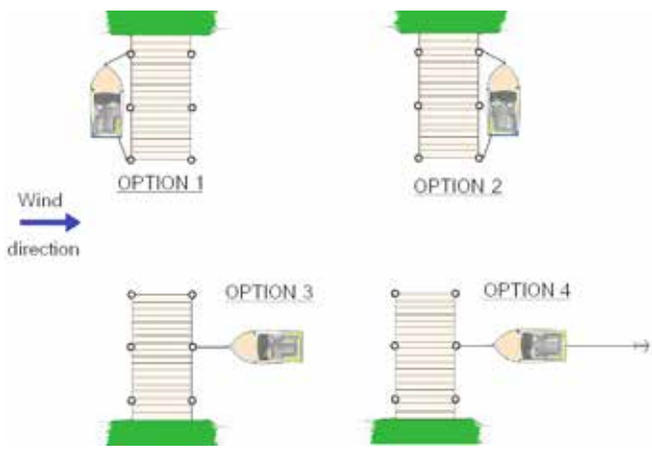
When departing mooring:

- Start engine first
- Go gently forward to remove tension from mooring line
- Untie from cleat
- Throw line clear
- Reverse away or move away at angle to avoid mooring line
- Mooring and berthing apparatus needs to be maintained in accordance with the manufacturer's and/or State government requirements. This usually requires bi-annual or annual inspections by a qualified contractor.
- Also ensure that the mooring or berthing apparatus is sufficient to cater for the vessel's size and for the sea and weather conditions likely to be experienced

4.17 Berthing

The diagrams below depict various ways in which boats are berthed to piers and jetties.

Which do you think is the best way?



4.18 General Advice on Berthing

Approaching a pier, pontoon, wall, or other fixed object

When approaching a fixed object, the potential exists to either damage your boat, or damage the object itself. The effects of wind, current and waves can add further complications to the process.

Some general rules of thumb to make berthing easier:

- Always approach slowly. That way it's easier to do an about turn or fend off your boat if needs be
- Come in against the current and wind so you won't be pushed onto the object and will have much better engine control. Therefore when placing the engine in neutral you will be pushed away from the object, rather than onto it if you've miscalculated your approach. It also means that when tied to the object, your boat will be kept off it and not bashed against it by waves
- Be ready to use reverse gear to stop the boat's forward momentum. Watch out for swimmers, divers, and fishing lines
- Keep a sharp eye out for kids and don't forget that other people enjoy using piers and pontoons Have someone ready to fend off. When coming in slowly, having someone on the bow who can grab the pier or step (never jump) on to it with a bowline will make berthing easier.

Allow for tides if you are tying to a jetty or pier that is fixed and not rising and falling with the tides. Consider the length of rope required to tie off boat. Tidal movement up to 17 metres occurs in some Australian locations.

That means if you've tied up at high tide and used a short rope, in a few hours time your boat could be hanging vertical!
If berthing to a pontoon, the pontoon will rise and fall with the tide, so you can tie your boat closely without worrying about the above. All marinas are constructed using pontoons.

4.19 Towing the Boat

Before each trip to the boat ramp - check

- Fuel/oil/safety gear/battery charged/canopy secured/ boat key/drinking water/food/mobile phone
- Motor running & secured hull/lights/radio/provisions/ proper clothing/bung plugs/spares/tools/nothing left on hull which will fly off
- Nothing loose in boat which will roll around/fly out
- Anchor(s) secured and functional/anchor line ok/ shackle secured

Check trailer: -

- Lights/bearings/brakes/tyre pressure
- Boat safety chain/U-bolts/springs
- Straps/rollers/winch
- Properly coupled to car/brakes disengaged/chocks removed

Towing home after the boat trip
Before leaving car park - check

- trailer coupling to car secure
- winch cable is tight
- boat sitting properly on trailer
- boat tie downs/engine brackets in place
- bungs removed
- loose gear removed
- battery isolator switch off
- winch handle stowed after use

4.20 Post Trip Maintenance

- Flush motor with fresh water
- Wash boat/trailer/visual check on hull, lights, engine & trailer
- Disconnect battery/turn off isolator switch
- Boat properly stored out of sun if possible
- Trailer brakes not left on, otherwise the callipers can seize onto the disk
- Gear properly washed and stowed
- Fuel venting managed
- Fuel goes off after a period of time, so any old fuel should be disposed of in an environmentally friendly manner
- With the introduction of ethanol based fuels, check with your engine manufacturer as to whether this fuel is safe for your engine

4.21 Off season Vessel and Trailer Maintenance

Simple maintenance can prevent you from breaking down at sea. Even if you're not an expert there are some basic things, which you can do to prevent mechanical, gear, and boating problems. As skipper, it is your responsibility to ensure the vessel is safe:

- Keep and refer to an updated maintenance schedule and log for the vessel, which would include things such as the date the engine was last serviced, the expiry date of applicable safety gear such as flares and EPIRBs, and any other work carried out on the vessel. eg..

Vessel Maintenance Log

Safety Equipment Service & Replace Dates

Flares Expiry Date:
Fire Extinguisher inspect 2009 2010 2011 2012
EPIRB Expiry Date:
First Aid Kit Inspect 2009 2010 2011 2012
Torch Batteries Purchase Date:
Inflateable PFDs Service Date:

Comments:

Motor/Vessel Service Dates:

Date serviced:
Serviced by:
Work performed:
Next service:

Comments:

- Ensure marine battery is charged and in good condition.
- Ensure navigation lights work and electrical cabling is not corroded. Note the corrosion. Terminals should be kept clean, and dry by applying petroleum jelly.

An unsecured battery is dangerous. Batteries should be stowed securely and clamped to the hull

- Ensure no pieces of metal are left sitting at the bottom of an aluminium vessel for any length of time
- Start engine regularly during the off-season and follow manufacturers recommendations
- Work steering, power trim, pumps and bilge pumps regularly, to keep parts from seizing
- Keep a good eye on the vessel for any obvious signs of structural flaw, rust, osmosis,or stress fractures.
- If in doubt, engage the services of a qualified surveyor to examine the hull
- Maintain a regular check on any structural fittings for signs of fractures, rust or stress

Ensure trailer bearings are constantly greased and in good condition. Marine trailer bearings are constantly immersed in water, and hence will deteriorate quicker than road trailer bearings and car bearings.

- Ensure trailer has a spare tyre that is in good condition.
- Ensure rollers/winch are in good working condition.
- Ensure winch cable is not frayed nor damaged.
- Always use a safety chain from trailer to bow of boat. Don't rely on winch cable alone.
- Use an appropriate water resistant grease

Basic Tool Kit

Have on board a basic tool kit min. comprising:

spark plug spanner	screw drivers
waterproof tape	knife
spanners	rag
spare shackles spare spark plugs	water repellent eg. Inox or Lanoguard
pliers fuses & light bulbs	spare manual pull rope for outboard engine

Motors should be serviced as per manufacturers schedule recommendations, and also at the first hint of trouble

Flaking fiberglass is a sign of osmosis, which can affect the hull's strength and integrity. Inspections and repairs should only be carried out by qualified persons

4.22 Safe Driving for Water Skiing

- Make sure ski rope is taut before taking off
- When skier is jumping into water from boat, make them jump on up current/upwind side
- Always travel on starboard side of channel, leaving plenty of room for skier to ski
- Make sure the skier, and you, know what hand signals to use to go faster/slower/stop
- Always have an observer in boat
- Never cut across the path of an oncoming boat
- Trim the engine up when under way to achieve better fuel economy
- Always switch engine off before skier climbs back on to boat
- Driver must keep skier sighted when drawing alongside to pass rope
- Never reverse when boat near skier in water
- Avoid rope tangles with propeller
- Always look left and right before doing a beach start
- Have observer pull in rope as soon as skier finished. Never leave rope trailing
- Never allow skier to wrap rope around a limb whilst in water
- Put boat between fallen skier and oncoming boats
- Skier should signal ok after a fall
- Never come in against traffic when approaching ski beach
- Concentrate on what's in front (80%), at sides (10%), and behind (10%) when driving
- Ensure observer knows their role
- Ensure driver, observer, and skier agree on meanings of signals before taking off
- Ensure all skiers wear wet-suit pants for safety
- Inland waters can have strong currents, cold water, and submerged hazards

5.1 General Operation

- Noise Annoys – don't operate continuously in an area where houses or other boats are present
- Be aware of the environmental impact your PWC may have, and don't operate over sea grasses in shallow water
- Allow plenty of room to stop
- When near boat ramps, other vessels, and the shore, be aware of the wake your PWC puts out and minimize it by slowing to an idle
- Ensure passengers are holding on and safely accommodated before departing. The best place for passengers to hold on when facing forward is the straps of your PFD.
- If you are training a new driver and sitting behind them, connect the safety lanyard to yourself, not to them
- Practice reversing to ensure familiarity
- Practice turning at slow and higher speeds to become familiar with the craft

5.2 Propulsion

Propulsion is achieved by the engine driving a powerful pump which sucks up water from underneath the craft thru the jet pump intake grate. This water passes thru an impellor, which pressurises the water and forces it out a jet nozzle at the stern of the craft.

No-one should stand directly behind the jet nozzle within 5 metres when the craft takes off.

5.3 Controls

5.4 Maintenance

The Owners Manual of your PWC will describe important maintenance and operator features. It should be read and understood by the owner and operator(s). It is important to ensure your PWC is in good order by inspecting key features before you leave home or the ramp, mooring or wharf. The major causes of breakdown are engine failure, fuel shortage or contamination, mechanical failure and battery failure.

Check:

- Steering control to ensure working properly
- Fuel and oil supplies. Top up as required
- There is no hint of fumes in the engine compartment before trying to start the engine
- All hoods and compartment covers are attached securely
- Battery is secure and terminals clean
- The pump/intake area is free of debris
- For cracks and other damage to the hull
- The throttle is in proper working order
- The lanyard cut-off switch is in proper working order and is attached to your wrist or PFD
- Tools and tow-ropes are on board in case of break down
- Speak with your dealer regarding fitting a towing tap to prevent water ingress when being towed
- Before flushing the motor, consult your owners manual for the flushing process
- Wake or wave jumping is not recommended by most PWC manufacturers due to the possibility of back injuries

5.5 Trip Planning

Check the weather before you go out
www.bom.gov.au

- Ensure you have sufficient drinking water and fuel for the trip.
- Let a responsible person know your trip details and when you intend to return
- Make sure you know how to handle the PWC in the water conditions likely to be encountered
- Go with another PWC for backup purposes
- Be aware of speed restrictions and local rules
- Keep a lookout at all times and always look behind before you turn
- Alcohol. Waves, wind and weather multiply the effects of alcohol
- If your PWC experiences difficulties, return to shore. If this is not possible stay with your PWC until help arrives. A PWC is easier for a rescuer to see than a person in the water.
- Always exercise care, courtesy, and commonsense
- Never allow anyone to place their hands,hair or feet near the jet pump intake. Serious injury or even drowning could occur

- Keep clear of the jet nozzle and never allow anyone to stand near so as to allow jet thrust to enter body cavities as severe injury can result.

- Attach a bow line to PWC when launching from trailer

5.6 Minimum Starting Depth

Ensure the PWC is in minimum .6 metre before starting, otherwise sand and debris may be sucked up by the impellor and damage it.

5.7 Fuelling

- Fuel up on land so as to avoid spillage and polluting the waterway
- Fill slowly to avoid a spill and do not overfill
- Use absorbent material to collect any overflow.
- Never place those materials into the PWC or the water

5.8 Steering

Most PWC have a steerable nozzle at the stern through which water is forced, propelling the craft. The direction in which the nozzle is aimed is controlled by the handle bar or steering wheel. The nozzle is located at the aft end of the pump housing and the direction that it is pointed controls the direction of the exiting water. Refer to your PWC owner's manual for more specific operating instructions.
For steering control, power to the pump must be maintained. If the engine is allowed to idle or shut down during a turn all power will be lost and the PWC will continue to move in the same direction regardless of any movement of the steering controls. ie.. If you back off the throttle the steering capability of the PWC will lessen.

Give yourself plenty of room and in a safe environment become familiar with the steering features of your craft at different throttle levels.

5.9 Capsize

Most manufacturers have placed a decal at the rear or bottom of the craft that indicates the direction to roll the PWC to an upright position. If no decal exists, check your owner's manual. Many PWCs must be turned upright in a particular direction, or water will enter the motor causing serious damage.

5.10 Re-Boarding

When re-boarding the craft from the water, always approach the PWC from behind. Do not board whilst the engine is running to avoid the dangers of straps/ long hair etc being sucked into the impellor, and also the dangers caused by water expulsion from the jet nozzle . Pull yourself carefully aboard, making sure to keep your weight centred on the craft.

Most new craft now come equipped with a drop-down boarding ladder.
Remember to reconnect the lanyard in order to start the engine.

PWC Licensing, Registration and Safety Equipment Regulations

QLD

QLD LICENSING

PWC operators must hold a Queensland Personal Watercraft Licence (QPWCL), as a separate additional licence to their Queensland Recreational Marine Drivers Licence (QRMDL). The minimum age to obtain a QPWCL is 16.

An unlicensed person may operate a PWC only if accompanied by a PWC licensed person who is able to take immediate control if required. The supervising licensed operator must wear the kill switch safety lanyard. Unlicensed operators are not permitted to tow a water skier. Unlicensed operators are prohibited from carrying additional passengers, other than the licensed supervisor.

The PWC licence is a life-time licence. A separate fee paid to Queensland Transport is required to obtain the PWCL.

NB.. The Statement of Competency issued at the completion of the course is not a licence. It needs to be presented to Queensland Transport within 6 months of course completion to obtain the licence. The Statement of Competency becomes void after 6 months and complete re-assessment is required. Fees apply.

Alcohol – the person in charge and whoever is driving must be under 0.05

If you visit from interstate you are required to obtain a QPWCL unless you hold a current PWC licence issued by another state. Short term interstate visitors can use their boat licence equivalent, if that is all that is required to operate a PWC in their home state. (ie.. WA/TAS/SA residents).

Registration

- All PWC's must be registered
- Registration symbols must be displayed towards the bow on both sides, at least 100mm high, clearly legible from 30 metres and in contrasting color to the craft
- Registration label must be displayed on the port side, adjacent to the registration symbols

PWC Safety Equipment

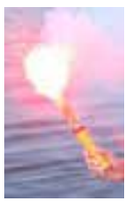
PWC operators and passengers must wear an approved life jacket at all times (incl launch/retrieve to/from beach):

- **In Smooth Water** (eg rivers, lakes, dams) a life jacket Level 50 or life jacket Level 50S
- In Partially Smooth (eg Moreton Bay) and Offshore Waters a life jacket Level 50

Level 50

Level 50S

In Partially Smooth and Offshore waters must carry:
V Sheet, flares, and signalling device if operating at night.



Pole skis, (stand-up single person) if unable to carry this safety equipment, are limited to Smooth Water operation only.

An Australian Standards approved EPIRB (ie.. not a Personal Locating Beacon) must be carried when operating more than 2 nautical miles off shore in open waters.

PWC operating between sunset and sunrise or at times of reduced visibility must carry a signalling device eg torch, and show navigation lights – sidelights and either an all-round white light or a stern and masthead light.

QLD

PWC Speed Limits and Distance Off Regulations

All vessels must travel at a **safe speed** at all times.

A safe speed is one which the vessel can be stopped in time to avoid any danger which may suddenly arise.

When judging a safe speed you must consider a number of issues – visibility, other vessels, navigation hazards, wind wave and currents and the manoeuvrability of your vessel.

For your safety and the sake of everyone else using the water, do not exceed set speed limits.

Unless otherwise signed or designated, maximum speed on Smooth Water is 40 knots. (74 kilometres per hour.)

The following distances must be maintained, or otherwise reduce speed to 6 knots:

- 60 metres from people in the water
- 60 metres from anchored or moored boats, structures, boat ramps, jetties or pontoons
- 60 metres from shore
- 60 metres from boundary of a bathing reserve
- 30 metres from other moving vessels when PWC traveling at 10 knots or more

Exceptions apply to '6 knots within the 60 metres' from the shore rule under the following conditions:

- The waterway is less than 120 metres wide, and
  - i) the PWC operator is operating the PWC as close as practical to a straight line to transit the area
  - ii) The PWC operator stays as close as practical to the centre of the waterway or a marked channel
- The PWC is being used in waterskiing/towing.

In Coastal Waters, freestyling or wave jumping is not permitted within 200 metres of the shore if there

are dwellings within 100 metres from the shore line and these dwellings are visible to the operator.

Coastal waters do not include dams and inland waters, but do include tidal waters such as rivers and creeks.

Water Traffic Rules

The operator must always keep a proper lookout and travel at a safe speed.

Approaching vessels head on

Each vessel alters course to starboard (right) and passes port to port (left).

Give-way (powered vessels)

Give way to vessels approaching from your starboard (right) side, they have right of way.

Water Skiing

Normal water ski rules apply:

- PWC must have operator and observer only
- Observer minimum age 13 years
- Operator must hold a PWC licence

Freestyling

Freestyling is erratic and non-directional driving such as wake-jumping, donuts, figure 8's. Before you freestyle think about the impact on others, and move away from populated areas like beaches and residential areas.

There are many areas where freestyling is banned. Information on prohibited areas can be found on Maritime Safety Queensland's web site www.msq.qld.gov.au under Waterways Managements Plans and Marine Zones.

Also refer to the EPA web site www.derm.qld.gov.au and local signage at boat ramps, and on the waterway's signs which may indicate prohibited areas.

NSW Licensing, Registration & Safety Equipment Regulations

NSW

Licensing

PWC operators must hold a NSW Personal Watercraft Licence as a separate additional licence to their Powerboat Licence. The minimum age to obtain a General PWC Licence is 12. A PWC licence holder who is under 16 years of age must be accompanied by a PWC licence holder who is 16 years of age or more when travelling at over 10 knots. (20 knots maximum)

A PWC licence is available for either 1, 3, 5 or 10 years. Unlicensed persons are not permitted to operate a recreational PWC.

A separate fee paid to NSW Maritime is required to obtain the PWC Licence. Licences expire if not renewed.

It is a condition of every PWC licence holder to carry their PWC licence when operating a PWC and be able to produce the licence to any authorised officer. Owners of PWC must be able to identify the person driving the vessel at all times, even if the owner is not onboard the PWC at the time. PWC owners can be found guilty of an offence if they are unable to provide the identity of a person in control of their PWC.

Alcohol – the operator must be under 0.05 if aged over 18 years, and 0.00 if aged less than 18 years.

If you visit from interstate you are required to obtain a NSW PWC licence unless you hold a current PWC Licence issued by another state. Short term interstate visitors can use their boat licence equivalent, if that is all that is required to operate a PWC in their home state. (ie.. WA/TAS/SA residents).

Reporting Accidents

If a boating accident/incident occurs, it must be reported to NSW Maritime within 24 hours. Report forms are available at www.maritime.nsw.gov.au

Marine Pollution

It is an offence to deliberately discharge garbage, oil and other waste into the aquatic environment.

Registration

- All PWC's must be registered
- Registration numbers must be displayed towards the bow on both sides, at least 100mm high, clearly visible and in contrasting color to the craft. The numbers cannot be displayed on the control arm of the PWC
- The owner and operator of a PWC must ensure that the maximum number of persons carried on the PWC does not exceed the maximum specified by the manufacturer.

A PWC must have the PWC Behaviour Label attached in a position in front of the operator, clearly visible to the operator at all times.

NSW

NSW Licensing, Registration & Safety Equipment Regulations

PWC Safety Equipment

PWC operators and passengers must wear an approved Life Jacket at all times:

On Open or Enclosed Waters Level 50s or greater

Inflatable jackets not to be worn

An Australian Standards approved EPIRB

ie.. not a Personal Locating Beacon,must be carried when operating more than 2 nautical miles off shore in open waters.

NSW PWC Speed Limits and Distances Off

All vessels must travel at a safe speed at all times. A safe speed is one which the vessel can be stopped in time to avoid any danger which may suddenly arise. When judging a safe speed you must consider a number of issues – visibility, other vessels, navigation hazards, wind wave and currents and the manoeuvrability of your vessel.

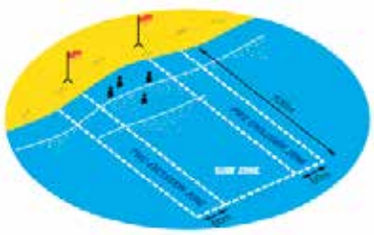
For your safety and the sake of everyone else using the water, do not exceed set speed limits.

When exceeding 6 knots, stay 30 meters from powered vessels, non-powered vessels, anchored/moored vessels, jetties wharves structures.

At any speed you must stay 60 meters from persons in the water and dive flag.

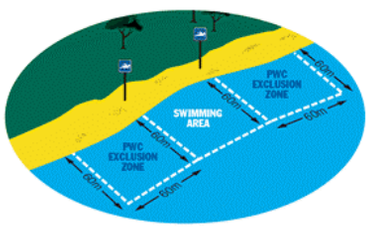
Surf Zones & Swimming areas

A designated surf zone is defined as the area extending 500 metres out from shore between surf patrol flags or signs.



A swimming area is defined as the area extending 60 metres out from shore between signs for swimmers. PWCs are not allowed to be operated in these zones and must keep 60 metres either side of their boundaries. Local signage may indicate further PWC restrictions in an area.

PWCs may not be ridden on Sydney Harbor.



PWC OPERATING RESTRICTIONS

1. PWC EXCLUSION Zones

The operation of a PWC is prohibited on

- Sydney Harbor, incl the waters of all tidal bays, rivers and their tributaries (includes Parramatta River, Middle Harbour and the Lane Cove River).
- Darook Park at Port Hacking
- La Perouse at Botany Bay

Check your local NSW Maritime operations centre for details.

2. PWC RESTRICTION Zones

This zone encompasses the bays, rivers and other waterways within the Sydney basin area which lies between Port Hacking, Wamberal and the Blue Mountains but does not include waters off the coast. PWC are not permitted to be used for 'irregular driving' within 200 metres of the shoreline of the above. Examples of 'irregular driving' are:

- Driving in a circle or other pattern
- Weaving or diverting
- Surfing down or jumping over or across any swell, wave or wash.

This means that PWC are required to be operated generally in a straight line within 200 metres of the shoreline.

NSW Licensing, Registration & Safety Equipment Regulations

NSW

3. All Other Navigable Waters

In all navigable waters, other than 1 and 2 above, and including all of the NSW coast, 'irregular driving' is not permitted within 200 metres of the shoreline where one or more dwellings are visible within 200 metres of that shore.

Note: Re 2 and 3 above, 'irregular driving' does not apply when a PWC is towing a waterskier or aquaplaner. However, as soon as the towing activity is finished the 'no irregular driving' rule comes into affect.

After Sunset

PWCs are not allowed to operate between sunset and sunrise in NSW, regardless of whether navigation lights are fitted.

Local Signage

Keep a good lookout for signs on the shoreline and on the water indicating other areas where PWC are banned.

Water Traffic Rules

The operator must always keep a good lookout and travel at a safe speed.

Approaching vessels head on

Each vessel alters course to starboard (right) and passes port to port (left).

Give-way (powered vessels)

Give way to vessels approaching from your starboard (right) side, they have right of way.

Overtaking

Keep out of the way of the vessel being overtaken and pass safely either side.

Give-way (non powered vessels)

Give way to sailing vessels, canoes and other passive craft.

Towing People

When towing, the operator of the PWC must:

- Hold a PWC licence
- PWC must have an observer on
- board, who is mimimum 16 years of age, or the holder of a General licence

Distance off when towing

When towing, the operator must keep both the PWC and the people being towed at least:

- 30 metres from vessels not towing skiers, the shore, jetties, moored vessels, pump inlets and bridges
- 60 metres from people in the water regardless of speed
- No more than 3 people can be towed at once

If towing aerial equipment (eg: paraflying) keep both the vessel and the people being towed at least 300 metres from any bridge, cable, wire, pipeline or structure.

Tow-in Surfing

- Tow-in surfing is only permitted on open waters at surf breaks only where there are no paddle surfers present
- Both the operator of the PWC and the surfer must have a current PWC licence, current First Aid certificate, and wear an appropriate lifejacket when the activity is being undertaken
- The operator may not tow more than one person at a time and must give way to all other boating or ocean recreation activities
- The operator of the PWC must maintain a distance of at least 200 metres from all vessels and people in the water.
- The PWC is to be equipped with a:

- Rescue sled
- Second kill-switch wrapped around the handlebars
- Two-way communication device
- Dive mask
- Dive fins
- Safety knife
- Tool kit
- Torch
- Quick release floating tow rope min. length 7 metres
- Bow line min. length 7 metres

Only PWC may be used for tow-in surfing. No observer is required on the PWC provided there is compliance with these conditions at all times.

VIC Victoria PWC Regulations

Licensing

Any person who operates a powered recreational vessel needs to be licensed. That is, any boat equipped with an engine that is used or is capable of being used for propulsion. 'If your boat is required to be registered you will require a licence to operate it' . This includes PWCs. PWC operators are required to obtain a PWC endorsement on their Boat Operator Licence.

What about young or unlicensed people?

Operators 12 years of age and less than 16 years of age must hold a Restricted Operator's licence and must comply with all Restricted Operator requirements listed on page 8.

An unlicensed operator; if accompanied by a person over the age of 18 years (ie 19+) and who is licensed appropriately for the vessel being operated and who is in a position to take immediate control; may operate the vessel.

For example, if a PWC is being operated, the licence of the accompanying person (over 18 years of age) must be endorsed for PWC operation.

Restricted operator licences will also have to be endorsed for PWC operation if the holder wishes to operate a PWC.

Registration

Where should the registration label and numbers be placed on a PWC ?

All PWC's must be registered with MSV if they are operating on Victoria's inland and coastal waterways. The minimum size of the registration numbers is 100mm and they must be displayed on both sides of the bow.

A current registration label must also be attached to the PWC.

PWC Safety Equipment

The operator and passengers must wear an approved PFD at all times

PFD 1 PFD Type 2 or PFD Type 3

PWCs must carry a buoyant waterproof torch at all times

An Australian Standards approved EPIRB (ie.. not a Personal Locating Beacon), must be carried when operating more than 2 nautical miles off shore in open waters

Speed Limits and Distances Off

When operating a PWC at a speed of 5 knots or more you must keep at least:

5 KNOTS

All waters

50 metres from a person in the water; 50 metres from another vessel, including other PWCs; 100 metres from a diver's flag/buoy/vessel.

5 KNOTS

Coastal and enclosed waters

200 metres from the water's edge; 50 metres off a wharf, jetty, slipway, diving platform or boat ramp.

5 KNOTS

Inland waters

50 metres from the water's edge; 50 metres from a fixed or floating structure.

Normal water skiing rules apply when using a PWC for water skiing. PWC must have seating for master and observer.

It is recommended that you also have seating capacity for any person/s being towed.

Navigation lights are required on a PWC being operated between sunset and sunrise.

AUSTRALIAN BOATING COLLEGE'S
BETTER BOATER PROGRAMME

MARINE RADIO COURSE

ABC has an online training course.

The radio course study link is www.vhfradioonline.com

INTERNATIONAL CERTIFICATE OF COMPETENCY

If you're planning a trip to Europe or the UK, and might do some boating or jet skiing over there, you'll probably want an International Certificate of Competence (ICC). This is the accepted European ticket which allows a person from one country to go boating in another, without having to get that other countries boat licence. An Australian boat licence is not accepted in Europe as a valid ticket.

Talk to your instructor about it today, or see www.abcboating.com

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