

CHAPTER 1 INTRODUCTION

Skill 1: Identify where a boat can go

Hulls

Two common types of boating hulls - displacement and planing are shown in Figure 1.1.

- A displacement hull is a type of hull that plows through the water, displacing a weight of water equal to its own weight.
- A planing hull makes a boat rise slightly out of the water so that it is gliding over the water rather than ploughing through it.
- The freeboard is the distance from the gunwale to the water. Most often this will vary along the length of the boat.
- Draft - The depth of the boat below the waterline; the amount of vertical distance from a boat's waterline to the bottom of its keel.
- Beam - The transverse measurement of a boat at its widest point.
- Chine - The line of intersection between the topsides and the bottom of a boat. Hard-chined boats have this angle pronounced.

Parts and places

All small boats have a hull which is the main structural body or shell of the boat. The hull is joined at the front of the boat to create a strong prow and at the other to form the transom - a vertical aft end of a boat. The transom is strengthened with a plate onto which a motor is attached.

- The front of the boat is called the bow and the back the stern. The left side is port and the right side starboard, when moving forward.
- The helm is an apparatus by which a vessel is steered, including the rudder, steering wheel and tiller. It can be at the stern as in the case of a dinghy or in the cockpit of a run-about. If a boat goes forward it is said to go ahead and stern it backwards.
- The keel is the part of a boat extending along the bottom of the hull from stem to stern.

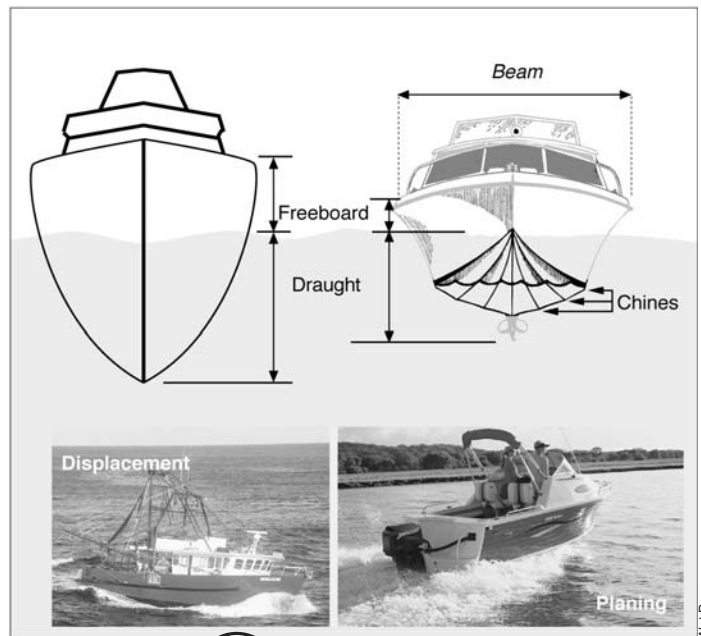


Figure 1.1 Displacement and planing hulls

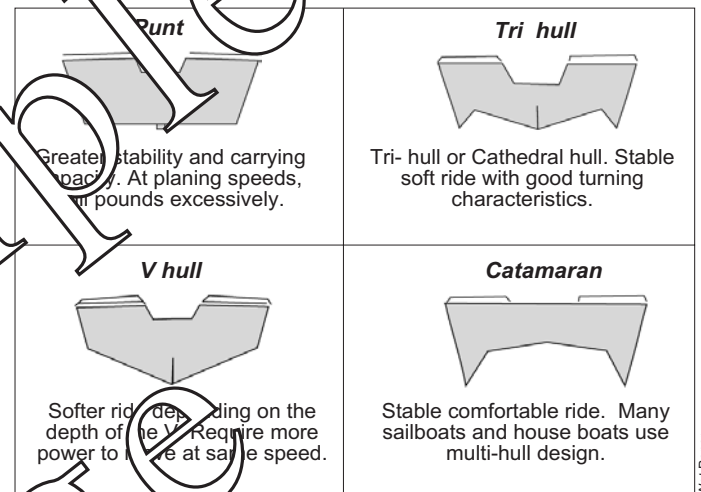


Figure 2 Different types of hulls

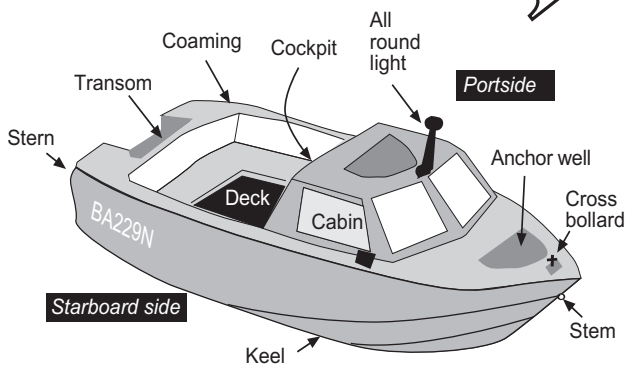
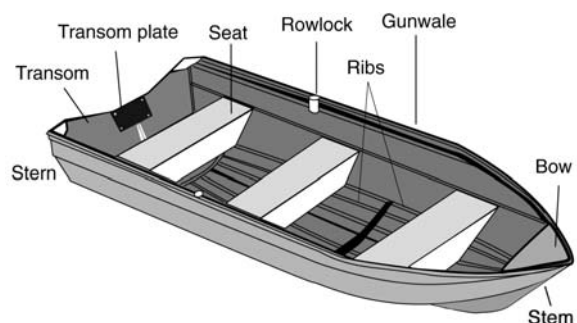
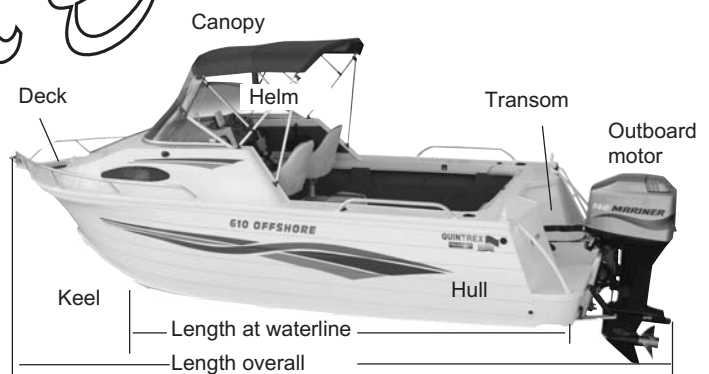


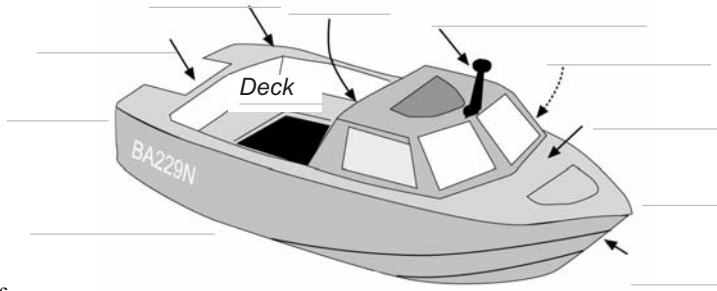
Figure 1.3 Parts and places on a boat



Chapter 1 Review questions

1. Label the illustration of the boat opposite using the list of terms provided.

Bow, stern, port side, all-round light, stem, transom, deck, portside, starboard side, coaming, cockpit.



2. Explain how engine power contributes to the difference between planing and displacement hulls.

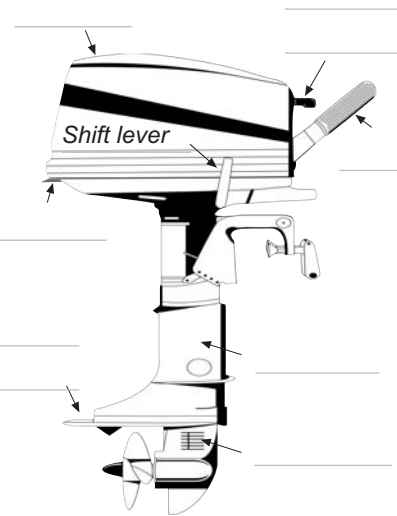
3. Which of the boats on page 5 would you take over a bar?

4. Give an example of how you would stop a boat and its jackets to meet your safety obligations.

5. Label the illustration of the motor opposite using the list of terms provided.

Water handle, cowl, throttle, shift lever, cowling clamp, outboard leg, anticavitation plate, water intake.

6. What are three routine steps you could take to make sure your radio was in good operating order?



7. Which is the best radio for short range communications. Give a reason for your answer.

8. List three pre-departure checks you should make on outboard fuel.

9. List any five things you should do with your boat after every trip

Safe water marks

These are painted with red and white vertical stripes and have one red ball on the top. They indicate that there is safe water beyond this point and are usually found at the end of a channel or when entering a port.

At night they flash with a white light followed by a period of darkness (Figure 3.1).

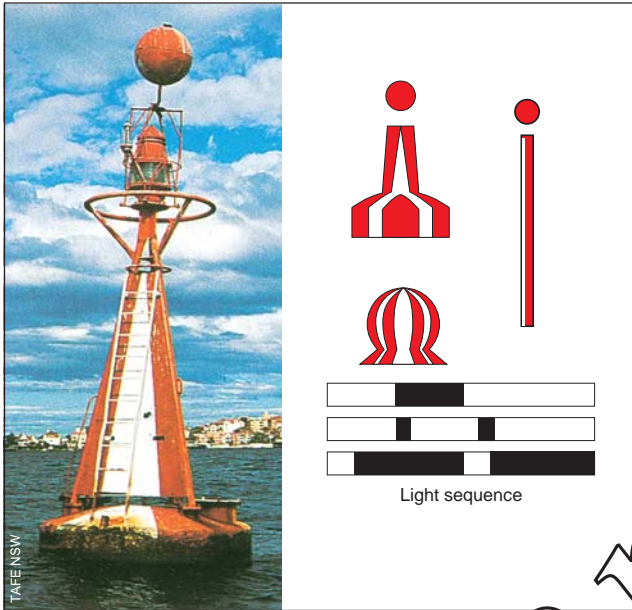


Figure 3.1 Safe water marks

Special marks

These indicate a special feature such as a cable, outfall pipe, recreational diving area or ground marks. They also can define a channel within a channel. For example a channel for deep draught boats in a wide estuary within the limits of the channel for normal navigation. Generally they are used where no other mark can be so the top of the mark carries a single yellow cross (See Figure 3.2).

At night these show a yellow light with any light sequence (other than that used for the white lights or cardinal, isolated danger and safe water marks). When you see a special mark - consult your chart.

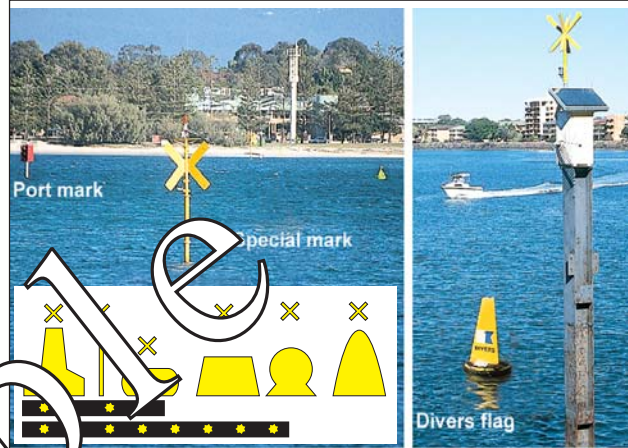


Figure 3.2 Special marks and light sequence

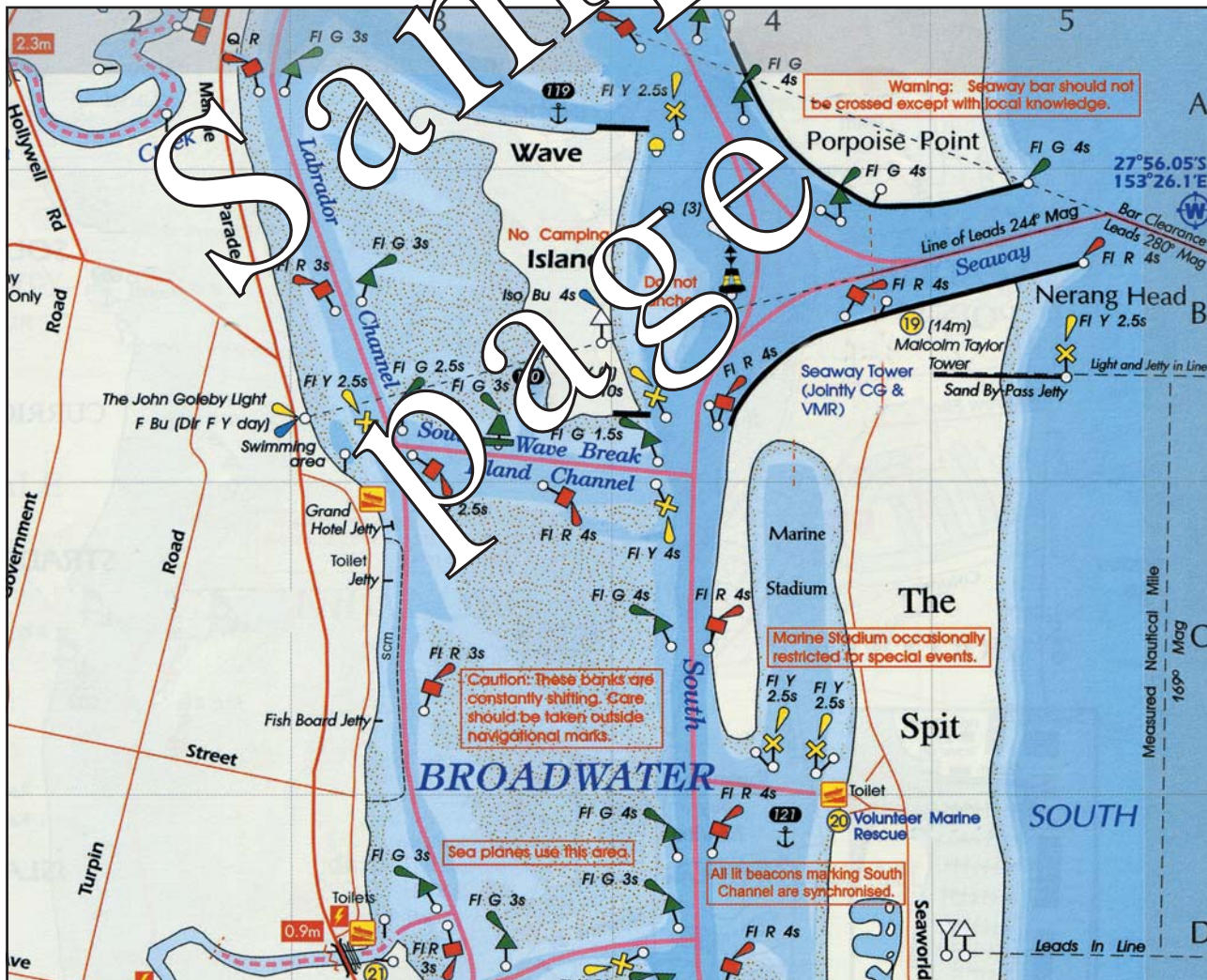


Figure 3.3 Example of a local chart with buoys, beacons and marks (Note the change in buoyage direction at Wave Island)

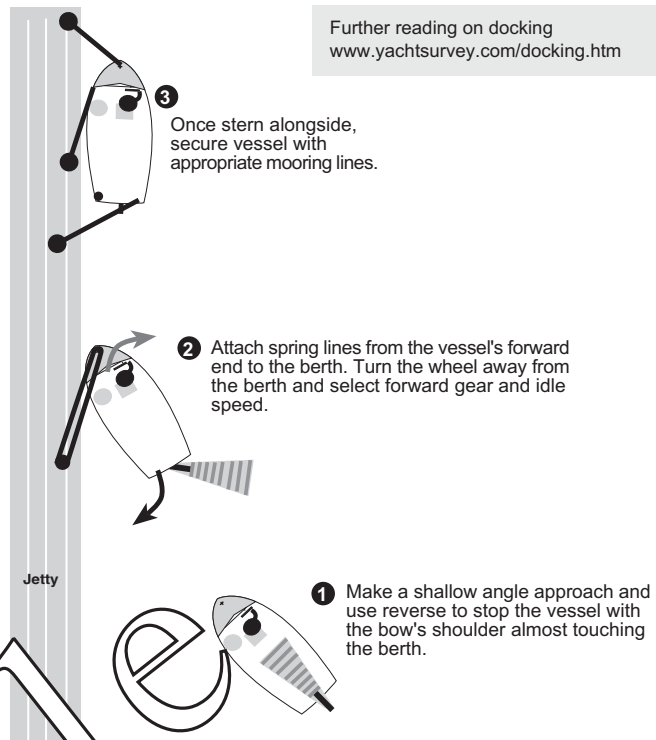
Single shaft

Most single engine vessels have a right-handed propeller. For these boats the port side is easier to put alongside because the stern tends to kick to port when the engine is going astern. The opposite applies to left-handed propellers. This description assumes a right-handed propeller (Figure 4.1).

Set your approach angle according to wind/tide (steeper for onshore, shallower for offshore). Approach as for outboard leg manoeuvre. The difference is that the rudder will still steer the boat at slow speed.

1. When you are 2-3 boat lengths off engage neutral and coast in.
2. At one and a half boat lengths steer away from wharf to get boat's bow turning.
3. At half a boat length apply astern power until the boat stops completely, straightening the helm at the same time.

The vessel will now come alongside. Once the stern is alongside, the vessel can be secured with the appropriate mooring lines.



Further reading on docking
www.yachtsurvey.com/docking.htm

Figure 4.1 Docking - single shaft

Twin shaft

Almost always a vessel with twin shafts (a twin screw vessel), has the propellers outward turning. This means that moving ahead or astern will set up to give the best engine assistance with turning.

Twin screw vessels give you great manoeuvrability, and the only limitation they have is that, just like single screw, the bow stays more or less motionless while the stern does all the turning.

A great advantage with twin shaft vessels is that they have a short turning circle and no preference for putting one side or the other alongside.

1. Make a slow approach, similar initially to a single shaft vessel.
2. With the engine closest to the berth astern, use the short turning ability to pull the starboard stern alongside.

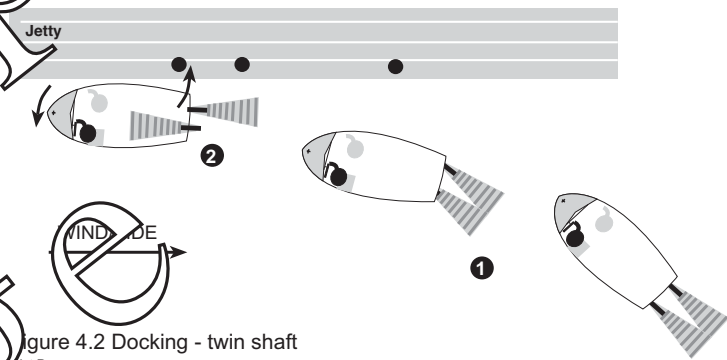


Figure 4.2 Docking - twin shaft

Practical Task 10: Vessel is secured beside a berth

Using the web reference below, demonstrate to your examiner that you can safely secure beside a berth.

1. Checking that it is safe to perform the manoeuvre.
2. Not impeding other vessels.
3. Selecting the appropriate side of the vessel to lay alongside as a result of wind/current observations.
4. Approaching the berth at the appropriate speed.
5. Approaching the berth at the appropriate angle.
6. Demonstrating smooth and timely use of gears.
7. Using appropriate revs.
8. Arriving at the berth with little or no impact to vessel and structure.
9. Securing the vessel appropriately with mooring lines.

Web page reference

www.marineteachers.org.au/boatexam
 TASK 10



STUDENT TRAINING RECORD

To be completed by the student

Version August 2009

By completing the table below you will have satisfied the criteria necessary to obtain your boat licence. Your instructor will test your skills to verify your competence. A sample practical task checklist and feedback form detailing all the criteria of Tasks 1 - 12 is available at www.marineteachers.org.au/boatexam

Practical tasks		View the standards at www.marineteachers.org.au/boatexam						
Task	Page	National outcomes (see inside back cover)						Tasks completed and correction made
1	23	2.1.3	2.1.4	2.2.3	2.2.5			
2	24	1.2.1	1.2.2					
3	25	3.1.1	3.1.2					
4	29	2.1.1						
5	30	1.3.4						
6	34	2.1.3	2.2.3	2.2.5				
7	35	2.1.3	2.2.3	3.2.1	3.2.2	3.3.1	3.3.2	
8	36	2.1.3	2.2.3	2.2.4	3.3.3			
9	38	2.1.3	2.2.3					
10	43	2.1.3	2.2.3	2.2.5				
11	44	1.3.7						
12	41	2.3.1	2.3.2	2.3.3	2.3.4			
Theory questions		An answer booklet is available from Wet Paper						
Page	National outcomes (see inside back cover)						Questions completed and correction made	
18	1.1.1	1.1.3						
19	1.1.1	1.1.3						
21	2.1.1	1.3.3						
27	2.1.3	2.1.4	2.1.5					
30	1.1.3	2.3.4	1.3.6					
35	1.3.1							
41	2.3.1	2.3.2	2.3.3	2.3.4				
44	2.2.2	2.2.3						
58	2.2.1	2.2.2	2.2.3	2.2.5				
59	2.2.1	2.2.2	2.2.3					
61	2.2.4	2.2.5						
68	1.3.1							
69	2.2.5							
70	1.3.1	2.2.4						
80	1.1.2	2.1.6						
81	1.1.2	1.3.5						
83	1.1.1		3.2.1					
84	3.1.1	3.1.2	3.1.3	3.1.4				
86	3.4.1	3.4.2	3.4.3	3.4.4	3.4.5			
89	3.1.1	3.1.3	3.1.4	3.2.3				
90	3.4.1	3.4.2	3.4.3	3.4.4				
94	3.2.3	3.3.4	3.4.1	3.4.2	3.4.3	3.4.4		

Standards

National Maritime Safety Committee Guidelines for recreational boat operator competencies - see inside back cover

Boatsafe Units 1 - 6:- Competencies February 2007, www.msq.qld.gov.au

New South Wales: These are in logbook form but follow the NMSC guidelines: www.maritime.nsw.gov.au

MEM Units:- NTIS training package/MEM05/volume/MEM05_5/unitsector/Boating_services_85

Western Australia - the practical tasks follow the Recreational Skippers Ticket - see www.transport.wa.gov.au/imarine

Name _____ Date of birth _____
 Address _____ Phone No _____
 _____ Code _____

Answers to powerboat competency assessment pages 98 - 102
 Place a tick in the space below for the answer you believe to be most correct

	(a)	(b)	(c)	(d)
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Practical assessment results

- Task 1. Operate vessel safely
- Task 2. Vessel secure and suitable for use.....
- Task 3. Safety briefing
- Task 4. Motor is prepared and started safely
- Task 5. Skipper advises of voyage plan
- Task 6. Safely departing berth
- Task 7. Safely retrieve man overboard
- Task 8. Use a transit to steer a steady course
- Task 9. Performs a controlled stop at 5 knots
- Task 10. Vessel is secured beside a berth
- Task 11. Skipper advises of safe return
- Task 12. Anchoring

Student verification

I certify that I have completed the tasks set, corrected the mistakes I have made and understand the answers to the questions as indicated on the pages 98 - 103.

.....
 Student signature

.....
 Date

Assessor verification (This form to be retained by the Assessor)

Assessor name _____ Provider number _____ Test date _____

Location of operation for assessment _____ Smooth [] Open [] Other _____

Beacons present Yes [] No [] Vessel used _____

Logbook filed at (state location) _____ Ref (if applicable) _____

I certify that I have examined the students workbook, the tasks identified in the record book have been completed and the student is competent to drive a speed boat.

.....
 Assessor signature Date

Overall result:

Codes:
 Competent [C]
 Not yet competent [NYC]