



Thames Boating Certificate **Log Book**

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Useful Reference Books

- A Users Guide to the River Thames Edition 8/2009 – Published by EA
- Tide Tables and Port Information (Annual Publication) Published by PLA
- Rowing in the Tideway 2009 – Published by the PLA
- Boatyards Marinas and Services – Published by BMF Thames Valley (TBTA)
- River Thames Recreational Users Guide – Teddington to Sea Reach – PLA
- Environment Agency Visit Thames Web Site – www.visitthames.co.uk
- Boaters Service Charter – Published by EA April 2010
- The RYA book of Euroregs for inland waterways. A boaters guide to CEVNI
- RYA Inland Waterways Handbook
- RYA Knots, Splices and Ropework

The course will consist of

Six theory segments:

- The River Thames
- Using the Locks
- Thames Protocols
- Safety and practice
- Rules of the road (River above Teddington)
- Mooring

Nine practical segments.

- Working a lock
- Mooring alongside where there are no shore facilities
- Mooring alongside using bollards
- Mooring at 45° to the bank
- Anchoring or using a mud weight
- Reversing the boat
- Towing another boat
- Manoeuvring a twin screwed boat with one engine down.
- Practical throwing of lines, taking turns, knots and bends.

Thames Boating Certificate.

How did it start?

From an idea which was floated at ATYC members meeting 14 October 2009.

Objectives.

To enhance the standard of motor boating skills and improve the knowledge of procedures on the River Thames in accord with the R.Y.A motto of education not legislation.

Mission Statement

- Through instruction build up the skills of practical boating and knowledge to achieve safer cruising on the River Thames
- Boat handling is a skill. The perception is that handling skills would benefit from the disciplines of this course. Poor handling and a lack of knowledge can lead to dangerous situations, damage and injuries. Boating should be enjoyable not hazardous.
- Thames boaters can encounter many different river conditions, types of boats and differing situations.
- The syllabus offers a comprehensive learning package designed to suit all entry skill levels.
- The package will develop the necessary theoretical and practical skills essential to the safe and enjoyable navigation of the river and instil a sense of achievement and enhance confidence.

Training/coaching conducted at Club level by Club trainers.

- To ensure standardisation, trainers will have attended an ATYC seminar.
- Training can be conducted to suit experience levels. There are no set time scales. There will be annual seminars to review and update the syllabus and assess new trainers.
- Successful completion of the theory and practical elements of the exam will require a great deal of work and a high degree of skill.
- It is important that the achievement is rewarded and recognised by lock keepers and all other river users. To that end, a suitable defaced ATYC burgee and a windscreen sticker (dependent upon the type of boat) has been designed and will be awarded to successful candidates. The flying of the burgee and displaying the relevant sticker indicates a skipper of proven ability aboard. This should encourage others to participate in the scheme.



Knowledge of The River Thames

The river Thames runs downhill from Cricklade in Gloucestershire down to the sea. The flow of water is managed by weirs. Passage past these barriers is via gated chambers known as locks. These locks enable craft to move up and down hill by lifting or dropping them from one level to another. The river above Lechlade is not navigable except for small dinghies. The first lock, St John's, is at Lechlade. Between there and Teddington which is at the end of the non-tidal Thames there are 43 locks. Below Teddington the river conditions change as the current and flow are now determined by a tide which flows up to Teddington (a flood tide) then ebbs twice in every 24 hours. At times the river can become swollen with rain water. At those times a system of warning boards is in use to advise boaters of the conditions.

**CAUTION
STREAM
INCREASING**

When this yellow board is displayed it indicates that river flows are about to increase and users of unpowered boats are advised not to navigate and users of powered boats to find a safe mooring.

**CAUTION
STREAM
DECREASING**

When this yellow board is displayed users of unpowered boats are advised not to navigate and users of powered boats to navigate with caution.

**CAUTION
STRONG
STREAM**

When this red board is displayed users of **ALL** boats are advised not to navigate because the strong flow makes it difficult and dangerous.



Using the locks

Between St John's and Kings the locks are all manually operated. The sluices by means of a paddle wheel and the gates by a beam. From Godstow to Teddington they all have electrically powered hydraulics. Users can operate the locks at any time night or day. If the lock keeper is on duty, signified by a white board at either end of the lock, he will operate the lock. If it is unmanned, signified by a blue board with Self Service on it, boaters may operate the lock themselves using the 'out of hours' power. At the time of printing the power is switched off at either 2100Hrs or 2200Hrs and does not come on until either 0600Hrs or 0700Hrs depending on when the clocks are altered for winter or summer time. When power is off, locks can be hand wound.



- Place adequate fenders around the boat to meet the level of the lay-by and to protect both sides of the hull, recognising that going up river, the hull and rubbing strake will need protection. When the lock is full, protection is required on the waterline. Fendering is also required to protect the hull from other craft using the lock at the same time, who might come alongside.
- Dependent upon river conditions, be aware of the strength of flow above the weir which will pull craft towards the flow.
- Especial care is required when the entrance to a lock has the weir alongside it – Chertsey weir is an example. Also, when below the lock, be aware of the turbulence as the water is let out of the lock gates. Always read the water to note the wind, turbulence and stream. This may be done by stopping the boat clear of any obstructions and waiting to see what movement, if any, is caused by these elements.
- It is usual to moor into the stream, but coming down stream into a lock on an upriver lay-by this is not possible. It is best practise to make fast the boat's stern line first in these instances.
- Queue on the lay-by, moving up as boats move into the lock or moor again. Protocol on the Thames is that you take your turn on entry; even if you have to moor on the other side of the lay-by and wait. Commercial passenger boats take their turn.



- During summer months extra staff work the locks to provide continuous service.
- Obey the instructions of the lock keeper – advise him/her if you require assistance. It is the lock keeper’s prerogative to pack the lock to suit the traffic, but there are no priorities other than an emergency boat on call.
- Recognise that on some boats it is not possible to crew from a sloping bow and practise with the method that suits each individual boat by working the lock from the cockpit.
- Unless otherwise advised moor on alternate sides to make best use of the available space
- Stop the boat using the engines in the exact position you need to be in, then throw the mooring lines from the boat around the lock bollard retaining the free end on the boat.
- If using the chains to assist, wearing safety gloves is recommended. If however holding the chain do not try and pull the boat into the side as this can be a dangerous activity with the boat moving away from the side and the crew being straddled between boat and chain – inevitably there will be a swimming practice.
- **Never tie up in a lock**, but hold the line around the boat’s mooring cleat by taking a “turn” and standing up to work the line as the boat moves either up or down as the lock fills or empties.

See practical exercise on page 17



Thames Protocols







- There is a speed limit on the Thames above Teddington of 8 kilometres per hour – Approximately 4.9 miles per hour – 4.2 knots - A fast walking pace. Some boats have very clean entry into the water and make little wash, others, normally the smaller runabouts make more. Skippers should be aware of what is happening and look behind and see what their wash is doing as it hits the bank and how it affects moored craft.
- Be aware that boats in convoy, multiply the effect of wash when the river is narrow – lock cuts are an example. This is called 'canal effect'.
- It is necessary for the motor boater to understand why other users may appear to be undertaking manoeuvres that in the first instance can cause annoyance to a cruising motor boater who is not aware of why it is happening.
- Fishermen are asked to consider passing traffic and avoid casting their lines across the course of cruising boats. To help, the cruising motor boater should be aware of what is happening on the bank and where possible try to give the angler some help by moving out from the bank side when traffic on the river allows.
- Sailing Boats. High sided motor boats are very vulnerable to wind on their beam. With any wind, sailing boats are much more manoeuvrable and can easily avoid a motor boat that maintains a slow forward speed.
- Motor Boaters should be aware of this. Motor Boaters should be aware that in the vicinity of sailing clubs from time to time sailing craft congregate behind their starting line and wait for the starting gun. Normally it gives a ten and five minute warning and then the starting gun which sets off the sailing boats around normally a diagonal course.
- Motor Boats should endeavour to give the starting line a wide berth where possible, and avoid the turning buoys where sailing boats will be converging to turn around the mark.
- It is usually better to take a very slow straight course through racing or milling yachts. These sailing boats are in any wind able to manoeuvre around such motor boats by tacking in front or behind. Common sense and understanding is required from all parties – **SOMETIMES IT IS NECESSARY TO TAKE AVOIDING ACTION!**
- Rowing craft should also be treated with respect. It does not take much wash for the water to run down the side of the rowing shell and ship water onto the rowers – not very comfortable. Motor Boats should cut their speed when overtaking or passing a rowing craft.



- Remember that it takes time for the effect of the wash to diminish so the reduction in speed should take place before coming along side alongside. When rowing crews are embarking or disembarking on the shore they are vulnerable. Motor Boats should reduce their speed to alleviate their wash. All rowing shells will have an identification number on the side. Chase and rescue boats are all registered with the EA and should fly an identification pennant. Other than overtaking, rowing craft should not row abreast unless on a previously announced regatta, with the course suitably marked. Between Teddington and Putney there is a PLA/Thames Rowing booklet advising where rowing craft are permitted to be and some of the information it contains is pertinent to the upper Thames Motor Boater.
- Some of the River User Groups (RUG) provide an event calendar of the larger river based activities.

Sound Signals

On the Thames there are signals made by the boats horn to indicate the intention of the boat making the sound.

	ONE short blast means "I am altering course to STARBOARD"
	TWO short blasts mean "I am altering course to PORT"
	THREE short blasts mean "My engines are GOING ASTERN"
	FOUR BLASTS (pause) ONE BLAST Tuning right around to STARBOARD
	FOUR BLASTS (pause) TWO BLAST Tuning left around to PORT
	ONE LONG TWO SHORT BLAST Unable to manoeuvre



Safety and Practice:

Life Jacket or Buoyancy Aids.

It is RYA policy that a life jacket is put on before a boating activity starts. Then the decision can be made to take it off should circumstances allow.

There are times when cruising on the upper river with a full crew and the conditions allow when the use of a life jacket can be dispensed with. Children and others who cannot swim should always wear suitable life jackets or buoyancy aids.

Boating can be inherently dangerous, but providing proper steps are taken, any risk has to be considered minimal.

Imagine that your boat is taken out of the water and is on hard standing on either trolley or chocks. If you were to walk around the side deck of the boat, enormous care would be taken as you moved around, holding onto the boat for safety to prevent a fall down to the ground. The same care should be taken when the boat is afloat. One hand always on the boat for safety.

This is most important when stepping on or off the boat. NEVER straddle your weight between the boat and the shore (or another boat). Have your weight comfortably either on the boat or on the shore or pontoon.

An appreciation of fire risk on board a boat. The following information is most useful for the boater to understand.

- Identify a serviceable BSS approved fire extinguisher:
- The appliance is in a good condition, rust free and free of any significant denting.
- The gauge (if fitted) is in the green.
- The minimum fire rating is 5A/34B.
- The appliance carries a suitable Type Approval marking such as a Kite, a BAFE, a LPCB ,NF or Wheel.
- Identify the most suitable fire suppression agent for an engine room. Should be an automatic appliance. (Halon has been illegal since Jan 2004)



- Powder leaves a residue and can damage engines if ingested.
- The powder may not reach the seat of the fire.
- Halon replacement agents such as FE36 and FM 200 remove the oxygen from the engine compartment thus starving the fire.
- Only one appliance per compartment is recommended.
- The size of the appliance is set by the volume of the engine compartment.

Actions to be taken on identifying an engine room fire. (boat specific).

- Do not raise any hatches
- As quickly as possible without panic make for the nearest bank. Circumstances will dictate the action – if there is imminent danger of explosion, providing all can swim or have life jackets, abandon the ship to make for the shore by swimming or walking!
- Make a Mayday call/mobile phone call – on the Thames a 999 Mobile is preferable. Remember to give your location as accurately as possible together with the nearest emergency access point if known.
- Call all crew/passengers on deck and wear lifejackets.
- Activate the remote fire suppression system (if fitted).
- If the bank is safely made, moor the vessel, turn off the engine, switch off bilge blowers and close engine compartment ventilators (if fitted). Do not moor on any other boat!
- Turn off the fuel cocks and battery master switches (if located outside of the engine compartment) and isolate the gas bottles. If possible remove them! But do not delay, your safety is the priority!
- Ensure that all crew/passengers are gathered at a safe distance from the vessel and await the arrival of the fire crews.



Rules of the Road

The River above Teddington

NOTE: PORT indicates the left hand side of the boat facing the front (bow), or to use nautical terms "The PORT side, coloured RED, is the left side of the boat facing the BOW. Conversely, the STARBOARD side, coloured GREEN is the right hand side of the boat again facing the BOW. The back of the boat is called the STERN.

Buoyage: There is a recognised system of marking safe channels by using "BUOYS". It is the recognised IALA system. (Not covered in this syllabus)

Working inwards from the sea cruising upstream different shaped buoys with different top marks and red and green buoys indicate the navigation channel. The same system continues above Teddington and boaters will find that there are RED and GREEN buoys marking where there is danger..

Cruising **UPSTREAM**, the rule is that Red buoys indicate that the danger is to the **PORT** (left) of the buoy. It follows that the buoy should be left on the **PORT** side of the boat. Likewise, there are Green Buoys marking danger on the other side and the Green Buoys should be left on the **STARBOARD** hand, with the danger the other side of the buoy. Conversely cruising **DOWNSTREAM** the buoys will not move – coming down stream the red buoys are to be left on the **STARBOARD** side.

The designation of the sides of the boat remain the same – what has changed is the direction of travel!

Craft navigate using a course to STARBOARD (right hand side) of the centre of the river. Overtaking is permissible when the river is wide enough, and there is nothing coming towards you that will impede the manoeuvre. There is no designated side to overtake, what is safer is preferable. Be aware of approaching bends – ensure you can see what is coming down or up! The overtaking boat is responsible for the safety of the manoeuvre until finally past and clear of the overtaken vessel.

'Right of Way'; Boats cruising upstream give way at bridges and at other narrow places to those coming down stream, This makes common sense as the boat coming down stream has the stream on its stern (the back of the boat) and therefore is harder to manoeuvre.

Signs: Most of the signs that you will come across on the Thames comply with the European code for inland waterways, otherwise know as CEVNI regulations. (See RYA book of Euroregs for Inland Waterways. A boater's guide to CEVNI)



Practical Boat Handling



Mooring:

Where to moor when cruising the river is an often asked question. The EA and Local Authorities provide transit overnight moorings, and depending upon local circumstances there might be an element of 'free' moorings.

As a rule of thumb, up to three nights on these moorings is acceptable, albeit there might be a charge. After that it is expected that the cruising boat moves on to find another mooring to allow other cruising boats to use that mooring.

It is now policy that where the river is wide enough boats raft out on each other to moor when all the alongside moorings are full. The protocol for this is:

- Ask the host boat for permission which should not be refused.
- Ensure that your craft is adequately fendered to meet hull to hull.
- Moor your craft fore and aft and use springs to stop movement of the boat.
- Take a shore line from the boat to the bank to take the weight of your craft off the host boat.
- Ask the host boat which way you should pass over the their boat. Over the bow or stern.

It is easier for similar boats to moor together. If you have learnt your skill a comfortable mooring can be achieved.

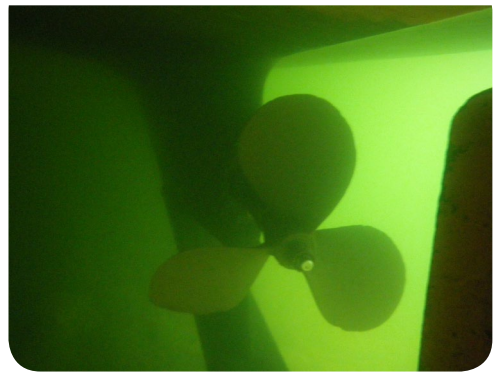
Moorings can be taken on any land that does not prohibit mooring, but the land owner might well levy a charge. It is possible to anchor off the fairway and lay overnight.

[See prescribed mooring exercises](#)



Different types of boat:

- Single engine with shaft and rudder
- Twin engine with shaft and rudder
- Single engine with outdrive
- Twin engine with outdrive
- Narrow Boat / barge



These boats will respond differently to wheel, rudder and throttle movements.

Proficient boat handling means recognising the particular characteristics of your own boat.

A **single engined shaft and rudder** is the simplest. The propeller moves the boat through the water and also pushes water against the rudder. For the rudder to be effective it must have a flow of water going past it. At slow speeds, turn the wheel the way you wish to go and give a burst on the throttle to push water over the rudder then back to neutral. This way you can 'inch' your boat into the smallest of spaces safely.

For a **twin engined shaft and rudder** setup the same rule applies but you have much more manoeuvrability by being able to use one engine ahead and the other astern. This gives the ability with practice to turn the boat in it's own length.

Now as previously stated, a rudder **MUST** have water flowing past it to be effective. As long as the boat is moving through the water there is steerage way.

With **outdrives** the propeller must be turning to have any effect. Turning the wheel moves the angle of the propeller relative to the line of the boat pushing the stern in the opposite direction. If the prop is not turning even if the boat is moving there is no thrust to move the boat. In other words, No power, No steerage way. (With certain outdrives there is a small steerage effect if the boat has any speed).

Reversing:

As stated above, different types of boat handle differently when going forward. It is even more pronounced when reversing. It is practically impossible to reverse a single engine shaft and rudder in a straight line, because of what is known as prop walk! This is the effect of the twist of the prop tending to walk the stern of the boat one way or the other. To reverse this type of boat successfully means constantly putting the gear into forward to 'kick' the bow round in order to keep reversing in a straight line.

However, this is where outdrives come into their own. This type of boat is very manoeuvrable in reverse as long as there is power! Remember no power, no steerage way.

See practical exercise on page 25



Narrowboats

Narrow boats have a single engine with a shaft and rudder assembly giving them similar steering limitations to a cruiser of a like specification, the difference being that their ability to steer in reverse can be enhanced by the length of their 'swim'; the longer the swim the better the ability to steer in reverse. Likewise the length of the 'swim' affects the wash they create when moving through the water. The 'swim' is where the sides of the underwater section at the stern are curved inwards towards the point where the shaft and propeller are located. A short 'swim' creates more disturbance to the flow of water.

Holding position:

As well as conditions already addressed, there is one basic skill that needs to be mastered. The ability to hold your craft completely still by sensitive use of power and steering.

All boaters should practise the manoeuvre:

- Face the boat into the constant element
- With the use of the throttle find the revolutions that will hold the boat still in the water. Take a sighting on the shore to assist your staying in the same place.
- At the same time sympathetic use of the steering can assist. Remember with some outboard propulsion, no power, no steerage.
- It becomes more difficult with a wind, but take the opportunity to practise in these conditions.

Mastering this skill will make it easy to moor, enter a lock, and bring your craft to any position under complete control.

Towing:

There are times when it is necessary in an emergency to take another boat in tow or of course be taken in tow yourself.

There are alternate ways of towing and the following has been proved to be most effective.

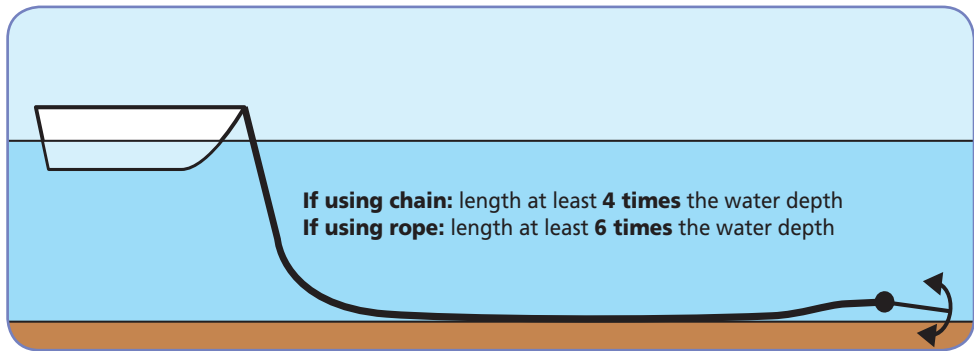
See practical exercise on page 29



Anchoring or use of a mud weight.

There are times on the river, especially in conditions of fast flow, when the ability to anchor effectively can avoid a catastrophe. As an example, as you approach a lock coming downstream there is a weir by the side of the navigation channel. The stream is flowing fast and you have a sudden engine failure. The only thing stopping you from being pulled onto the weir would be the ability to use an anchor or mud weight. There are other times when you may simply wish to anchor in the stream either for a short stay or even overnight.

There are many types of anchor but whichever one you use it will work best if the pull is as near horizontal as possible. This means laying out plenty of chain/rope. Note: even if using rope, if possible add a length of chain between the anchor and the rope to help the anchor to grip.



See practical exercise on page 25

Glossary of Terms

TERM	WHAT IS EXPECTED	WHEN USED
Temporary Mooring	One single line from centre cleat; or one from bow and stern to shore. Either are acceptable	For example when stopped at a lock lay-by at times it is safe to use one line temporarily from a centre cleat to hold the boat stationary.
Short Stay Mooring	Bow, Stern and one spring. Not necessary to make a double turn on the bollard on the shore.	Leaving the boat for a short time.
Long Stay Mooring	Bow, Stern, Springs fore and aft. Springs with loops ashore, eye splices or bowlines. All lines to have double turns ashore. Take down Ensign when departing or at the appropriate time.	Used when leaving the boat for a time, or sleeping aboard. Be aware of closedown procedures when the boat is left. Power, Gas and knowledge of position of fuel stop cocks and seacocks.
Thames Style Throw	When the crew throws a line from the boat to go over a shore bollard. Both ends of the line to be retained on board to make fast.	Used to prevent the crew from having to jump ashore.
Loops Ashore	When a crewmember goes ashore to place a fixed loop around a shore bollard using double turns.	Used on springs when making a long stay mooring.
Safety Line	When it is not convenient to use existing lines, or when we do not want to make a temporary mooring.	An example. When moored in tidal conditions and it is not possible to untie a line that is made fast ashore because it is under pressure a temporary line from another cleat can take of the pressure to allow the existing line be turned into a Thames Style Mooring.
Take a Turn	Take a turn around a cleat or a shore bollard whilst holding, paying in or paying out the line.	Used when mooring. Taking a turn around the cleat makes it safer to hold and check the line.
Double Turn	A line turned twice around a cleat or shore bollard. A large loop or bowline doubled around a cleat or bollard.	Used for a long stay mooring.
Breast Line	Short line between midship cleats of two boats, or midship cleat to shore bollard. The line must be taut.	Used to hold boat temporarily tight and parallel to an adjoining boat or shore.
Bow Line	Should run forward of the bow.	To secure the bow. Usually the first line ashore.
Stern Line	Should run astern of the transom.	To secure the stern.



TERM	WHAT IS EXPECTED	WHEN USED
Aft Spring	A line from an aft cleat running forward to a shore bollard; or to the bow of another boat when moored alongside.	Used to stop the boat moving aft. Should be as long as possible. .
Forward Spring	A line from a forward cleat running astern to a shore bollard or to the stern of another boat when moored alongside.	Used to stop the boat moving forward. Made fast on the boat as far forward as is practical and as far aft as possible.
Springing Off Forward	Using a long line forward from the boat, turned once around the shore bollard or another boat and held against the boats aft cleat whilst the helmsman uses engine astern to permit the bow to move away from the shore. (A fender must always be placed between the stern and the shore or other boat.)	Used to spring off forward from restricted or windy moorings
Springing Off Astern	Using a long line aft from the boat turned once around the shore bollard or another boat and held against the boats forward cleat whilst the helmsman uses engine ahead to permit the stern to move away from the shore. (Once the stern is clear reverse propulsion is affected.) (A fender must always be placed between the bow and the shore or other boat.)	Used to spring off aft from restricted or windy moorings
To single up a moored boat "Single Up"	Exchange the lines that have been used to moor the boat for a long stay so that it is held temporarily by one or two lines. Using the lines that are not under pressure, exchange the lines as necessary, removing double turns and finished up with a "Thames Style" mooring that can be managed from the deck.	Used prior to 'casting off'. The lines can be slipped easily.
Veer the Chain	Let the anchor chain run out in a controlled manner.	Used when reversing astern away from the anchor.
Kedge Anchor	A small anchor to supplement the use of the main anchor normally rigged on the bow.	Lay out from the stern quarters to control the position of the stern of the boat.
Conditions as Found	Skippers and crews should be aware of the wind, tide or stream. Always make use of conditions as found.	Attention to the conditions should be automatic and continually assessed.
Moor on a 'Trot' Rafted Out	With permission, tie alongside, using bow, stern and springs, and shore lines to the shore or pile. Ensuring adequate fenders in appropriate positions.	Moored on boats already moored between piles. OR Moored on boats already moored between piles

Practical Exercise: **WORKING THE THAMES LOCKS**

Place adequate fenders around the boat to meet the level of the lay-by and to protect both sides of the hull. Recognise that going up river, the hull and rubbing strake will need protection. When the lock is full, protection is required on the waterline. Fendering is also required to protect the hull from other craft using the lock at the same time and who may have to be alongside.

Obey the instructions of the lock keeper – advise him/her if you require assistance. It is the lock keeper's prerogative to pack the lock to suit the traffic, but there are no priorities other than an emergency boat on call.

Dependent upon river conditions, be aware of the strength of flow above the weir which will pull craft towards the flow. If approaching from downstream be aware that the weir stream may push you towards the bank.

Recognise that on some boats it is not possible to crew from a sloping bow and practise with the method that suits each individual boat by working the lock from the cockpit.

If using the chains to assist, wearing safety gloves is recommended. However if holding the chain do not try and pull the boat into the side as this can be a dangerous activity with the boat moving away from the side and the crew being straddled between boat and chain – inevitably there will be a swimming practice.

METHOD

- Check the white board to see if the lock is manned or Self Service.
- Approach the lay by slowly and moor up using bow and stern lines.
- If locked out because of traffic then move your boat up the lay-by as space becomes available
- If lock gates are open and the lock is empty, enter the lock slowly.
- Watch the lock keeper for instructions.
- Bring the boat to a standstill using the engine(s) in reverse.
- Secure the boat by throwing a line from the bow or stern around a bollard and bringing the free end back to the boat taking a turn around the boats cleat.
- Repeat with a line from the bow or stern.
- Switch off engine(s)
- NEVER tie off the lines or you may end up hanging in a very dangerous position.
- As the water level rise or falls in the lock, feed the mooring lines around the boat cleat to keep the boat stationary.



- When the lock keeper opens the gate slowly exit the lock
- IF THE LOCK IS NOT MANNED: Moor the boat to the lay-by using bow and stern lines
- Walk up to the lock and study the instructions for using 'out of hours' power for hydraulically operated locks, or for instructions for manual operation.
- Empty or fill the lock as required and open the gates.
- Then repeat the actions above.
- Open the gates and slowly exit the lock.
- If you are the last boat, tie up on the lay by and walk back to close the lock gates

Approach

Is the lock manned? Is it empty? Make sure fenders are in the correct position.

Entry

Watch the lock keeper for instructions or if unmanned enter slowly.

Lines Ashore

Throw a bow line around a convenient bollard and bring free end back to the boat. Repeat with bow or stern line.

Final Position

Dependent on the number of boats wanting to use the lock, move right up to the front. Switch off engines. When the lock is filling be aware of the wash when the sluices are opened!

Filling the Lock

If a manually operated lock, and it is not manned, open one sluice half way for a few minutes then the second sluice half way. When the wash from the sluices has reduced sufficiently, open both sluices all the way up.

Caution

At some later locks the sluices work from the side, This can take you out from the side, but if your crew have taken a turn around the boat cleat it can be accommodated safely.

Departure

When moving off, simply start your engines, cast off the lines and slowly leave the lock.



Practical Exercise: **SIMPLE MOORING ALONGSIDE**

To moor alongside using three mooring lines when mooring alongside where there are no shore facilities.

METHOD

To Moor

- Look at the bank to assess the condition of where you expect to moor
- Discover if it is deep enough for you to lay alongside
- Slowly come alongside to allow your crew to step ashore. (If the crew has only one other person it is good practise to throw the mooring pin onto the bank with the mallet if necessary and throw the bow line across the shore so that it can be easily retrieved)
- The helm should remain at the wheel to control the engines
- The crew ashore should insert the mooring pin at a forward angle to the boat and make the bow line temporarily fast
- The crew should then get the second mooring pin and the stern line and carry out the same exercise
- Once this has been achieved the helm can leave the wheel, stop the engine(s) and assist to make the boat secure using a third line.
- The third line is a spring to take the weight of the boat forward against any stream and can be made fast to the bow mooring pin, or a third pin towards the bow of the boat.

To Cast Off

- Reverse the procedure
- The engines should be started before starting to cast off
- The helm should be at the wheel and in control of the engines when the last line which should be the bow is cast off.



What are the conditions of the bank?

Is it safe to step ashore? Are there any holes in the bank where the crew is to step off?

Depth of Water

Is there enough water to allow the boat to stay afloat? Remember that we are advised that there could be small variations of water level both up and down.

Mooring Pins

Should be hammered into the ground so that they are secure. Especially take care if the land is crumbling or very soft.

Mooring Lines

If the mooring pins have fixed loops then the line should be put through them. If there are no fixed loops, the mooring line should then be taken around to make two turns and return to be made fast on the boat.

If there is a likelihood of mooring pins being pulled out by the drag of passing vessels it may be better to attach the mooring line to the pin with a clove hitch. Whilst it is common practise on non-tidal waters to moor with this hitch, unless the loose end is made fast it can slip. If used it should have two half hitches to secure the line. Alternatively use a small length of cord to secure the mooring line to the pin. The pin can then be recovered from the water."



Practical Exercise: **CLASSIC MOORING ALONGSIDE**

**To moor alongside using four mooring lines in a non tidal condition
When mooring alongside a made up mooring with shore bollards that can be used to make fast**

METHOD

To Moor

- Initially work from the boat
- Throw a Bow line to a shore bollard and return to the boat
- Throw a Stern line from the boat to the shore and return
- The helm can now assist with the mooring and one crew can step ashore
- Working together make a Stern Spring line from stern of the boat to the shore which we designate as a Forward Spring
- Continue working together and make a Bow Spring from the bow of the boat to the shore which we designate as an Aft Spring as in the glossary
- Make double turns on all lines and loops so that the lines cannot slip or move

To Cast Off

- Reverse the process – remember to assess which line is doing the work – this will be the last line off and should be released from the boat. The process we call “Single Up”
- Single Bow Spring – ie working together remove the line from the bow to the shore
- Single up Stern Spring - ie working together remove the line from the bow to the shore
- Single up stern ready to cast off the stern line
- Having singled up the bow line, when the river is clear, cast off and move into the river.

If it is a restricted mooring the technique of “Springing Off” from the mooring should be understood.

- Instead of removing the spring that comes from the stern to the shore the line can be used as an aid to move the boat using that line.
- Single up the stern line so that it keeps the stern cleat clear – the offside cleat can be used.
- Take the spring line from the stern cleat, around the shore bollard which is forward of the boat's stern.
- Cast off the stern line
- Cast off the bow line
- By putting the engine in reverse against the spring line the bow will come away from the mooring and by putting the throttle forward, the spring can be let go and the boat will move into the the river.



Approach

The helm should approach the mooring slowly and under control, using engine and steering to assist

Bow Line

This exercise can be done with a crew of two or three. One helm and one or two deck persons.

with one crew

Throw the bow line 'Thames Style', keeping enough slack to allow the helm to manoeuvre the boat slightly astern if required.

Making the bow line temporarily fast, crew should move to the stern to throw the stern line and make fast.

At this stage the helm can leave the engines in neutral and assist with the remainder of the mooring.

with two crew

Virtually the same as above, but each crew person maintains position and the mooring can be carried out making fast both bow and stern virtually at the same time.

It is not until both lines are made secure that the helm assists

Springs

With one crew ashore the spring lines can be placed easily using a fixed loop around the shore bollard, using a double turn to avoid the line slipping or chaffing. The springs should be as long as possible dependent upon the physical placing of shore bollards or mooring pins. Ideally the length of the boat.

Making Turns on Bow and Stern Lines

This can now easily be achieved working together so that the boat finishes up with a taut bow line keeping the bow centred into the stream so that the boat is moored parallel to the shore. Both bow and stern lines should be 45° forward and aft.



Practical Exercise: **CLASSIC MOORING ALONGSIDE**

Singling Up Prior to Departure

Working as a team, discard the lines that are not working. If not springing out, that normally means doing away with the springs and taking off the turns on the bow and stern lines.

Casting Off

With the helm at the engine throttles, the stern line is let go, followed by the bow line once the helm gives the instruction and is ready to move off.

In Strong Stream or in a Restricted Mooring

Depending upon the way the boat is moved off from the shore, dispense with the spring that is not working. At this stage it might be useful to use a temporary safety line to prevent the boat moving with the stream, taking care not to use a boat cleat that might be used for the spring.

Remove the double turn from the shore bollard, pass it around the bollard and return it to the stern cleat making it fast so that the loose end can be used to take a turn around the same cleat to use to spring off.

The stern line is cast off, and it could have been taken from the offside stern cleat.

The bow line is cast off as soon as the helm has control of the boat.

The helm reverses the engines slightly which automatically means that the bow moves away from the shore against the pressure of the fixed spring.

As the bow moves off, the crew releases the turn around the boat cleat and pulls in the spring line comfortably, watching the end carefully to avoid it getting jammed as it comes off the shore bollard.



Practical Exercise: **MOORING BOW INTO THE SHORE WITH THE STERN AWAY FROM THE BANK**

When it is not possible to get the stern into the shore because of shallow water this technique can be used

METHOD

- Moor your craft with the bow upstream, so that the bow is against the shore and the stern away from the shore
- Your final position should be angled to the bank so that your propellers are clear of the river bed
- Your stern should be kept away from the shore by use of a kedge anchor.
- Secure your bow line to a mooring post ashore
- As well as the bow line and the kedge further springs can be used

Laying Anchor

Decide where the mooring is going to be and drop your kedge anchor so that it can be used to keep the stern away from the shore

Approach

Adequately fender the bow and slowly move the bow into the shore so that the crew can either step ashore or throw a Thames Line over a shore bollard

Lines Ashore

Make the bow line secure. Use further lines as springs to prevent any movement of the boat.

Final Position

Tighten the line from the kedge so that the stern is held safely away from the shore and the propellers are clear of the bottom

Departure

When moving off, it is simple to start your engines, cast off the lines and pull the stern out into deep water using the kedge anchor before putting the engines into gear



Practical Exercise: **ANCHORING OR USE OF MUD WEIGHT**

All boats whatever their size should carry a suitable anchor or mud weight. You may simply wish to anchor in the stream for a short stay, or even overnight or use for an emergency stop.

Preparation

If your anchor is attached to chain then normally you should lay out at least 4 times the expected maximum depth of water. If using rope then at least 6 times the expected depth should be laid. If just using a rope it is good practise to have 1 – 2 mtrs of chain at the anchor end as well.

It is good practice to have your anchor chain marked at set intervals with either paint or coloured tags etc so that you know how much you have prepared.

Assess where it is intended to anchor. Is your boat out of the navigation channel? What is the depth of the water? Will that remain constant whilst you are anchored? If possible understand what the bed of the river is; ie mud, shingle or silt?

It is useful to tie on to the anchor an anchor buoy. The line should just be long enough to allow the buoy to lie on the water above the anchor. This should be attached to the bottom of the anchor as it serves a dual purpose of advising where the anchor is; and should the anchor be snagged, by using the anchor buoy line it can be pulled out of the mud. Take care that this line does not come anywhere near your propellers whilst manoeuvring.

WITH OR WITHOUT AN ANCHOR WINCH.

- Stop the boat where you want to drop your anchor. Remember you will finish up some distance from the anchor position.
- Drop the anchor whilst starting to reverse. Do not drop the chain or warp on top of the anchor.
- It is good practice to snub the anchor after approximately half of the chain or warp has been laid out. This is achieved by checking the anchor chain or warp as it pays out and letting the boat pull back against the anchor allowing it to dig into the river bed.
- Once safely anchored, check where you have finished up and make sure that the anchor is holding by keeping an eye on a transit (two objects inline) ashore. It is advisable, and sometimes a requirement, to fly a black ball which can be easily seen to indicate that you are anchored.

WITH AN ANCHOR WINCH.

- Reverse the boat and allow the anchor warp to play out over the anchor winch roller (Veering the chain or warp).



WITHOUT AN ANCHOR WINCH.

- Knowing the depth of the water, flake on the deck sufficient amount of chain or rope to allow 4 – 6 times the depth of the water. Make the end fast to the boat.
- Drop the anchor or mud weight as you reverse your boat. Allow the boat to pull back until the anchor warp has used the amount of flaked warp prepared and the line becomes taut.
- The boat will then move forward and the anchor warp drops onto the river bed allowing a horizontal pull onto the anchor.

RETRIEVING THE ANCHOR

- Motor slowly forward at the same time recovering the anchor warp.
- It is useful to have a crew member indicating where the anchor buoy is as the helm will not be able to see it as the bow of the boat is above the anchor or mud weight.
- If using an electric winch ensure that the winch is not trying to pull the boat forward.
- The anchor/mud weight is retrieved out of the water, the warp being stowed into the anchor locker and the anchor/mud weight secured on board.
- Retrieve the anchor buoy and take down the black ball.

What is The Depth of Water

If using chain 4 times the depth. If using line 6 times the depth

Attach To An Anchor Buoy

Is not tied to where the anchor warp is attached but at the foot of the anchor. It shows where the anchor is lying. Can be used should the anchor be snagged. Also known as the tripping line.

Dropping The Anchor

Boat should be stationery or moving slowly astern. Do not drop the chain or rope on top of the anchor or mud weight.

Laying The Anchor

Slowly reverse while feeding out the chain, Snub the line at an appropriate time to dig in the anchor.

Setting The Anchor

Secure the warp to the anchor post or cleat and apply gentle pressure on the anchor using the boat engine.

Retrieve The Anchor

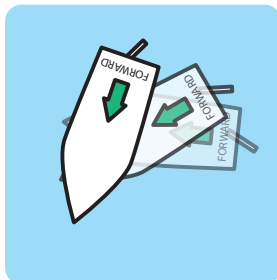
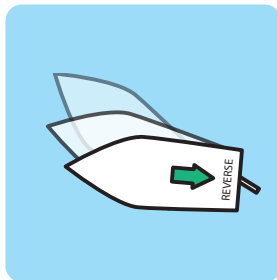
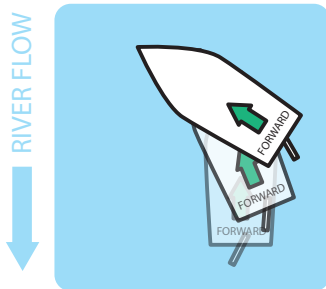
Motor slowly up to the anchor retrieving and stowing the warp as you go. No strain should be on a powered winch.

Practical Exercise: **REVERSING THE BOAT**

As stated in the syllabus, boats with different propulsion systems handle differently especially in reverse.

A single engine boat with a shaft and rudder.

It is almost impossible to reverse in a straight line in this type of boat due to an effect known as prop walk. When you move into reverse, the stern of the boat will try to move in the direction that the prop is turning. To counteract this tendency you need to engage forward gear briefly giving a quick burst of throttle ahead and use the helm to get the bow facing the right direction, then back into reverse and continue gently going back until the boat goes off course again. Keep repeating this forward and reverse movement. If the boat has a bow thruster, it is not necessary to keep moving into forward gear, simply apply thrust on the bow thruster to keep the boat facing the right direction whilst reversing.



- Determine if the prop on the boat turns to the left or right (left hand or right hand prop) when in forward gear
- Propeller effect (walk) in narrow boat parlance is called the 'paddle effect',
- To perform a three point turn whilst facing the stream if you have a 'left hand prop', the first turn of the boat should be to the left.
- When reverse gear is engaged the prop becomes a right hand prop and holds the stern of the boat into the stream, allowing the bow to be swung by the current assisting the manoeuvre.
- Once your bow has moved across the water judicious use of reverse gear will enable you to reverse and again turn the bow to the left when space allows.
- Note: If you turned to the right on engaging reverse gear, the prop effect, coupled with the current, would bring the stern of the boat back to where it started.

Twin engine boat with shaft and rudder:

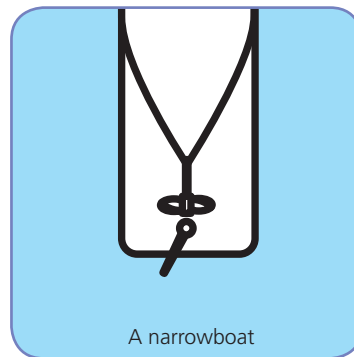
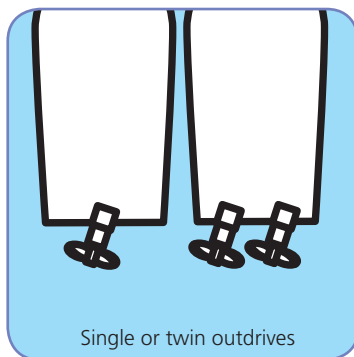
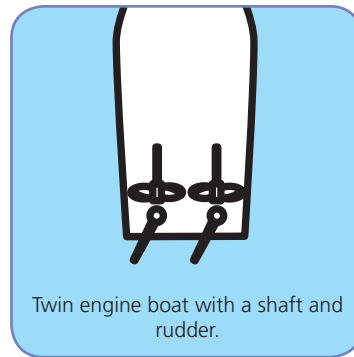
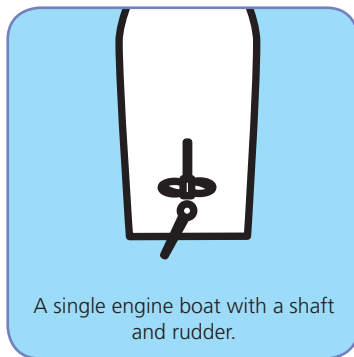
Having twin engines with contra rotating props makes reversing much simpler. Prop walk is not a problem. The rudder can be left in the midships position and a straight course is easily maintained by sympathetic use of both throttles.

Single or twin outdrives:

This type of boat is very manoeuvrable in reverse. Steering is provided by changing the direction the props are facing, which in turn governs the direction the boat moves. Remember no power, no steerage way.

Narrow Boats

The instructions for a single engine boat with shaft and rudder apply equally well to Narrow Boats, the only difference being that their ability to steer in reverse can be enhanced by the length of their 'swim'; the longer the swim the better the ability to steer in reverse.



Practical Exercise: **TOWING**

WHY KNOWING HOW TO TOW A BOAT IS IMPORTANT

There are times when it is necessary in an emergency to take another boat in tow, or of course be taken in tow yourself.

There are alternative ways of taking a boat in tow and the following has been shown to be effective.

TOWING ALONGSIDE Suitable when on broad rivers or canals.

- Take the casualty alongside your boat. Use adequate fenders and springs fore and aft in addition to attaching bow and stern lines. The springs are essential, as the towing boat is subject to the 'dead weight' of the vessel being towed alongside, as they restrict the amount of movement from the towed vessel when moving off or slowing down
- Pass a bow line from the tug to the casualty. Make two springs fore and aft and these in turn have to be "piano wire" taut!
- Ensure the stern of the tug boat protrudes behind the stern of the casualty as this allows the tug to steer.
- Make the stern line secure.
- Note: In the case of towing a narrow boat it is better practice to place the towing boat midships of the narrow boat as this gives full manoeuvrability and control of both vessels from the towing vessel.
- The casualty can be steered using its rudder /tiller following the instructions of the tug boat skipper or it can be fixed in a central position.

TOWING ASTERN

- Suitable for navigating through restricted channels or on narrow canals,
- Use a line heavy enough to take the strain of the tow.
- Make the tow line fast on a suitable forward cleat on the casualty. If practical, take pressure off of the cleat being used by taking the weight of the tow on other suitably placed cleats on the casualty.
- Make fast on the tug boat. Be aware that if tied to one of the tugs aft cleat it can affect the steering. It is better to take the weight off one stern cleat by providing a bridle fixed from both sides of the tug boat's cleats and take the tow from the centre of the bridle midships of the tug. (See Practical Boat Handling Lines and Bends for more information on preparing a bridle.)



- The line must be made fast using a bend that can be easily undone. (See Practical Boat Handling Lines and Bends for more information.)
- Use a long line
- Be aware when slowing down to haul in the slack in the towing line to avoid it getting caught around the towing vessel's propeller
- Great care and anticipation has to be observed by the towing vessel when adjusting speed or slowing down. It has no control over the movement of the towed vessel, as is the case when towing alongside.
- When towing on a long line it is necessary for the towed vessel to have someone on the wheel or tiller.

ADDITIONAL TOWING APPLICABLE IN THE MAIN TO NARROW BOATS BUT COULD BE USED FOR TOWING OTHER CRAFT.

- By using cross straps:
- The towing vessel attaches two short straps from their 'studs, or dollys, on their stern, to the bow stud of the towed vessel.
- The straps are crossed over, namely the left hand strap from the towing boat crosses over to the right hand side of the bow of the towed boat, with the left hand strap crossing over to the right of the bow of the towed boat.
- Ideally the towed vessel should be in such close proximity to the towing vessel that the respective stern and bow fenders should be in contact.
- This enables the towing and towed vessels to assume the configuration of an articulated vehicle, enabling the towing vessel to control the steering of the one being towed, without having to use the tiller of the towed vessel.
- The great advantage of this method is that the towing vessel can use reverse gear to slow the towed vessel which is not possible when using a long line. Hotel Narrow Boats tend to have someone on the tiller of the towed vessel, This is a matter of choice to enhance greater manoeuvrability.
- Towing on cross straps is ideal when negotiating tunnels, as boats coming in the opposite direction meet what is in effect two boats in a continuous length rather than two boats a considerable distance apart, as would be the case on a long tow



Practical Exercise: **MANOUEVERING A TWIN SCREW BOAT WITH ONE ENGINE**

Manoeuvring a twin screw boat with one engine down is difficult.

It does not happen very often but it is a skill that is useful to have if one engine fails as you leave a lock or a mooring.

To understand what happens when a twin screw boat loses one engine it is necessary to understand how the propellers function. Mastering the skill of still being able to move off a mooring with one engine down means that a helm person understands what happens when the throttle(s) are used to propel the boat forward.

Normally the two propellers swing away from each other. This enables the boat to be driven forward in a straight line or in reverse when the throttles are reversed. (See also the description in the Reversing Practical Exercise.)

Should you be moored on the port side and your port engine goes down it means that the starboard propeller will drive your bow into the side of the mooring so this is no good.

- Turn the wheel to starboard
- Put the starboard engine in reverse very slowly and with luck, the boat will move out sideways.
- If possible give the bow a push out using a boat hook to assist, or use a spring from the stern and back to help to move the bow out.
- Judicious use of throttle will gradually move the boat out from the mooring, and once you have 'sea' room you can attempt to steer the boat forward.
- Be aware that it will be necessary to work the steering wheel to compensate for the thrust of the one engine pushing the bow to the starboard the entire time.
- Reverse the action should it be the other engine that fails.

If There Is a Bow Thruster Fitted

If a bow thruster is fitted the problem hardly occurs as it can help to move the bow out and keep it straight.

If The Boat Is Fitted With Outdrives

The above does not affect you! You should be able to use the throttle and reverse to compensate, although it will be harder to steer a straight course.



Practical Exercise: **LINES AND BENDS (Knots)**

To be able to tie simple bends (knots) is a skill that an experienced boat handler must master. Examples of the bends that are used whilst boating are described below. Whilst tying the bend can be learnt from a book, it is preferable to spend some time with your club instructor who is able to show you how to tie them.

Coiling and throwing lines is another skill that requires mastering to properly moor and tie up your craft.

We recommend the following book for illustrations of the bends and knots Published by Fernhurst books

- "Knots & Splices by Jeff Toghill
- Sea Safety Companion (an RNLI publication.)
- Knots, Splices and Rope Work (an RYA publication.)

Coiling lines:

Never coil a line around your hand and elbow. This will result in the line forming a figure of eight and becoming tangled when thrown. Take one end in your left hand then slide the right hand down the line for approximately an arm's length and make a loop over the left hand at the same time giving the line a slight twist so that it hangs in a loose coil. If you are left handed reverse the procedure. Three strand rope is coiled clockwise with a right hand twist in each loop.

Throwing lines:

Coil the line and divide it into two coils. Throw the end coil at the same time releasing the other one. Ensure that one end of the line is secure before throwing otherwise you will throw the whole line!

Throwing a loop: (Otherwise known as 'Thames Style Throw')

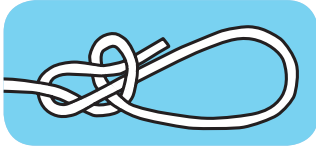
Make one end fast around the boats cleat. Divide the line into two coils and using both hands throw a large loop over the shore bollard. (See Glossary)

Taking a turn:

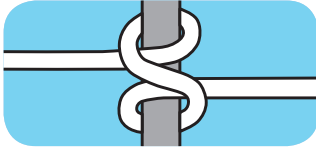
Taking a line around a cleat or shore bollard.(See Glossary)



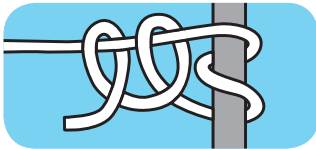
Bends (Knots):



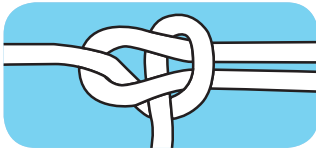
1. **Bowline:** Best method of forming a loop. Doesn't slip and easy to undo if not under load.



2. **Clove hitch:** Quick to tie. Ideal for securing fenders. If used on its own it will slip, must Can be finished with a half hitch to make it secure



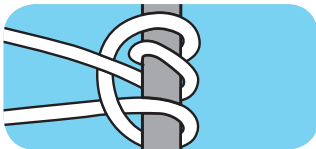
3. **Round Turn and two half hitches:** Very secure and can be released under tension. Ideal for mooring lines.



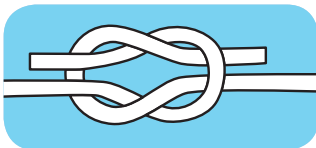
4. **Sheetbend:** Used to join two lines of unequal thickness. Example of use is when bending the ensign on to the ensign line.



5. **Double Sheetbend:** As above but more secure. Especially for wet, slippery lines.



6. **Rolling Hitch:** Similar to a clove hitch but with an extra turn. Can be used when a sideways pull is required as it will not slip.



7. **Reef Knot:** The most simple knot that provides finishes very flat and can be used to make bandages secure.

Personal Log

The Theoretical Segments

The River Thames		
Date	Trainer	completed

Using the Locks		
Date	Trainer	completed

Thames Protocol		
Date	Trainer	completed

Safety & Practice		
Date	Trainer	completed

Rules of the Road		
Date	Trainer	completed

Mooring		
Date	Trainer	completed

Personal Log

The Practical Segments

Manoeuvring a twin engine boat with one engine down		
Date	Trainer	completed

Holding position against the elements		
Date	Trainer	completed

Mooring alongside with springs		
Date	Trainer	completed

Anchoring or using mud weight		
Date	Trainer	completed

Mooring at 45° to the bank		
Date	Trainer	completed

Reversing the boat		
Date	Trainer	completed

The Practical Segments

Towing another boat		
Date	Trainer	completed

Working a lock		
Date	Trainer	completed

Practical Line work		
Date	Trainer	completed

Notes

Notes

Notes

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