



DOMESTIC SAFETY MANAGEMENT POLICY
CRUSADER COMMUNITY BOATING
RIVER NENE
INCLUDING LOCKS SUPPLEMENT

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PASSENGER CERTIFICATE

DOMESTIC SAFETY MANAGEMENT CERTIFICATE

The Passenger Certificate and Domestic Safety Management Certificates are legal documents and are issued by the Maritime and Coastguard Agency.

The certificates contain:

- Particulars of the ship
- Port of registry
- Name of Owner
- Certification
- Confirmation of compliance
- Classification of waters
- Plying limits and conditions
- The range of operation
- Passenger numbers

Maximum number of passengers may not match with a voluntary comfort restriction imposed by the master.

A supplementary record of equipment is included with the certificates and includes, among other things, data concerning stability / load line / lifesaving appliances & equipment / fire extinguishers etc.

These certificates must be displayed at all times. Please familiarise yourself with these certificates as they form the basis of the conditions in which we may operate the vessel.

EMERGENCY ACTION SHEET

EMERGENCY	Initial Action	Dealing with Incident	Evacuation
FIRE	1. Shut off any music 2. Inform Emergency Services 3. Steer vessel to safety 4. Co-ordinate action by crew & passengers with regard to firefighting & evacuation 5. Switch on all lights 6. Take logbook (passenger numbers)	1. Identify source of fire 2. Assess extent 3. Shut of air supply 4. Shut of source of ignition 5. Fight fire if safe to do so	1. in an orderly manner 2. Evacuate to shore well away from boat 3. Retain logbook 4. Check for injuries
COLLISION or GROUNDING	1. Shut off any music 2. Initiate search & Rescue Plan 3. Take vessel to safety 4. Co-ordinate action by crew & passengers for evacuation 5. Switch on all lights 6. Deliver emergency announcement 7. Update emergency services 8. Take logbook(passenger numbers)	1. Identify if spaces below deck are flooding 2. Assess severity 3. Start bilge pumps	1. Control passengers using carers to assist 2. Evacuate in an orderly manner 3. Evacuate to shore well away from boat 4. Retain log book 5. Check for injuries.
BODY OVERBOARD	1. Turn vessel towards person in the water 2. Propeller must be kept away from the person in the water	1. Deploy life ring with line 2. Keep watch of person overboard 3. Prepare rescue ladder 4. Recover person at SIDE of the boat if possible	1. Remove wet clothing 2. Treat for shock. 3. Pack of dry clothing available.

Always be alert to the causes of an evacuation.

Train to deal with these causes.

Anticipate what will be required regarding a particular group on any given day, e.g. are they partially sighted / hard of hearing / wheelchair users.

The most common reasons for evacuation are:-

- Fire.
- Aground.
- Collision.
- Engine / steering failure.
- Passenger illness.

Evacuation can be essential or precautionary. If in doubt — **EVACUATE.**

ALWAYS EVACUATE IF THERE IS A FIRE

**Ensure all your actions comply with the training
given on your Fire Marshal Course.**

Persons to notify:

- The crew.
- Emergency services. (999 / 112)
- Passengers.
- Designated person ashore.

ACTION

Assess the danger:

- Fire – Can it easily be extinguished?
- Collision – Can the boat still be motored to safety?
- Aground – Can the vessel be re-floated?
- Leak – Is the leak repairable?

Inform:

- Calmly sound the alarm to inform the crew & passengers.
- Contact the emergency services.

Deploy:

- Crew to deal with the emergency and passengers.
- Use carers to assist with passengers.

Exit:

- Use the safest emergency exit (take the log book if possible)

Recount:

- Passengers & crew must be re-counted to re-establish if anyone is missing if so; initiate a search if safe to do so.

Taking the vessel to safety:

- Steer the vessel to the bank or mooring on narrow canals; wider navigations may dictate the use of an anchor.
- Tie the boat up securely, use mooring pins if necessary.
- Keep the engine running if safe to do so.
- Investigate the cause.

Evacuation into the water:

- Calm passengers and give clear instructions of what is intended. Deploy life belts. Always use the safest and most obvious exit.
- Ask passengers to remove heavy clothing (overcoats etc. :) which may become waterlogged and hinder the rescue.
- Enter the water without jumping or diving.
- If passengers are able – get them to enter the water carrying a life belt (each belt will support two persons)
- The rescue ladder can be used to enter the water.
- Keep clear of the propeller if engine is still running.

Running aground:

On narrow canals and restricted sections of rivers there is a chance of grounding the vessel. Prevention is better than cure so get to know your sections of water particularly the location of shallows & silting.

If the boat has grounded bow first put the engine into neutral to assess the situation. The important thing is to ensure there is no serious damage to the boat. It is no use reversing back into deep water if a seam has split and water is pouring inside! CHECK THE BILGES!!!

If everything is intact reverse off the obstruction, if other boats are around let them pass as their wash may lift the boat off the obstruction. Gradually increase the power until the bow slides off.

It may help if you move the crew and / or passengers to the deep water side of the boat. Do not rock it.

Collision:

- In the event of a collision; are the passengers and crew alright?
- Is first or emergency aid required?
- Is the boat serviceable and can the trip continue?
- Check the bilges in case of a water leak (this is why bilges should be kept clean & dry)

Engine failure or loss of power:

If the engine is regularly maintained and regularly checked failure is a rare occurrence. More likely the problem will be the power train.

If the engine stops whilst the boat is in mid channel, use any forward momentum to steer the boat towards the bank. Use poles if necessary.

- Has the propeller fouled?

- Is the linkage from the engine to the propeller functioning?
- Is the engine working?
- Were there any unusual noises or smells prior to the event?

Hybrid failure or loss of power:

The system is covered by Canal & River Rescue. Although failure is a rare occurrence should it happen contact and engineer 01785 248 793 or via their breakdown app; Waterways SOS quoting Policy Number; 309759H.

If the drive stops whilst the boat is in mid channel, use any forward momentum to steer the boat towards the bank. Use poles if necessary. Check the system in still in Hybrid drive.

- Has the propeller fouled?
- Is the linkage from the lynch motors to the propeller functioning?
- Is there a loss or electrical power to the shaft?
- Were there any unusual noises or smells prior to the event?

Propeller fouling:

- The propeller may stall; there may be a noticeable drop in revs.
- Engage reverse and alternate between forward.
- Gently reverse.
- Try this several times.

If this fails check the weed hatch. **(The person checking the weed hatch MUST take the ignition key out of the ignition and carry it with them at all times)**

- Ensure the hatch is fitted correctly and secure before moving off.
- Do not put any removed rubbish back in the water.

Under no circumstances should any crew member interfere with the Hybrid drive system. Complete the trip using engine power. If this is not possible, inform the boat maintenance person who will arrange for a qualified engineer to examine the system. Arrangements should be made for the passengers to be collected from the location, preferably using Mountbatten Crusader.

Rudder failure:

This can be caused by collision or grounding when the rudder jumps out of the stock and jams in one position. It may be possible to re-locate the rudder in its stock by moving from lock to lock, if not contact boat manager who will arrange for an engineer to visit.

Serious Water Leak:

All boats take on water into the bilges through drainage/condensation/worn stern glands. An incorrectly fitted weed hatch can result in sufficient water ingress to sink a boat.

Part of the daily check list is to ensure the bilges are clean and dry and the bilge pumps are tested. This regime of cleanliness will make it possible to check if the boat has a leak or not.

Collision damage or a neglected stern gland or badly fitted weed hatch can result in a serious leak and will require immediate action.

Signs of a leak:

- The trim of the vessel alters.
- The automatic bilge pumps activate.
- There is excessive water in the bilges.
- Passengers report something unusual e.g. wet carpets.
- Alteration in the way the boat handles e.g. pulls to one side.
- The engine note changes as it labours under the heavier load.
- History of previous collision.
- Sound of slopping or running water inside the boat.

Once a serious leak is discovered, the boat **MUST** be steered to safety, even run aground and passengers evacuated.

Action:

- Steer for the bank.
- Tie the boat up securely.
- If possible keep the engine running.
- Establish the cause of the leak.
- Repair the leak if possible.

Leak on the waterline:

By moving the passengers to the opposite side of the leak the point of leakage may be raised out of the water. The vessel must be moved slowly to prevent wash over the waterline. The boat must still be taken to safety and passengers evacuated.

- Keep the passengers informed in every emergency. Put them at ease; they need to know why the boat has stopped suddenly.
- It is important that they know everything is under control as they will respond to the crew more readily if trust has been established.

Person Overboard:

If someone falls overboard it may be the source of some amusement but you must be aware of the dangers – any delay in rescue could be the difference between life and death.

- The victim may be a non-swimmer. They may be sucked into the propeller. They may be unconscious, ill or injured.
- The water will be cold even in summer. Cold water shock or hypothermia can soon set in.
- Immediate calm and co-ordinated action is essential.
- Keep the person in sight at all times and point them out to the helm.
- Throw a life belt to them taking care not to hit them with it.
- Keep the propeller away from them.
- On a river turn round and approach them bow or side first.
- Put the engine into neutral to stop the propeller but leave the engine running.
- Drift at the same speed as the person trying to keep leeward to give the flow and wind a chance to wash them closer to the boat.
- Do not put the boat between the casualty and the wind.
- Pull the casualty on board on to the rear deck or lift access point.
- Consider using a rope to attempt rescue.
- A pack of dry clothing is stored in a bright yellow canvas bag in the rear deck locker.

Shock is a killer:

- The person in the water may not understand the instruction on how to grab a line or lifebelt – get them out quickly.
- Clothing rapidly gets waterlogged – this makes the victim tired and will hinder rescue efforts.
- Safety / rescue ladder must always be deployed.
- A pole, rope loop, mop, boat hook, jacket or blanket may be sufficient to pull them to safety.
- Under no circumstances should a rescuer enter the water.
- Seek medical attention in all cases, particularly for shock, hypothermia, any injury - consider Weil's disease.

Preparing the boat:

- Never work on the engine, weed hatch, prop shaft, without having the ignition key in your pocket.
- Do not remove any guards or cowling whilst the engine is running.
- Never use flammable liquids as cleaning agents.
- Do not smoke near fuels or batteries.
- Dispose of dirty cleaning rags, grease cartridges, empty oil cans etc. safely and appropriately.
- Loose objects in the engine room could vibrate towards moving parts and cause damage.
- Before every trip you must follow and complete the on board checklist. Any faults or concerns must be recorded at the time you find them.

Before setting off:

- Unplug any electrical connection to the bank.
- Start the engine out of gear.
- Leave it to warm up for a few moments.
- Listen for any unusual noise or vibration.
- If you suspect there is a problem, stop the engine and investigate. Use professional help if you cannot fix the problem yourself.
- Ensure all controls, gauges and cables are operating correctly. When underway keep an eye on instruments.

The Safety Talk:

- The talk must be given prior to leaving on every trip.
- The talk can be given by any crew member.
- Remember passengers will not listen to someone rambling on for several minutes, keep it clear and concise and to the point.
- Use humour to get your point across but ensure you emphasise the important elements.
- The announcement must contain a description of the emergency signal or instruction to be used.
- It must give a description of the lifesaving aids and their usage.
- State the location of all exit points and any assembly point.

Crew responsibilities during the trip:

Our minimum requirement is two. However; for operational ease, up to two more may be used; Boatmaster, qualified steerer are required for all trips.

The Boatmaster is responsible for operating the boat in accordance with the Domestic Safety Management Certificate. The Boatmaster will allocate the crew to the duty positions and rotate them through these positions to ensure that tiredness or boredom does not affect the operation of the boat.

When not involved with their primary duties, Boatmasters may take any duty position but must be prepared to take charge immediately in case of any emergency.

Trainee crew members may be allocated to any duty position but must be under the direct supervision of an experienced crew member, until a Boatmaster assesses them as competent for that duty.

The duty positions are: steerer, lookout, deck/cabin, stern.

- **Steerer.** - Steers the boat under the general directions of the Boatmaster and takes charge in any emergency until relieved by the Boatmaster. Only authorised crew are allowed to take the helm when passengers are on board.
- **Deck/Cabin.** - Liaises with and monitors passengers on the fore deck and inside the cabin area and ensures the lookout is not distracted from primary duties by the passengers. Assists locking.
- **Stern.** – Assists with steering duties if qualified and looks after stern rope when mooring. Assists locking

The embarkation & disembarkation of a boat is covered by the Merchant Shipping Means of Access Regulations 1988.

It is essential that ALL access points on the boat, even for crew only, are properly supervised. The boat must be secured to the bank, quay, pontoon or any other non-movable structure. The access lift must be in position after the boat has been secured and remain whilst the boat is tied up. The access equipment must be secured and deployed and be safe to use. The equipment may need to be adjusted from time to time so safe access is maintained. The equipment must be fit for purpose and properly maintained. No other points of access should be used except in emergencies.

Boarding passengers with reduced mobility:

- Passengers should access the boat via the lift.
- Ensure the roof flap is fully up otherwise the lift will not operate.
- Crew positions for loading should be two persons on shore and one person for receiving the passenger.
- When disembarking, one crew at exit point on the boat and two on shore to receive the passengers.
- Wheelchair users should be assisted by a carer if it is required, but under full supervision from the receiving crew.
- Do not grab or hold any passengers unless asked by the passenger to do so.
- If required offer the passengers assistance if they appear to be nervous or unsteady.

Points to consider:

- Wash from passing boats can make access hazardous.
- Changes in water levels can cause problems with ropes, which may need adjusting as necessary.
- Remember ALL access must be supervised.

Lifts:

- Ensure the boarding ramp is securely in position.
- The person on shore at the point of access is responsible for allowing passengers access with liaison with the lift operator.
- The lift operator is responsible for ensuring safe access of passengers to or from the lift platform.

- Ensure the overhead hatch is open.
- Ensure all brakes on wheelchairs are activated before operating a lift.
- Ensure all passengers and crew are well away from the lifting platform before operating.
- Be aware of safe weight limit of the lift.
- Only one wheelchair and one helper should be on a lift at any time.

Passenger Counting:

- This must be done before leaving on all trips and a record made in the daily log book. The passenger count and crew number should be forwarded to someone on shore along with the time of departure.
- If passengers disembark at lunchtime, a head count must be made before departing.
- The maximum number of passengers is recorded on the passenger certificate. A copy of this is displayed on the noticeboard.
- The same person on shore should be informed of the time of return when the boat is returned to its regular mooring and all crew have disembarked.
- All crew should know how many passengers are on board.

4. Locks

Going downhill:

- Close the bottom gates if they are open ensuring the paddles are closed.
- Fill the lock with water by opening the paddles on the top gates.
- Open the top gates when the water levels equalise and enter the lock chamber slowly.
- As the boat is entering the lock, close the paddles on the top gates.
- Secure the boat with running lines around the bollards but never on the ladders.
- Close the gates.
- Once the helm is satisfied that the boat is secured they will give the signal to open the paddles on the lower gates. **DO NOT START OPENING UNTIL INSTRUCTED!**
- Keep the running lines tight at all times to prevent snagging; under no circumstances should the lines be made fast on to the boat.
- During the descent boat lock crew and helm must ensure the boat is kept clear of cill markings.
- During descent lock crew should be aware of the bow of the boat getting snagged on the cross members of the bottom gate and should indicate to the helm if the boat touches these structures.
- At the lower level, open the bottom gates and keep the running lines tight until the helm signals their release.
- Close the paddles on the bottom mitre gates. Leave Guillotine gates open.
- Leave the lock and pick up the crew.

Going uphill:

- Close the bottom gates / guillotine behind the boat. Check all paddles are closed.
- Secure the boat with running lines to the bollards, not the ladders.
- Open the lock paddles slowly when the helm indicates to be ready.
- Open the ground paddles half way; if fitted; first.
- Open the gate paddles slowly only when the helm signals.
- Be aware as the boat rises of snagging on the lock side.
- Be aware the boat will surge forward as water enters the lock.
- As the boat rises in the lock open all paddles fully when the helm signals.
- Keep the running lines taught at all times to prevent buffeting.

- When the upper level is reached do not cast off the lines until the helm gives the signal.
- Close all paddles.
- Leave the lock and pick up the crew. Leave Guillotine gates open.

Note

On the River Nene mitre exit gates should be left open in the direction of travel but guillotine gates should always be left up irrespective of direction of travel.

Safety issues at locks:

Person overboard:

- Act quickly.
- Close all paddles.
- Disengage propeller.
- Ensure boat cannot swing across the lock and crush the victim.
- Look for ways of getting the person out.
- All locks have ladders, some have chains as well.
- If the person is conscious and able bodied direct them to a ladder, chain or line.
- Where there is no boat in the lock throw a life belt then it may be possible to slowly fill the lock to raise the person within the reach of rescuers.
- For unconscious persons very urgent action is required. Make sure anything done is safe for the rescuers. Here improvisations will have to be made. The possibilities are endless but always think first.

Getting Tied Up:

Descending a lock:

- Never tie a boat in a lock; always use running lines.
- In a descending lock a boat can hang if the lines are tied or snagged.
- **DO NOT CUT THE ROPE.**
- The weight of the boat will snap the line and it will whip back and possible cause injury to you or bystanders.

- The same forces can rip the cleat out of the boat with the line still attached.
- The boat will drop violently into the water and possibly become flooded and sink with disastrous consequences for passengers and crew on board.

Caught on the cill:

The cill is a solid construction below the water line and is used to support top gates and their structures. If the boat is not kept clear of this there is a danger it may get caught as the water level drops. To avoid this keep the boat forward of the markings on the lock side.

Action:

- Do not cut the rope if the boat is 'hanging' by it. The resulting whiplash can be devastating.
- **IMMEDIATELY CLOSE THE BOTTOM PADDLES.**
- Open the top paddles and gently re-float the vessel.
- Stand well clear of tight ropes until the strain is taken off them.
- Check rudder and propeller for damage – only proceed if there is none.
- Make sure the deck fittings and superstructure are undamaged.

Ascending a lock:

Care must be taken to avoid getting the boat trapped under the cross beams of the top gates. When entering a lock keep the bows away from the top gates. There are markings on the lock sides to indicate the safe zone.

If a boat gets caught under a cross beam quickly close the top paddles then slowly open the bottom paddles to allow the boat to float free.

Lock operators should keep a watch on the trim of the boat at all times whilst it is rising in the lock. Be aware of the rubbing strips getting fouled on lock chains or loose brickwork.

Safety issues at locks:

- When opening the gates do not let anyone stand in-between the beam and the lock side.
- Never walk along the gunwales in a lock (*don't do it anyway*)
- Ensure passengers do not dangle limbs over the side of the boat.
- Always use ropes to hold the boat especially when ascending. Turbulence can bounce the boat around whilst the lock is filling.
- The area around locks can be slippery; do not jump on or off the boat.
- Secure the boat with ropes front and back on the same side of the lock. Securing diagonally will not help with stability.

- Never tie up in a lock or leave ropes unattended.
- Always coil ropes safely when not in use.
- Never leave a windlass on a spindle unless you are holding it.

Laid rope should be coiled clockwise, Plaited rope will form figure of eights.

All crew should be competent in throwing ropes from the boat onto a bollard at the lock side and regular practice will perfect technique.

5. Boat Equipment

The Windlass:

This is used to turn the gear which operates the paddles in the lock gates. Be sure to use the correct size otherwise it may slip and cause injury or be lost in the water.

- Wind the paddles very slowly but firmly.
- Take instructions from the helm as to how much paddle lift is required.
- Remove the windlass from the spindle and either clip it to your belt or put it where you can see it.
- Open the gates to allow the boat to move out of the lock.
- Take the windlass and wind down the paddles. Do not let them drop.
- Keep fingers, clothes, and jewellery away from spindles and paddle gear.

Winding the paddles down as the boat leaves the lock saves time.

Boat Shaft:

- These must only be used for pushing away from a stationary solid object.
- Never use a shaft as a lever.
- Do not put the tip of the shaft in the pit of your stomach. A slip can cause serious injury.
- Hold the shaft to one side of your body and pull backward down the shaft.

Boat Hook:

Use for picking up ropes, buoys and other light objects in the water.

- Never to be used for fending off any boat.

6. Supplying the Boat

Pumping Out:

- Secure the boat.
- Wear Gloves. Remove the cap on the boat deck and insert the nozzle ensuring there is a good seal.
- Insert token then open the valve on the hose following the instructions indicating the direction of travel.
- When finished shut off the valve and remove it from the deck fitting. (The connection may be firm following the pump out) replace the hose ensure that it does not enter the water.
- Put the requisite amount of toilet fluid into the tank, (use blue formaldehyde based only)
- Clean up any spills.
- Wash hands thoroughly.

Refuelling:

- Switch off engine, electrics, mobile phones, and radios.
- Extinguish all naked flames – no smoking.
- Close windows, doors, hatches to prevent fumes entering the boat.
- Open filler cap and ensure any vent is clear.
- Dip the tank to ensure there is sufficient capacity for the amount being delivered.
- Clean up any spillage

Drinking Water:

- Care must always be taken to ensure that canal or river water does not contaminate the water tank, hose or inlet.
- The area around the filler cap must be kept clean to avoid contamination.
- Moor the boat securely.
- Unscrew the filler cap and take the hose to the opening, making sure the removable end section or the end of the hose does not make contact with the ground or the canal or river.
- Once the nozzle is secure in the tank filler turn on the supply ensuring air can escape.
- Always fill the tank to the brim, this eliminates the need to use a dip stick and prevents contamination of the supply. If water spills on the deck ensure the area is safe for passengers.

- When the tank is full, turn off supply and remove the detachable end connection.
- Replace the tank filler cap **hand tight only**.

Closing down post trip:

- Stow all external equipment inside the cabin.
- Connect shore line.
- Turn down stern tube greaser until it feels firm. Do not overtighten.
- Check bilges under stern gland for water ingress and empty if required
- Lock all flaps & lockers.
- Give toilet a final check.
- Turn **OFF** all fuse switches in GREY box
- Close all emergency exits.
- Leave all hopper windows **OPEN**; Lock rear door

7. Boat Handling

Rules of the road:

- Always navigate in the centre of the waterway; this should keep your vessel in the deep water channel.
- This position changes due to anything from oncoming boats, moored boats, and obstructions to the channel, currents and overhanging foliage.
- Always keep to the **RIGHT** when passing approaching boats.

Overtaking:

- If there is a need to overtake a moving boat then overtake on the **LEFT HAND** side.
- If passing on the **RIGHT** is the only option make sure the intention is fully understood by the other skipper or do so when invited.
- Do not overtake near bridges, bends or moored boats.
- At all times ensure that the other craft knows what your intentions are.
- Use the correct horn signal (be aware that the other boat helm may have no knowledge of the correct horn signals so back up your horn signal with hand signals)
- Do not overtake purely to reach a mooring or lock ahead of the other boat.
- Overtake decisively but not at an undue speed. (The more throttle you use the less forward momentum you will have and you may draw both boats together)

Approaching bridges or narrows:

- Slow down well in advance to assess the situation. It may be practical to move over to the 'wrong side' of the navigation to gain a better view.
- If an approaching boat is nearer, then wave it through. **(The steerer only must make the decision to wave a boat through, NOT the lookout)**
- Boats travelling downstream have priority.

Speed:

On the River Nene there is 7 MPH speed limit. This is the equivalent of a jogging speed. This is not to say the maximum speed must be aimed for at all times. Common sense must prevail.

- **IF THERE IS A BREAKING WAVE ALONG EITHER BANK - YOU ARE TRAVELLING TOO FAST.**
- **IF PASSING MOORED BOATS AND THEY ARE STRAINING ON THEIR ROPES OR CHAINS – YOU ARE TRAVELLING TOO FAST.**
- **IF THE BOAT IS RATTLING OR VIBRATING - YOU ARE TRAVELLING TOO FAST.**

➤ **IF YOU HAVE A ROLLING BOW WAVE – YOU ARE TRAVELLING TOO FAST.**

When a boat is travelling too fast the stern is sucked downwards and efficiency is lost. The boat starts to vibrate and debris may be lifted up from the bottom and get entangled on the propeller or rudder.

ALWAYS! Slowdown in the following circumstances:

- Passing moored boats.
- Travelling out of necessity close to the bank.
- Poor or restricted visibility.
- Passing dredgers / weed cutters etc.
- Approaching bridges.
- Approaching narrows.
- Approaching bends, particularly when your forward vision is limited.
- Meeting rowing or sailing craft.
- Approaching locks.

The 'bank effect' is a potentially dangerous situation where boats pass too closely or too fast or both. The water in between is displaced and the boats are sucked sideways towards each other. The steering can be seriously affected and a collision is the most likely outcome. A similar situation arises when travelling too fast or too close to the bank.

REMEMBER: NO GEAR = NO STEER

Rowing boats & canoeists:

Rowers and canoeists may have their backs to you so horn signals are essential. SLOW DOWN.

Take extra care at the White Mills Water Centre at Rushmills. Craft enter the main channel near the A45 flyover. The rumble from overhead traffic can make horn signals inaudible. Be prepared to stop. Canoeists also use the section up stream of Weston Favel lock to the Abington lock cutting.

Casting off:

Always try to moor up into the flow. This gives better control into and off the bank

- Before leaving a mooring there are several assessments to be made.
- Is the water deep enough with no obstructions to be able to 'drive' off the mooring?

- Will the wind and current complicate or assist matters?
- Are there boats moored close by?
- Are the crew ready for the manoeuvre?
- Are there other craft approaching or passing?

The crew must all know what is expected of them and how the boat is expected to leave the mooring. The only way to do this is by discussion 'at the time' as conditions will vary from trip to trip. Hand signals between the steerer and the crew are vital.

- The steerer controls all aspects of casting off.
- Check the mooring lines are ready for casting off.
- Remove all mooring pins or piling hooks.
- At the steerers signal - cast ropes off and give a gentle push to start the inertia of the boat moving off the bank and bring ropes on board and stow them ready for further use.

Bow first:

Where there is plenty of water under the boat, push the bow clear and motor out if there is sufficient depth at the stern.

Stern first:

Where there is shallow water or debris under the stern (danger of damage to rudder or propeller) push the stern out and reverse into mid channel then bring the bow round in forward gear. Take care not to leave any crew behind.

Thrusters:

Are primarily for:

- Assisting with manoeuvring the boat in confined spaces; manoeuvring in tight spaces; assisting with keeping the boat steady | holding back in mid channel.

They should **NOT** be used for prolonged periods or assisting steering the boat when underway in open water. They should NOT be used to push the boat from side to side in a rising lock.

Paddle wheel effect:

This is the sideways movement of the boat caused by the rotation of the propeller. It occurs because the top of the propeller is nearer to the surface and the water is less dense – the thrust at the top is less efficient.

The bottom of the propeller being deeper in the water and therefore stronger pulls sideways as well as moving the boat forwards and backwards.

This effect can be put to good use when reversing the boat as the effect is more pronounced in reverse gear.

Both our boats have a 'right handed' propeller – i.e. one that rotates clockwise in forward gear.

If you are coming into moor on the LEFT, head into the bank at 30° when your bow is 1 - 2 feet away from the bank, engage reverse gear and the transfer thrust will pull the stern in.

If approaching a mooring on the RIGHT, the effect will be to push the stern away from the bank, however by using the rudder to swing the bow to the left (stern to the bank) the effect will be to balance the boat and assist to bring the boat parallel to the bank.

You will still need to be aware of current and wind direction.

Horn Signals:

There is a standard system of horn signals that apply to every waterway in the world. You should use these signals and avoid shouting and wild gestures.

Always bear in mind that not every boater uses or understands these signals so when you use them wait for a reaction that is appropriate to the signal that has been given – if there is no appropriate response then take care and use hand signals if necessary.

- I am turning to the right – one short blast.
- I am turning to the left – two short blasts.
- I am reversing – three short blasts.
- I am turning around to the right – four short blasts followed by one short blast
- I am turning around to the left – four short blasts followed by two short blasts.
- At blind bridges and bends – one long 5 second blast.
- International emergency signal – seven short blasts followed by one long blast.

Hand Signals:

These should be used as a means of communication between the crew. These should be kept to a minimum and should be made with the arms raised. Look at the recipient when giving signals to ensure they are received and understood. Only one person should be giving hand signals at a time to avoid giving conflicting information.

- Rope on – Linked fists.
- Rope off – Unlink the fists.
- Boat approaching – Arms raised and fingertips touching to form a point.
- Ready to go / clear ahead – Thumbs up.
- Stop where you are – Steady open hand.

- Push in/push off - Point inboard/outboard.
- Come forward - Beckoning with open hand.
- Back off - Push back with hand.
- Slow down – Horizontal hand waived up and down.

Use an open hand with your fingers spread to count down (in feet) the distance from the bow to the bank when turning or bringing the boat into the bank for any reason. Ensure you have your hand square to the steerers' line of sight, so that they can see your fingers clearly. When the bow is just less than one foot away from striking the bank, show the steerer a clenched fist.

Turning:

Turning should be done with care at intersections of streams and by washes etc.; (On many sections of open water there is sufficient space to do a full 180 deg turn). Always make a turn bow first otherwise damage could be caused to the rudder or propeller. The boat will turn tighter one way or the other when rudder and paddlewheel affect combine. At high revs a boat will turn tighter than at low revs.

Turning on open water:

One point turn:

- Slow down virtually to a stop and check for other craft.
- Put the rudder hard over and steadily apply forward power. The boat will turn efficiently with the minimum of forward movement.
- Vary rudder angle and revs to determine turning circle.
- Short bursts of throttle and maximum rudder angle will make a tighter turn.

Turning hard around:

- First check for other craft.
- Move the boat close to the bank (left bank for right handed propeller and vice-versa)
- Slow right down virtually to a stop and check for other craft.
- Put the rudder hard over and apply medium revs to get the bow swinging.
- Apply short burst of reverse – this keeps the bow swinging with paddlewheel effect.
- Keep the rudder hard over.
- Use forward gear to complete the turn.

Holding the boat on station:

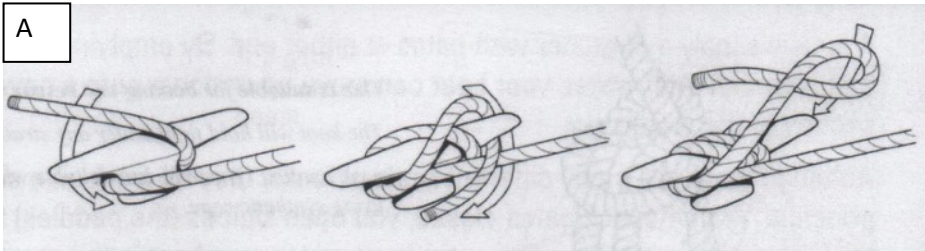
Keep the vessel straight by use of forward and reverse gear with minor rudder movements, not forgetting paddlewheel effect and bank effect.

Reversing:

- There is no propeller flow over the rudder in reverse therefore there will be no steering benefit apart from minimal deflection. The use of the rudder will have very little effect and the boat will tend to go its own way with the influence of paddlewheel effect. Consider use of thrusters.
- Point the tiller bar in the direction you want the bow to move.
- Keep the boat in mid-channel (watch for other craft)
- Apply gentle reverse.
- Check the swing of the bow and correct by use of thrusters or forward gear and rudder.
- Continue to alternate between forward and reverse or thrusters to correct bow swing and repeat until destination is reached.

8. Ropes

- When tying up always tie back to the boat, not to the mooring.
- Never shorten a rope by making lots of turns around a bollard or pin.
- Inspect rope regularly for wear or damage and report any chafing or weakness.
- Always store ropes coiled and ready for use



Mooring to pontoon

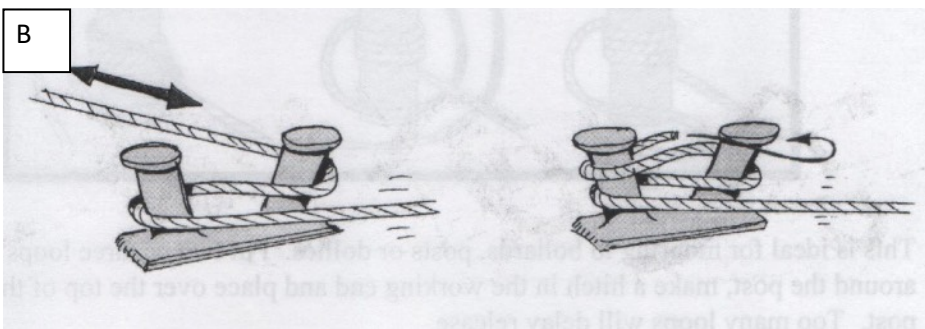
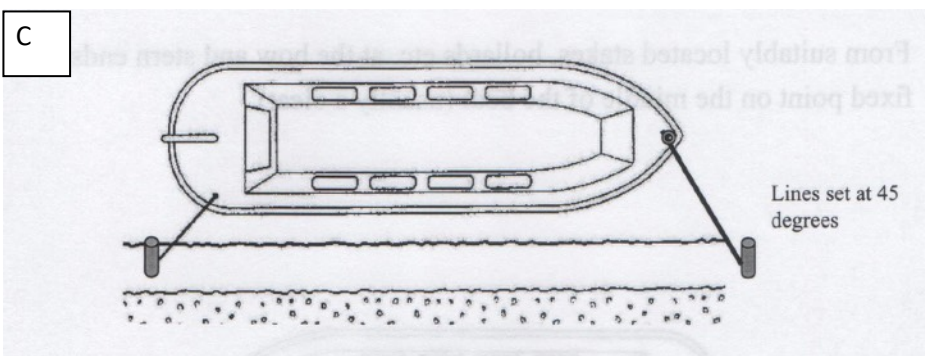


Figure of eight



Angle of mooring lines to the bank

In addition to all previous sections Crew should be familiar with The Code of Safe Working Practices for Seafarers and in particular **MCA directive MSN 1823** all available on MCA website. Copies of both have been sent to all crew as a pdf file.

OPERATIONAL FLOW CHART (LOCAL LEVEL)

