

GUIDANCE FOR THE SAFE MOORING OF VESSELS ON THE CLYDE 2019

FOREWORD

The mooring and unmooring of vessels is potentially a hazardous operation. It is also an operation, which demands a high degree of teamwork. To be both efficient and safe, all involved must be properly trained and equipped, and must have a clear understanding of the contribution made by others, as well as their own role and responsibilities. This Guidance has been compiled with the assistance of the port community and river users. It describes established good practice for the safe and efficient mooring and unmooring of vessels over 24 meters¹ on the Clyde and is published for the guidance of all involved, be they linesmen, boatmen, tug crews, ship's staff, masters, pilots or berth operators. Accordingly, it has been given wide circulation in anticipation that all concerned will wish to contribute to the achievement of safety by complying with its provisions.

The Guidance is reviewed and amended as necessary, but in any event at least every three years.

¹ . Vessels under 24 meters come under the Workboat Code.



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GUIDANCE FOR THE SAFE MOORING OF VESSELS ON THE CLYDE

SECTION ONE

INTRODUCTION

This Guidance should be read in conjunction with the following publications:

[HSE Approved Code of Practice and Guidance for Safety in Docks.](#)

[Health and Safety in Ports – SIP005 – Guidance on Mooring.](#)

[Marine Guidance Notice 308 – Mooring, Towing or hauling equipment on all vessels: safe installation and safe operation.](#)

Responsibilities for the Safety of Personnel

All those with a responsibility for personnel or equipment involved in the Mooring of vessels have a duty to ensure that safe working practices are followed, and that associated equipment is fit for purpose. Providers of mooring crews should ensure that those involved are properly trained. The Provider is responsible for the provision of their Personnel Protective Equipment (PPE).

A vessel Master remains responsible for the safety of crew onboard and also has a Duty of Care for the mooring crew when they are working under the Master/Pilot direction in mooring operations.

Mooring is a 'dock operation' as defined in the Health and Safety Executive Approved Code of Practice and Guidance for Safety in Docks. The responsibility for planning mooring operations lies with the Berth Operator. The Berth Operator of a jetty or mooring buoy is also responsible for conducting a formal risk assessment of the mooring operation at the berth and for ensuring that all equipment provided by him is fit for purpose and well maintained. In addition, he should ensure that the work area is kept clear of hazards.

Where Linesmen or Boatmen are contracted to provide mooring assistance, it is the responsibility of the providing organisation as their Employer to ensure that appropriate PPE is provided and that all other equipment is fit for purpose. Similarly, where Linesmen or Boatmen are directly employed by a Berth Operator, it is the latter, again as the Employer, who is responsible for any associated equipment including the provision of PPE, and for determining safe levels of manpower.

Those Boatmen and Linesmen who are self-employed also have a responsibility to ensure the provision of appropriate PPE.

Co-ordination of Mooring Operations

Responsibility for co-ordinating a mooring operation lies with whoever has the conduct of the vessel, be that the Master or the Pilot. It is not the task of those providing mooring assistance.

The number of personnel employed in any mooring operation should be determined having due regard for the size of the vessel, the prevailing operational circumstances, the weather, and the state of tide.

In all circumstances, sufficient man power should be provided to ensure that individual Linesmen or Boatmen are not exposed to undue risk, and that the operation can be conducted safely and efficiently. Due regard should also be given to the size, weight and scope of the mooring lines to be handled. The practice of mooring/unmooring using a single Linesman ashore is strongly discouraged, except where the size of the vessel and weight of mooring lines are such that the person concerned is not at risk; this applies to Clydeport and is a recommendation for other SHA's.

Self-Mooring Operations

Regulation 4 of the Merchant Shipping (Means of Access) Regulations 1988 requires that access to and from the shore be provided in a safe manner. The Merchant Shipping Act 1995 (Part IV) is also relevant in this matter.

The mooring of vessels using members of the crew only, is considered to be potentially dangerous and thus not an approved practice on the Clyde for vessels over 24 meters. Shore Linesmen should normally be employed to undertake the operation.

In only very exceptional individual circumstances will self-mooring be approved by the Port Authority, and will require a full Risk Assessment and Method Statement from the vessel operator as required by the Management of Health & Safety at Work Regulations 1999. Masters are advised to note their obligations under the Acts and Regulations applying to this practice when considering whether to use ships crew to moor/unmoor their own vessels. It must be stressed that the Master of a vessel who authorises self-mooring, remains personally responsible for the safety of his crew.

SECTION TWO

GUIDANCE TO BOATMEN AND LINESMEN

All personnel involved in mooring operations should be suitably qualified and experienced to industry standard, sufficiently fit and capable of the physical task in hand. They should ensure that they have available appropriate PPE, and that they know how to use it. All PPE equipment should be cleaned, maintained and checked on a regular basis, as recommended by the manufacturer and the Health and Safety Executive.

Preparations

Boatmen and Linesmen should normally be ready for work with mooring boats fully manned and equipment checked in sufficient time, having established communications with the ship/Pilot.

Equipment requiring testing includes the following:

- heaving lines and messenger ropes of sufficient strength for the job in hand;
- winches on the jetty for heaving in the messenger;
- shore wires or lines provided;
- quick release hooks;
- VHF radios; and
- mooring boats and associated equipment.

The person supervising the Linesmen/Boatmen should confirm with the Berth Operator the required mooring plan, and any specific positioning requirements. He should make VHF contact, (or an agreed form of communication) with the vessel in good time to check communications and confirm the plan and timings. He should also ascertain and agree the berthing arrangements and determine whether any non-standard arrangements are required by the Pilot or Master. In complex situations, it may be necessary for the supervisor to board the vessel in order to discuss arrangements with the Master or Pilot.

The supervisor should also establish whether fibre or wire moorings are to be used in order to ensure that there are sufficient persons available in the mooring boats and/or on the berth.

Personal Safety

Personnel involved in mooring operations should comply with the guidance laid down in; SIP 005; MCA MGN 308 and HSE ACoP 148. Berth operators should ensure mooring teams are suitably qualified for mooring operations in line with National Occupational Standards, which are available from Port Skills and Safety.

Annex A gives further guidance on Best Practice for Line Handling and Mooring Boat operations

VHF Communications

VHF communications is considered to be the primary means of communications and is a vital component of safe mooring operations. However, berth operators not employing Clyde Pilots may use an agreed alternative means of communication between the vessel and the mooring supervisor. It is essential that those onboard a vessel, in the mooring boats and on the berth (both fore and aft) are able to communicate promptly should the need arise. Once communications have been established and tested, mooring personnel should keep transmissions to a minimum and should normally only call when in doubt, or in an emergency.

All berthing operations should be conducted on one dedicated channel.

Mooring Boats - Fitness for Purpose

All workboats used within the Clydeport are encouraged to register with the Port Authority and be declared as being 'fit for purpose' by the operator, carry the appropriate safety equipment and should be equipped with effective VHF radios. As such, they should be sufficiently powerful to handle the size and weight of any mooring lines. Ideally mooring boats should be substantial steel vessels, designed for mooring/lines running operations and be fitted with equipment for the safe handling of ropes/wires.

Boats and number of crew should be fit for purpose for any particular task.

Boats should be crewed such that they are capable of handling safely all the wires and ropes needed to complete the operation. It is strongly recommended that safe manning in mooring boats should

include a Coxswain and at least one Line handler. The person in charge of the boat should meet the minimum competency standards as specified by industry standards.

ANNEX

A. BEST PRACTICE LINE HANDLING AND MOORING BOAT OPERATIONS.

ANNEX A
TO SECTION 2
GUIDANCE TO BOATMEN AND LINESMEN

BEST PRACTICE LINE HANDLING AND BOAT MOORING OPERATIONS

Line Handling

Following consultation with many experienced Linesmen on the Clyde, the following guidance has been identified as being "best practice" and is published as part of the Guidance for the benefit of all conducting mooring operations on the Clyde:

Mooring at a Berth

- Some vessels are occasionally using weighted heaving lines, which can cause injury. A weighted line should not be accepted by a Linesman. Linesmen should wear safety helmets at all times. Ship's crew should be warned before heaving lines are thrown back onto a ship.
- Badly maintained or defective mooring lines can be dangerous, and should not be used. Where a Linesman sees that a defective line has been supplied, the situation should be reported immediately to the vessel, which should provide a replacement.
- Linesmen should keep clear of the jetty edge when hauling lines ashore. Lines under tension should not be walked along a jetty. The weight should always be taken by one person whilst another walks a slack line up the jetty. Linesmen should be alert to the dangers posed by vehicles and cranes moving in the vicinity.
- All mooring lines on a bollard should be 'dipped' to facilitate prompt and easy release. Lines should only be "dipped" when slack, and when the weight of the line is held by another person or stopper. Where two Linesmen are so engaged, careful coordination between them is essential as the weight of the line is transferred to the bollard. Once a line has been placed on a bollard, slack should be taken in order to keep the line clear of the water. Lines should only be tensioned on the specific instruction of the Master or Pilot.
- Linesmen should never stand behind a bollard once a line has been placed on it. A line can come under rapid and sudden tension as a result of vessel movement, or listing. Injury to

personnel in the vicinity can be caused when sudden tension causes a line to "snake". Where tension is extreme, it is possible that a line will part. In such circumstances, man-made fibre ropes and steel wires will recoil violently and can inflict serious injury or death.

- Wire ropes are prone to snagging, particularly near the splice. Mooring gangs should be alert to this risk and should take appropriate precautions.
- Forward and aft springs should not normally be put onto the same bollard, but if this is unavoidable, they should always be "dipped".
- In some circumstances, the Master or Pilot may instruct that breast lines are not to be run until the vessel is alongside and in position.
- Linesmen should not leave the berth until all lines have been made fast, and the Master and Pilot are satisfied that the vessel is securely alongside and have indicated their agreement for the mooring gang to stand down. Heaving lines and messengers should be returned to the ship or Berth Operator.
- On occasions when it is necessary for a Linesman to board a vessel underway to assist in the mooring operation, embarkation should be via a correctly rigged pilot ladder. Such Linesmen must report their presence on board to the vessel Master and remain under the direction of the Master or Pilot throughout their time onboard the vessel.

Mooring Boat Operations

Care should be taken at all times to keep mooring boats clear of vessel propellers and tugs assisting in the mooring/unmooring operations. The Boatman in charge of a boat should not allow it to come in close to the stem or stern without having first obtained clearance from the Master or Pilot on VHF radio.

Whenever possible, lines should always be run straight forward and aft. Once made fast to a bollard or buoy, heaving should not commence until the boat Coxswain has signalled that the boat is safe and clear.

Mooring lines should be lowered into the boat and flaked down such that they can be readily hauled up the side of the jetty or dolphin. Mooring lines should be securely lashed in the boat

before the boat proceeds to the jetty or dolphin, and in a manner which facilitates quick release in event of an emergency. A suitable cutting instrument should be immediately available in case of emergency. Lines should not be allowed to enter the water, particularly in the vicinity of propellers or thrusters.

Where a strong on-shore wind or tidal set exists, extreme caution should be taken by all involved to ensure that a mooring boat does not get trapped between the vessel and the jetty. In circumstances where such risk potentially exists, close liaison between the Boatman in charge of the mooring boat and the Master or Pilot is essential.

A Boatman in charge of a mooring boat should alert the Master or Pilot on VHF as soon as he considers that the situation is becoming dangerous. He should also take whatever avoiding action he deems necessary to ensure the safety of personnel.

Where there is a risk of the mooring boat being trapped between the vessel and the jetty, consideration should be given to running springs to the jetty using heaving line /messenger from the ship.

Where a tug is towing on a shortened line and its wash is hindering the control of a mooring boat, or otherwise putting it at risk, the Boatman in charge should notify the Master or Pilot, and ask for the towing line to be extended.

Unmooring

Unmooring should not commence until the ship or shore gangway has been properly secured, or brow landed.

No mooring line should be slackened or released except on the specific instruction of the Master or Pilot. Likewise, slackened lines should not be released until advised by the Master/Pilot as such lines may still be required for warping purposes.

Linesmen should be aware that added tension can be put on a mooring line during an unberthing operation, and especially when using engines to "spring off". Extra strain can also be put on mooring lines when using tugs, or when wind and tide are setting the vessel away from the berth.

A mooring line should never be let go under tension. Once a line has been released from a bollard or hook, it should be walked clear of any obstruction, unless it has been released using a triggered slip hook. All personnel in the vicinity should stand well clear.

When releasing a mooring line, care should be taken to hold it by the side of the eye, and to avoid hands getting between the line and the hook or bollard.

When releasing a dipped rope, sufficient slack should be pulled through the eye of any other ropes, so that the eye of the line to be released may be pulled over the top of the hook or bollard. This will facilitate clearing any subsequent jam as and when the line is put under tension.

Where a mooring is badly jammed, it may be necessary to slacken briefly other lines on the same bollard, whilst taking care not to release them.

When releasing mooring lines at the stern, including after breast lines and back-springs, they should be controlled and if possible kept clear of the water to reduce the risk of fouling propeller(s). Berths can sometimes provide messenger lines to assist the process. They should not be released until the onboard mooring team confirm they can immediately haul onboard.

Damage

Any defects or damage to a berth or its infrastructure found before or occurring during the berthing operation should be reported as soon as possible to the Berth Operator, the Master or Pilot of the vessel and the Harbourmaster via Clyde Estuary Radio.

Boatmen Aboard Vessels / Barges

Boatmen and Berth Operators/Ships' Agents employing them on behalf of the vessel Master, are reminded that Boatmen are employed to assist in the berthing/unberthing of a vessel/Barge. They are an important and integral part of the mooring operation, but it should be clear that the mooring operation is under the control of the vessel Master and/or Pilot, and no one else.

Any unexpected changes to the mooring plan/arrangements should always be made known to the Master and/or Pilot and a revised plan agreed. The Master and/or Pilot always remains in charge of the mooring operation, and Boatmen should take their instructions from the Master and/or Pilot.

SECTION THREE

GUIDANCE TO SHIPS' MASTERS AND PILOTS

When berthing and un-berthing, it is the duty of the Master and Pilot to ensure that the vessel is handled in a safe and controlled manner, having due regard to the safety of those on the berth, in mooring boats as well as the crew of the vessel. Care should be taken that undue strain is not put on springs or other mooring lines and consideration should be given to the use of tugs over and above the recommended requirement in adverse weather conditions. Responsibility for co-ordinating the mooring operation lies with whoever has the conduct of the vessel, be that the Pilot or Master.

Annex A gives further guidance on Best Practice for Ship's Masters and Pilots for Mooring Operations.

ANNEX

A. BEST PRACTICE FOR SHIP'S MASTERS AND PILOTS FOR MOORING OPERATIONS.

ANNEX A
TO SECTION 3
GUIDANCE TO SHIPS' MASTERS AND PILOTS

BEST PRACTICE FOR SHIP'S MASTERS AND PILOTS FOR MOORING OPERATIONS

Ship-board Preparations

- Anchors should be cleared away and winches and capstans should have been checked before arrival at the berth.
- All mooring lines not on tension winches or drums should be coiled or flaked neatly on deck ready for use.
- Lines on self-tensioning winches should be checked prior to use to ensure that they run freely and are not trapped on the drum.
- VHF communications should be established early with all involved in the mooring operation. Linesmen, Boatmen, Tug Masters and the Berth Operator should all be briefed on the mooring /unmooring plan and their role in it.
- Late changes to ETAs should be avoided. Where unavoidable, any such change should be forwarded to the Master /Pilot by Clyde Estuary Radio .

Mooring/Unmooring Operations

- Ship's crew should be instructed not to use weighted heaving lines.
- No mechanical throwing devices are to be used.
- Before bringing a mooring boat under the bow to collect a line, the ship's anchors should have been secured i.e. not in use or being prepared for use. Similarly, a mooring boat should not be allowed under the stem or stern whilst thrusters and engines present a hazard. Boats should keep well clear of a dredged anchor.

- Where there is an on-shore wind or tidal set, particular care should be taken to ensure that the mooring boats are well clear before allowing the vessel to settle onto the berth. The running of lines should be monitored carefully. Attentive watch should be maintained on the appropriate VHF channel. Where the berth configuration and size of vessel permits, consideration should be given to running springs using heaving lines from the ship instead of using mooring boats.
- When paying out mooring lines from the ship, care should be taken to avoid excessive weight for the Linesmen by keeping the bight to a minimum and under control.
- Ship's mooring lines should not normally be used for towing operations except in an emergency, or where a proper risk assessment has been carried out. Where such use is authorised, extreme caution should be taken to ensure that the size and condition of the line are suitable and that it is kept slack and under control when lowering to the tug and making fast. Crew should stand well clear and be alert to the possibility of the hawser coming under sudden tension or a parted line snaking or recoiling.
- Care should be taken to ensure that the vessel is moored in the correct position, and as required by the Berth Operator, before mooring personnel are stood down.
- Appropriate lifesaving equipment should be supplied onboard the vessel at the mooring stations and should be available for immediate use.
- When running mooring lines ashore, they should normally be passed via the mooring boat crew, unless otherwise instructed by the Master or Pilot.
- The Master and Pilot of a vessel equipped with controllable pitch propellers or stern thrusters should be aware of the inherent dangers which exist in relation to after mooring lines.
- The Pilot should not leave the bridge or break communication with the Boatmen /Linesmen until the mooring operation is complete.

Damage

Any damage caused to the vessel, mooring boat or berth during berthing should be reported to the Berth Operator and the Harbourmaster via Clydeport LPS operator on VHF Ch12 immediately on completion of the operation.

SECTION FOUR

GUIDANCE TO BERTH OPERATORS

Safety

It is the duty of a Berth Operator (under Health & Safety at Work legislation) to maintain a safe work area, clear of potential hazards. To this end, a risk assessment should be conducted in respect of mooring and cargo handling operations at the berths.

Mooring Operations

Shore-based mooring operations are subject to legislation enforced by the Health & Safety Executive. In particular, Health and Safety Executive Approved Code of Practice and Guidance for Safety in Docks require that all mooring operations are properly planned and the Management of Health & Safety at Work Regulations 1999 require that written risk assessments of planned mooring operations are carried out.

In addition, Merchant Shipping legislation, enforced by the Maritime & Coastguard Agency includes similar requirements relating to ships' crews.

Effective communications should be established between the Berth Operator and the Boatmen /Linesmen. The Berth Operator should be aware of the latest ETA of the vessel, and of the number of Boatmen /Linesmen required to do the job. He should also ensure that sufficient numbers of Boatmen /Linesmen attend to ensure safety.

Annex A gives further guidance for Best Practice for Berth Operators.

Annex

A. BEST PRACTICE FOR BERTH OPERATORS.

ANNEX A
TO SECTION 4
GUIDANCE TO BERTH OPERATORS

BEST PRACTICE FOR BERTH OPERATORS

General Safety of the Berth:

- Safe access to and from the berth should be provided.
- Ladders on jetties and dolphins should be properly maintained and checked regularly.
- Mooring dolphins should be provided with appropriate safety rails and personnel protection arrangements.
- At night and during poor visibility, the work area should be adequately lit. Mooring bollards not available for use should be boxed over or painted red.
- All persons engaged in the mooring operation should wear appropriate PPE.
- A means of de-icing jetties and dolphins should be available when weather conditions warrant such action.
- Lifesaving equipment, capable of being used at all states of the tide, should be positioned at appropriate intervals on a jetty.
- Disposition of bollards should be such that not more than 2 moorings have to be placed on a bollard at any one time. Recommend that berth owners make an assessment of the adequacy of the bollards to deal with loads arising from more than 2 lines per bollard if required.
- Bollards which become unusable for whatever reason should be reinstated to full serviceable condition as soon as possible and should be clearly identified as out of service.

At a Jetty /Berth

- Berth Operators should normally provide a Responsible Person on the jetty to facilitate and oversee the mooring operation.
- Any specific requirement in respect of vessel position should be made known to the Linesmen Supervisor, who will relay the information to the vessel Master or Pilot.
- All equipment at the berth required for mooring should be checked before the operation commences. Any defects should be reported to the Linesmen and, if appropriate, to the vessel Master or Pilot.
- Jetty fendering should be checked prior to berthing. Where an obstruction exists on the jetty face, its existence and location should be reported to the vessel Master, Pilot (if carried) and the berth operator.
- The details and location of any damaged fendering or fendering /berth face under repair should be reported to the Master and Pilot before the vessel berths.
- The Berth Operator should ensure that shore cranes are in the correct position, and that booms do not protrude beyond the jetty during berthing operations. Cranes not required for loading /discharging, and other potential obstructions, should be moved well clear of bridge wings and bow flare.
- Shore cranes should not be moved during the mooring operation, nor as the vessel approaches the berth.
- Bridge positioning signs or manifold connection flags (prominent and illuminated at night) should be used on the jetty to assist in positioning a vessel before landing.
- Consideration should be given to reducing the risk of chaffed lines by providing rope guides or running bars where small ships are led to lie alongside over low water.