3 DUTIES OF THE OFFICER OF THE WATCH

3.1 OVERVIEW

The Officer of the Watch (00W) is the Master's representative and is responsible at all times for the safe navigation of the ship, in full compliance with the Convention on the International Regulations for the Prevention of Collisions at Sea (COLREGS).

The presence of the Master on the bridge does not relieve the OOW of responsibility for the watch. A decision by the Master to assume responsibility for the watch should be unambiguously advised to the OOW and other members of the Bridge Team.

The OOW should comply with the requirements of the SMS and the Master's standing and daily orders. Compliance ensures that agreed and robust procedures which promote safety and mitigate risks are followed by Bridge Teams to execute and monitor the passage plan.

The primary duty of the OOW is to maintain a safe navigational watch at sea or at anchor, which will require ensuring:

- Compliance with the Company's navigational policies and requirements;
- Effective watch handovers;
- Management of the Bridge Team;
- Keeping a proper look-out;
- Familiarity with the bridge layout and equipment;
- Familiarity with bridge procedures;
- Maintaining situational awareness;
- Surveillance of the ship;
- Execution of the passage plan;
- Navigation and control of the vessel;
- Collision avoidance in compliance with the COLREGS;
- GMDSS watchkeeping;
- Compliance with environmental requirements;
- Monitoring the performance of navigational equipment;
- Recording bridge activities;
- Management of emergency situations; and
- Security awareness.

3.2 EFFECTIVE WATCH HANDOVER

An effective watch handover should take place ensuring all pertinent information is exchanged between the oncoming and off-going Bridge Team members (see Checklist B16). As the Master's representative it is the responsibility of the OOW to be satisfied that:

- The relieving OOW is fit for duty (see Sections 1.2.9 & 1.2.11) and during the hours of darkness has had sufficient time to allow for night vision adjustment; and

The relieving officer has verified the ship's position and status.

The watch handover should be deferred until after any action that is imminent, or that starts before the watch has been handed over, has been completed.

During any watch handover the following information should be discussed and verified:

- The ship's current position and proximity to navigational hazards;
- The intended track (including any amendments to the passage plan), course and speed and engine controls as appropriate;
- Machinery status with particular reference to defects affecting manoeuvrability;
- Steering mode and equipment status with particular reference to defects affecting manoeuvrability;
- The operational condition and alarm status of all navigational and safety equipment being used or likely to be used during the watch;
- Compass errors;
- The traffic situation including vessel reporting requirements completed or due;
- Weather conditions, navigational and other hazards likely to be encountered during the watch with reference to Maritime Safety Information (MSI) received;
- Condition of draught, heel/list and trim;
- Any shallow water effects, including squat;
- Any work in progress such as crew working on deck, engine room maintenance and cargo, ballasting or tank cleaning operations; and
- Any special instructions, particularly amendments to Bridge Orders.

3.3 MANAGING THE BRIDGE WATCH

The OOW is in charge of the Bridge Team, until properly relieved, in compliance with the SMS and Master's Standing Orders. This responsibility extends to ensuring that bridge watch manning levels are at all times maintained at a safe level for the prevailing circumstances and conditions (see Chapter 1 & Checklist B2).

An OOW should be on watch on the bridge at all times at sea or at anchor.

All members of the Bridge Team including look-outs and any helmsmen should be fit for duty (see Sections 1.2.9 & 1.2.11).

3.4 MAINTAINING A PROPER LOOK-OUT

Maintaining an effective look-out is essential to the safe navigation of the ship. The OOW should ensure that a proper look-out by sight and hearing, as well as by all other available means, is maintained at all times. No other activity or duties carried out should be allowed to interfere with keeping a proper look-out. While steering, a helmsman should not be considered to be the look-out, except in small ships with an unobstructed all round view from the steering position.

The OOW, supported by other members of the Bridge Team, should:

- Make a full appraisal of the risk of collision with other vessels;
- Identify navigational hazards such as wrecks, floating objects, ice and uncharted hazards;
- Determine the risk of grounding or stranding;
- Detect and respond as appropriate to any significant change in the weather, visibility or sea state;

- Identify aids to navigation, including buoys and lights;
- Respond to persons, ships or aircraft in distress; and
- Identify threats to security, especially in areas with a known risk of piracy or armed robbery.

On ships with fully enclosed bridges, sound reception equipment should be in operation continuously and be correctly adjusted to ensure its effective operation. The SMS, Master's Standing Orders and the on board procedures should address the need to maintain situational awareness, particularly when the characteristics of individual ship's bridges may isolate the Bridge Team from the outside environment.

Electronic navigation aids including ECDIS, radar, ARPA and AIS are not substitutes for maintaining a proper look-out.

3.4.1 CONTROL OF NIGHT VISION

During the hours of darkness, it is essential that the Bridge Team has adequate night vision in order to maintain a proper look-out, and the environment should support this. Shipboard procedures should allow the vision of oncoming watchkeepers to adjust to ambient light conditions before taking over the watch.

Lighting used in the bridge and adjacent areas should be of low intensity and coloured red. Light from bridge equipment can impair night vision and should be controlled by using appropriate display settings. The use of blackout curtains will help to control light levels when it is not otherwise possible to exclude it.

The use of deck lighting during the hours of darkness should be carefully considered to avoid adversely affecting night vision, even if such lighting only affects a restricted sector of the horizon.

It should be noted that even momentary exposure to bright light can temporarily destroy night vision and, during the subsequent readjustment period, the ability to maintain an effective look-out will be impaired. Consideration should be given to fitting cut-out switches to doors leading into the bridge so that adjacent light sources are momentarily switched off when doors are opened.

3.4.2 SOLE LOOK-OUT

Under the STCW Code, the OOW may, in certain circumstances when the Master has determined that it is safe to do so, be the sole look-out in daylight.

Prior to deciding whether to allow a sole look-out, the Master's consideration should include:

- Weather conditions;
- Visibility;
- Traffic density;
- Proximity of dangers to navigation;
- Attention necessary when navigating in or near a traffic separation scheme (TSS); and
- Defects affecting aids to navigation, propulsion and steering.

The Master should additionally be satisfied that:

- The OOW is fit for duty (see Sections 1.2.9 & 1.2.11);
- The ability of the OOW to safely navigate the ship is not compromised by the volume of the anticipated workload;
- The OOW knows who will provide back-up assistance, in what circumstances back-up should be called and how to call it quickly; and

Back-up personnel are aware of required response times, any limitations on their movements and are able to hear and respond to alarms or communication calls from the bridge.

The OOW should not be the sole look-out during hours of darkness.

3.5 BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM

The Bridge Navigational Watch Alarm System (BNWAS) should be in operation whenever the ship is at sea, including when the ship's heading or track control system is in use. The OOW should ensure that the BNWAS is operational and set correctly in accordance with the SMS and the Master's Standing Orders (see Section 4.6).

3.6 CALLING THE MASTER

If there is any doubt relating to the safety of the ship, the OOW should immediately call the Master.

Standard situations where the Master should be called are listed in Checklist B17.

The presence of the Master on the bridge does not relieve the OOW of responsibility for the watch, unless the Master has explicitly taken control. Any handover of responsibility must be unambiguous. The OOW should remain on the bridge, continue to manage the Bridge Team and support the Master, unless instructed otherwise.

The Master should be called immediately if the OOW has any doubt regarding the safety of the ship or how to deal effectively with the situation.

3.7 FAMILIARITY WITH BRIDGE LAYOUT AND EQUIPMENT

The OOW should know the bridge layout and be familiar with the operation of all bridge equipment to enable the safe navigation of the ship (see Section 1.2.8). The OOW should:

- Understand the status, capabilities and limitations of all bridge equipment and its effective operation;
- Recognise and respond correctly to alarms and warnings; and
- Understand the status of the ship's engines and other appropriate machinery together with any restrictions or limitations on manoeuvrability.

3.8 SITUATIONAL AWARENESS

Situational awareness describes an appreciation of what is happening around the ship. This includes knowing where the ship is, where it is planned to be, and whether any other vessel, event or conditions developing in the vicinity pose a risk to the safety of the ship. Situational awareness depends on the Bridge Team's ability to use information effectively to assess a situation accurately, the experience of the Bridge Team and the absence of distractions.

Good situational awareness is essential for the safe conduct of navigation and protection of the environment.

The OOW should develop and maintain situational awareness of the area around the ship, the ship's activities, and the possible impact of external influences on the safety of the ship. This will include awareness of requirements to protect marine wildlife and environmentally sensitive sea areas. Situational awareness on the Bridge will be aided by:

- A clear understanding of the passage plan;
- An effectively managed Bridge Team;
- A proper and continuous look-out by all available means;
- Familiarity with and understanding of bridge equipment and the information available from radar, AIS, ARPAand ECDIS;
- Using look-outs, ECDIS, radar and visual monitoring techniques to confirm the navigational safety of the ship;
- Using look-outs, radar and ARPA to monitor traffic; and
- Cross-checking information from different sources.

Care should be taken to ensure that the information available on electronic navigation equipment remains uncluttered and is relevant to the current situation.

Over reliance on individual electronic systems for developing and maintaining situational awareness should be avoided.

3.9 MONITORING SHIPBOARD OPERATIONS

The OOW should maintain a high level of general awareness of the ship and its routine operations. This will include:

- Maintaining a general watch over the ship's decks;
- Monitoring, where possible, people working on deck and any cargo or cargo handling equipment;
- Monitoring machinery status;
- Ensuring weather and sea state are taken into account when determining the safety of on board activities; and
- Supervision and control of the ship's safety and environmental systems.

Whenever work is being carried out in the vicinity of radar scanners, radio aerials or sound signalling apparatus, the OOW should be consulted, kept updated and should isolate and/or post appropriate warning notices on the equipment controls.

Under no circumstances should additional duties interfere with the primary duty of watchkeeping and ensuring the safe navigation of the ship.

3.10 NAVIGATION AND CONTROL

It is important that the OOW follows the passage plan and monitors the progress of the ship.

The OOW should not hesitate to use helm, engines, or any other manoeuvring arrangements, including sound signalling apparatus, to ensure compliance with the COLREGS.

3.10.1 MANOEUVRING INFORMATION

The OOW should be familiar with the handling characteristics and stopping distances of the ship. In addition, the OOW should know how these characteristics are affected by the current and anticipated machinery status. Information regarding the manoeuvring characteristics should be recorded on the Pilot Card and on the Wheelhouse Poster (see Checklists A2 & A3) and the manoeuvring booklet.

It is important not only to record on the Pilot Card ship data such as draught, but also factors which could affect manoeuvrability. For example, knowing that a ship has a particular tendency to steer to port at full speed but steer to starboard at slow speed, would be useful information.

3.10.2 USE OF PROPULSION

To control the main engines effectively, the OOW should understand the characteristics of:

- Bridge control systems;
- Type of main engine(s); and
- Type of propeller(s) and/or thruster(s).

The OOW should appreciate that changing speed could have implications for the operation of propulsion machinery. Whenever appropriate, timely notice of intended changes to ship speed should be passed to the engine room to allow for safe and efficient operation of machinery.

3.10.3 SAFE SPEED

The OOW is responsible for ensuring that the ship proceeds at a safe speed at all times. Factors to consider when determining a safe speed are listed in the COLREGS: Rule 6 and Rule 19.

Ships should anticipate the need to reduce speed to minimise the risk of damage that may be caused by their wash and wake in shallow or confined waters, particularly to small craft and on the shoreline.

3.10.4 STEERING CONTROL

The OOW should be familiar with the operation of all manual, automatic and back-up steering control systems on the bridge, as well as the method of control at the emergency steering position (see Checklist B3). This will allow the selection of the most appropriate steering control system for a particular situation.

A helmsman should be available at all times and be ready to take over steering control in conditions where automatic systems are inappropriate. Manual steering should be used whenever appropriate including in:

- Areas of high traffic density;
- Conditions of restricted visibility; and
- Any other potentially hazardous situations and particularly when an automatic steering system may provide insufficient control.

The changeover between automatic and manual steering should not affect or distract the attention of the Bridge Team from maintaining a proper look-out and should be:

- Completed in good time, before critical situations arise; and
- Under the supervision of the OOW.

Manual steering should be tested once per watch (see Checklist B1).

Changes between manual and automatic steering should be verified to confirm the subsequent steering response is satisfactory.

3.10.5 TRACK CONTROL SYSTEMS

Track control systems use position, course and speed information to keep a ship automatically on a planned track over the ground. Track control systems can be used to navigate between a series of waypoints with the OOW alerted before alterations of course are made.

Use of a track control system does not relieve the OOW of the duty to ensure that the ship is safely on track or navigating within an authorised cross track distance (XTD).

3.11 MONITORING THE PASSAGE

Compliance with the passage plan should be closely and continuously monitored by the OOW:

- To check that the ship's position is maintained within an authorised XTD, including following alterations of course to avoid collision or following a planned alteration of course;
- By fixing the position of the ship at a frequency dependent on prevailing conditions and the proximity of navigational hazards;
- By cross-checking of the ship's position by all appropriate means including:

  By visual and/or radar fixing techniques using ranges and bearing of charted objects;

  By echo sounder to monitor charted depths and contours; and
- By monitoring the integrity of information displayed on navigational equipment.

Monitoring should be undertaken using either appropriately prepared electronic or paper charts rather than a mixture of chart types. However, it is recognised that there will be occasions when both electronic and paper charts are in use. These transition periods should be kept as short as practicable and should be carefully managed to ensure the transfer of all appropriate navigation information.

3.11.1 NAVIGATION IN COASTAL OR RESTRICTED WATERS

It is important that the Bridge Team fully understands the increased dangers of navigation in coastal or restricted waters, and the importance of establishing and maintaining good situational awareness.

Procedures and Master's orders should ensure that:

- Navigation is conducted on the most suitable large scale ENC, RNC or paper charts available;
- The position of the ship is fixed at frequent intervals by the most appropriate means;
- All relevant navigation marks are positively identified by the OOW;
- The OOW is aware of mandatory reporting requirements for routeing schemes;
- The OOW takes into account the ship's draught and manoeuvring characteristics, which may affect navigation in restricted waters; and
- The OOW is aware of the squat characteristics for individual loading conditions and the effect of ship speed on squat. In shallow water, squat may have a critical effect on the manoeuvrability and the under keel clearance (UKC) of the ship.

3.11.2 MONITORING TECHNIQUES

The following visual techniques should be used appropriately when monitoring the passage in coastal and pilotage waters and the safety of the ship at anchor:

- Azimuth bearings of charted objects to fix the position of the ship;
- Heading transits, which can provide a leading line along which a ship can safely steer;
- Beam transits, which can provide an additional check for use when altering course; and
- Clearing bearings, which can be used to check that a ship remains within a safe area.

When radar conspicuous charted features are visible on the display, effective use can be made of radar. The following techniques should be used when monitoring the passage in coastal and pilotage waters, particularly in conditions of restricted visibility or at night:

- Parallel indexing, which is recommended to ensure the ship's track is maintained;
- Radar bearings; and
- Radar ranges.

Where ECDIS is integrated with radar and a Radar Image Overlay (RIO) feature is available (see Section 4.11.3) the alignment of the radar picture with charted features can be used to further verify the ship's position.

3.11.3 MONITORING A PASSAGE PLAN ON ECDIS

For ECDIS to be effective as a tool for monitoring a passage, the following checks should be conducted prior to departure from the berth:

- The correct passage plan is loaded on primary and back-up ECDIS terminals, as appropriate;
- The safety settings, particularly depth safety contours, are set in compliance with the SMS and reflect the current operational status of the ship including the actual draught. This will help to avoid inappropriate alarms; and
- Information from all sensors connected to ECDIS is available and correct. Particular attention should be paid to the availability of information from the GNSS receiver, gyro compass and log.

When using ECDIS to monitor the ship's passage, the OOW should consider:

- The capabilities and limitations of ENCs and RNCs (see Section 4.12);
- The need to select individual chart symbols (pick reports) on ENCs to obtain additional detailed safety and navigational information;
- The need to manage the amount of information displayed on an ECDIS terminal in order to avoid obscuring charted features and information, and the effects of information overload;
- The potential for positioning or related errors. Every opportunity should be taken to confirm the validity of a GNSS position using traditional fixing techniques. These fixes should, whenever possible, be plotted using electronic lines of position (LOP);
- That the benefits of looking ahead or using an offset view can enhance situational awareness;
- The display of relative or true vectors and the appropriate interpretation of them;
- The potential for and likely consequences of software anomalies. The Bridge Team should be familiar with the guidance relating to the identification of and mitigation measures for software anomalies and should ensure that the latest appropriate guidance is followed (see Section 4.1.3 & 4.1.4); and
- Time settings are normally based on UTC and therefore allowances will need to be made for local time.

Over reliance on ECDIS should be avoided particularly if detrimental to the keeping of a proper look-out.

The OOW should be aware that the charted detail on some ENC/RNC may not be as accurate as the GNSS position of the ship on ECDIS. Caution is needed when planning and navigating to ensure that there is a sufficient safety margin between charted hazards and the ship's intended route.

3.11.4 AMENDING THE PASSAGE PLAN

It is important that the OOW executes the passage plan approved by the Master. There may however be situations which require an amendment to or deviation from the passage plan.

Any deviation from the agreed passage plan may introduce new risks, which will require assessment and possible mitigating action. If it is necessary to amend the passage plan permanently then the relevant sections of the appraisal and planning process should be repeated. As appropriate, the Master should be informed and should then check and approve the amendment, and the Bridge Team should be briefed.

Circumstances that might require a revised passage plan include:

- Weather routeing developments;
- Change of ship's orders/destination port; and
- Search and Rescue (SAR) response.

Deviations, particularly to the planned course and/or speed, in addition to those necessary in order to comply with the COLREGS, may be required to ensure that the ship remains clear of hazards.

Circumstances that may require deviation from the planned route include:

- Variations in weather conditions;
- Advice and information received from Vessel Traffic Services (VTS);
- Navigational warnings; and
- Detected hazards.

Following a deviation, the ship should be returned to the planned route once it is safe to do so.

3.12 COMPLIANCE WITH THE COLREGS

3.12.1 LIGHTS, SHAPES AND SOUND SIGNALS

The conduct of a ship's navigation should always comply with the International Regulations for the Prevention of Collisions at Sea (COLREGS). This includes displaying correct lights and shapes and making the correct sound and light signals.

The OOW should be aware that some other vessels may fail to display the correct lights or shapes, or make the correct sound signals. Safe navigation will therefore require the use of all available means in order to determine whether a risk of collision exists, or to otherwise confirm the operational status of other vessels.

3.12.2 RISK OF COLLISION

Risk of collision can be determined at an early stage by plotting targets at longer ranges on radar. Taking regular bearings of approaching vessels within visual range will also determine whether a risk of collision exists. Plotting aids should also be used to track approaching vessels systematically.

Particular care should be taken when approaching very large ships, ships engaged in towing or ships at close range. An appreciable bearing change may be apparent under these circumstances but a risk of collision may still exist.

Careful monitoring of the situation should continue until the vessel is finally past and clear.

Particular care should be taken when navigating in or near an area of restricted visibility and the OOW should be aware of the particular obligations under Rule 19 of the COLREGS.

The OOW should use ECDIS and AIS to aid situational awareness but should not rely on either system for collision avoidance.

Radar and ARPA are the primary electronic anti-collision aids for the OOW.
Due to the risk of confusion and error, VHF radio and AIS should not be relied upon for collision avoidance.

3.12.3 ACTION TO AVOID COLLISION

Early, substantial and positive action which is appropriate to the situation and that is seaman-like and readily apparent to other vessels should always be taken to avoid collision. Monitoring the effectiveness of an action to avoid collision should continue until the other vessel is finally past and clear.

3.13 NAVIGATION UNDER PILOTAGE

For advice on Pilotage see Chapter 5 and Checklist B8.

3.14 MAINTAINING AN ANCHOR WATCH

An anchoring plan should be developed that is complementary to or part of the passage plan (see Checklist B12). On anchoring, the initial duties of the OOW will include:

- A fix of the anchor position and the position of the ship at anchor;
- As appropriate, advising port authorities of the anchored position;
- Determining the ship's swinging circle;
- Selecting landmarks and transits to monitor the ship's position;
- Confirming that the appropriate status is selected on AIS; and
- Ensuring appropriate lights and shapes are displayed (and in conditions of restricted visibility, sound signals are commenced) in accordance with the COLREGS and any local regulations.

While at anchor, the duties of the OOW will include:

- Maintaining a proper look-out;
- Regularly plotting the ship's position (see Section 3.11.2) and monitoring swinging pattern;
- Identifying potential hazards and risks of collision;
- Ensuring inspection rounds are carried out periodically;
- Maintaining vessel security and access control;
- Monitoring weather conditions, tidal conditions and state of the sea including updates to forecast conditions;
- Ensuring main engines and other machinery are at a state of readiness appropriate to the conditions, in accordance with the Master's daily and Standing Orders;
- Monitoring traffic and other anchored vessels;
- Monitoring compliance with environmental protection requirements (see Section 3.17); and
- Complying with any additional regional or local requirements.

The Master should be notified immediately if the ship drags its anchor, or if sea conditions or visibility deteriorate, or if there is any doubt about the safety or security of the ship (see Section 3.6 and Checklist B17).