SOLAS Chapter V, regulation 22 - Navigation Bridge visibility

REGULATION 22 - Navigation bridge visibility

1 Ships of not less than 45 m in length as defined in regulation III/3.12, constructed on or after 1 July 1998, shall meet the following requirements:

.1 The view of the sea surface from the conning position shall not be obscured by more than two ship lengths, or 500 m, whichever is the less, forward of the bow to 10° on either side under all conditions of draught, trim and deck cargo;

.2 No blind sector caused by cargo, cargo gear or other obstructions outside of the wheelhouse forward of the beam which obstructs the view of the sea surface as seen from the conning position, shall exceed 10°. The total arc of blind sectors shall not exceed 20°. The clear sectors between blind sectors shall be at least 5°. However, in the view described in .1, each individual blind sector shall not exceed 5°;

.3 The horizontal field of vision from the conning position shall extend over an arc of not less than 225°, that is from right ahead to not less than 22.5°, abaft the beam on either side of the ship; SOLAS Chapter V – 1/7/02

.4 From each bridge wing the horizontal field of vision shall extend over an arc at least 225°, that is from at least 45° on the opposite bow through right ahead and then from right ahead to right astern through 180° on the same side of the ship;

.5 From the main steering position the horizontal field of vision shall extend over an arc from right ahead to at least 60° on each side of the ship;

.6 The ship's side shall be visible from the bridge wing;

.7 The height of the lower edge of the navigation bridge front windows above the bridge deck shall be kept as low as possible. In no case shall the lower edge present an obstruction to the forward view as described in this regulation;

.8 The upper edge of the navigation bridge front windows shall allow a forward view of the horizon, for a person with a height of eye of 1,800 mm above the bridge deck at the conning position, when the ship is pitching in heavy seas. The Administration, if satisfied that a 1,800 mm height of eye is unreasonable and impractical, may allow reduction of the height of eye but not less than 1,600 mm;

.9 Windows shall meet the following requirements:

.9.1 To help avoid reflections, the bridge front windows shall be inclined from the vertical plane top out, at an angle of not less than 10° and not more than 25°.

.9.2 Framing between navigation bridge windows shall be kept to a minimum and not be installed immediately forward of any workstation.

.9.3 Polarized and tinted windows shall not be fitted.

.9.4 A clear view through at least two of the navigation bridge front windows and, depending on the bridge configuration, an additional number of clear-view windows shall be provided at all times, regardless of weather conditions.

2 Ships constructed before 1 July 1998 shall, where practicable, meet the requirements of paragraphs 1.1 and 1.2. However, structural alterations or additional equipment need not be required.

3 On ships of unconventional design which, in the opinion of the Administration, cannot comply with this regulation, arrangements shall be provided to achieve a level of visibility that is as near as practical to that prescribed in this regulation.

Annex B

Insurance assesor ‘summary of damage’ *Orca*

INSPECTION NOTES 17th June 2014

Summary of damage

Inevitably the vessel was been completely flooded and heavily silted. [redacted] of Essex Boat Yards, managed over the weekend to thoroughly clean the vessel of silt but even so the silt has found its way into every crevice within the vessel.

In terms of damage caused what appears to have occurred is that the structure of the vessel has twisted and sprung a number of bulkheads and cracked both inner liner mouldings and the deck superstructure moulding fore and aft.

The hull itself has suffered extensive fracturing from the point of impact amidships both downwards and aft. The extent of de-lamination in the hull will almost certainly have travelled through to the transom in consequence.

Internally the vessel was in complete disarray and for example the, heads door ended up at the forward bulkhead and the inner liner moulding on the starboard side has been completely shattered.

Hereunder is a brief summary of the main points of damage noted:

- *The main point of impact starboard side has resulted in a puncture through the hull moulding just forwards of amidships and from below the waterline to deck level.*
- *All of the internal mouldings in the same position starboard side have similarly been crushed by the impact and stainless steel chain plate has also been severely bent in the collision.*
- *There is considerable delamination and various radiating cracks running forwards and aft from the point of impact both towards the keel and aft along the hull itself.*
- *The starboard deck moulding and superstructure moulding is cracked extensively above the main point of impact*
- *One propeller blade is bent over*
- *Aft portside there are cracks through the superstructure and hull laminate around the quarter deck.*
- *The rudder and associated assembly has been severely bent over*
- *The mast and rigging are all variously fractured and in disarray*
- *Internally the vessel has suffered extensive disruption with various wooden linings, partitions and even the forward cabin door being torn off its hinges,*
- *All of the electrics internally have suffered submersion damage*
- *The inboard Volvo MD2020 diesel engine has been submerged*
- *The Mariner 4hp outboard motor has been submersed*
- *The liferaft has been submersed*
- *All of the various folders and documents for the vessel have been submersed.*
- *All of the electronic equipment fitted to the vessel has been submersed*

This is merely a summary of the damage noted and does not necessarily fulfil a comprehensive record of damage.

Repairs

Whilst the possibility of repairs has been considered, the extent of structural disruption to this vessel indicates that economic repairs are unrealistic and technically unviable. Further such is the extent of structural damage there are serious concerns for the future seaworthiness of this vessel should it be put back into commission.

For the security of all concerned we have therefore concluded that this vessel should be destroyed and prevented from being put to repair.

[redacted]

18/06/2014

Technical analysis of Musto lifejacket worn by skipper of *Orca*

BLS/FTL/2661
27th June 2014

FLEETWOOD TESTING LABORATORY

EVALUATION OF

MUSTO 150N INFLATABLE LIFEJACKET

ON BEHALF OF

MARINE ACCIDENT INVESTIGATION BRANCH
MOUNTBATTEN HOUSE
GROSVENOR SQUARE
SOUTHAMPTON
SO15 2JU
UK

THIS REPORT CONTAINS 9 PAGES

REPORT ORIGINATOR

[redacted]

REPORT CHECKER

[redacted]

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Date of evaluation: The evaluation was carried out at Fleetwood Testing Laboratory on 25.06.2014 and 26.06.2014.

Present during evaluation: [redacted] FTH Technical Manager
[redacted] Head of Offshore Training (FOSC)

Sample information: The lifejacket was received on Tuesday 24th June 2014 via courier. The lifejacket was packaged in bubble wrap within a cardboard box. The condition of the lifejacket was dry.

Fig.1. Lifejacket as received (front).

Fig.2. Lifejacket as received (back).

Description of lifejacket: Musto 150N Lifejacket
The lifejacket is an automatic lifejacket with integrated deck safety harness. It has a yellow outer cover fabric which is integral to the inflatable chamber with a Velcro cover closure. On the front left worn lobe of the cover there is a pocket containing a VHF Radio. The deck safety harness is made up of a 50mm black webbing waistbelt with a double back strap, a stainless steel 2 bar/3 bar front buckle closure and a front Makefast D-ring harness attachment (marked with CAT 128B). There is a lifting loop made up of black 25mm webbing with the word 'LIFT' written on it. There is an integrated crotch strap made up of black 25mm webbing with a fixed/stitched back attachment to the waistbelt and a 25mm YKK plastic buckle front attachment.

Tests carried out:
- Visual inspection of the lifejacket and lifejacket components
- Inflation test (with new 33g CO_2 cylinder)
- Leakage test

[redacted]

[redacted]

Initial Visual Inspection (as received)

The yellow cover fabric was worn. There were no visual signs of any damage or defects to the cover fabric. The black webbing is faded in parts on the back double shoulder straps.
The front pocket containing the VHF radio was in an open position. The VHF radio aerial was damaged as the internal metal coil of the aerial was exposed (see Fig. 3). The VHF radio was wedged in to the pocket and we were unable to remove the radio from the pocket. The VHF radio cord handle was found loose inside the pocket (see Fig. 4).

Fig.3. Damaged aerial on VHF radio.

Fig.4. Front pocket with VHF radio and loose cord handle.

The lifejacket has two external information labels:
i) Lifejacket label located on rear of right worn lobe (see Fig. 5); and
ii) Deck safety harness label located on inner waistbelt webbing (see Fig.6).

Lifejacket label information

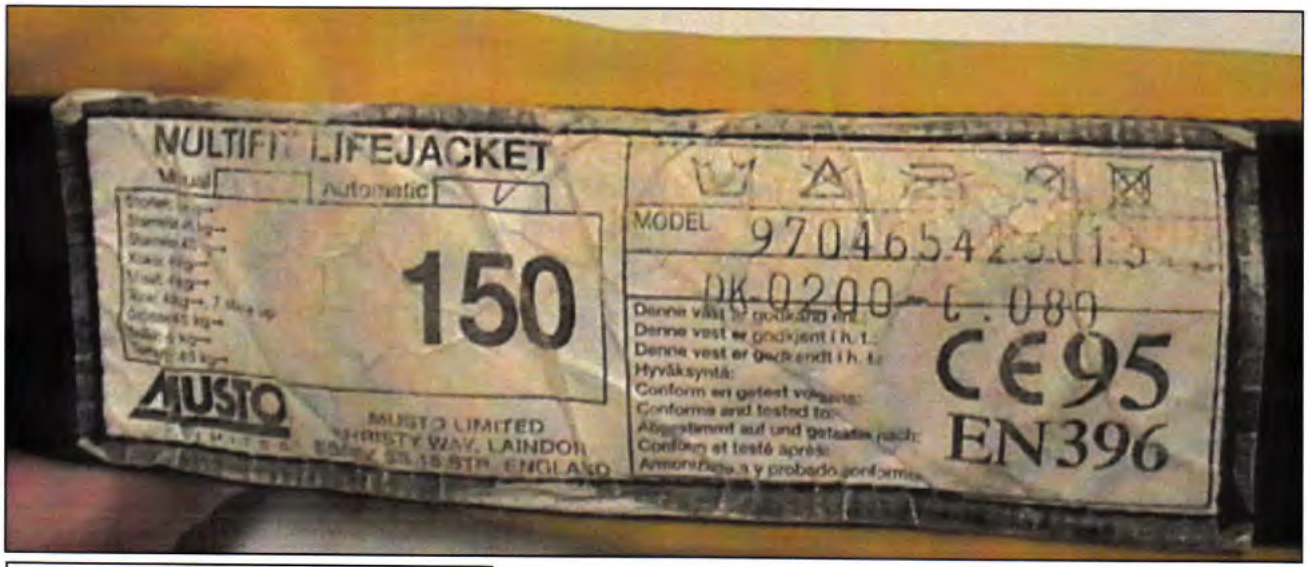

Fig.5. Lifejacket label and information.

The following information is included on the lifejacket label:

- The label is marked with 'MULTIFIT LIFEJACKET' intended for size range 45kg (7stone) plus.
- There is a tick in a box to indicate that the lifejacket is automatic.
- It contains the manufacturer logo and address as follows: Musto Limited, Christy Way, Laindon, Essex, SS15 STR, England
- Simple washing instructions via pictograms.
- A model/serial number as follows: 97046542XX1372 DK-0200-C.080
  Note. The numbers have faded on the label and the letters XX have replaced the numbers which are illegible.
- Conforms and tested to EN396 with the CE mark 'CE95'

[redacted]

Deck Safety Harness label information

Fig.6. Deck safety harness label and information.

The following information is included on the deck safety harness label:
- Max life span/ years 10.
- Conforms and tested to EN 1095 with the CE mark 'CE97'.
- The serial number has faded and is illegible.
- The statement 'This harness is suitable for a wearer of over 50kg.'
- A warning; 'NOTE! Use only Baltic approved safety lines.'
- Address on harness label: CRAFTMANSHIP MARIN, AB BOX 60, 54502 Ä1 GARÄS, SWEDEN

Visual Inspection of Lifejacket when unpacked

The lifejacket has an orange inflation chamber fabric with an additional piece of fabric protecting the components on the right and left hand side of the lower lobes of the chamber (orange fabric on the right worn side covering the automatic inflation system and yellow fabric on the left worn side covering the oral inflation tube).
There are six pieces of retro-reflective material on the inflation chamber (each have dimensions 95 mm x 45 mm)
The lifejacket is fitted with an orange whistle attached via a cord to the inflation chamber material on the inner right worn side.
There is a Halkey Roberts oral inflation tube (oral tube cap was on) on the left worn side of the chamber (Model: A97U).
The lifejacket is fitted with a Halkey Roberts V85000 automatic inflator (Patent No. 4223805 & 4267944) and a 33g CO_2 cylinder.
There is an internal label attached to the right worn side which contains additional user information (see Fig. 8).

[redacted]

Fig.7. Lifejacket unpacked.

Fig.8. Internal label (front).

Internal Servicing label

There is no record of the lifejacket being serviced on the lifejacket service record.
Note: The information on the lifejacket for servicing recommendations states; 'This lifejacket should be serviced once a year. Refer to agent.'

Fig.9. Internal label (back) – service history record.

[redacted]

[redacted]

Inflation mechanism and CO_2 cylinder inspection

On inspection the inflation mechanism's green manual indicator clip was still present indicating that the manual pull cord had not previously been activated. The automatic cap was showing red which indicates that the automatic element had previously activated, this is seen in Fig. 10.
The CO_2 cylinder showed signs of corrosion to the main body and more severely around the thread (see Fig.11 and 13). The cylinder was not fitted correctly as it was sitting loosely in the thread of the inflation mechanism. It was also possible to move the cylinder back and forward whilst it was screwed into the inflation mechanism.
When the cylinder was fully unscrewed from the inflation mechanism there was no evidence of piercing, or attempted piercing of the cylinder cap (see Fig.12). The weight of the cylinder was checked, the weight was 134.9g.
The cylinder was marked with the following information: 33G CO2 NOMINAL, MINGR.WT.133.4G, ISI/35202 GERMANY 03-97, DO NOT HEAT. This indicates a manufacture date of March 1997.

Fig.10. Halkey Roberts inflation mechanism fitted with CO_2 cylinder (as received).

Fig.11. Corrosion around cylinder thread.

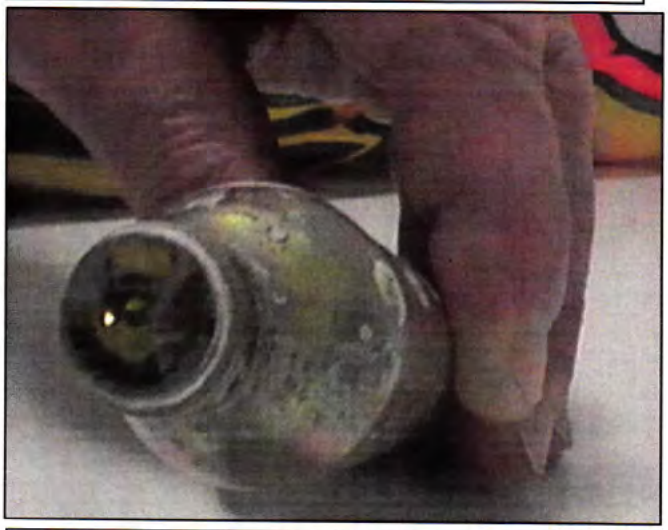

Fig.12. Condition of cylinder cap when unscrewed.

[redacted]

[redacted]

Fig.13. Corrosion around cylinder thread when removed.

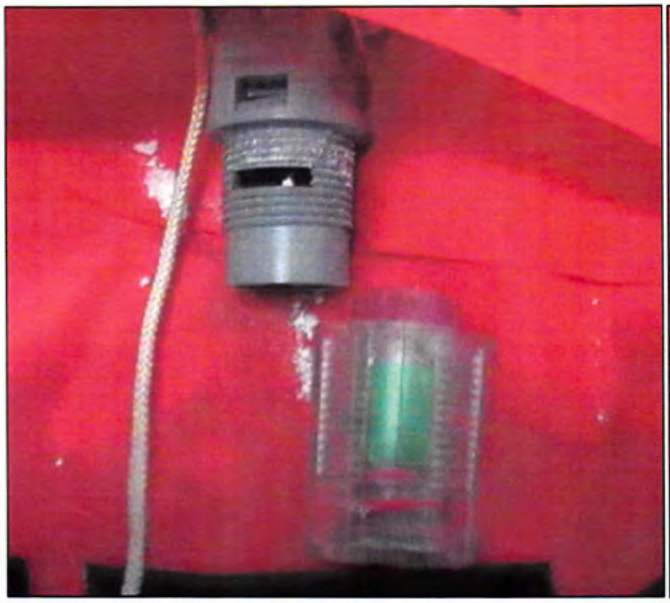

Fig.14. Halkey Roberts inflation mechanism with automatic cap removed.

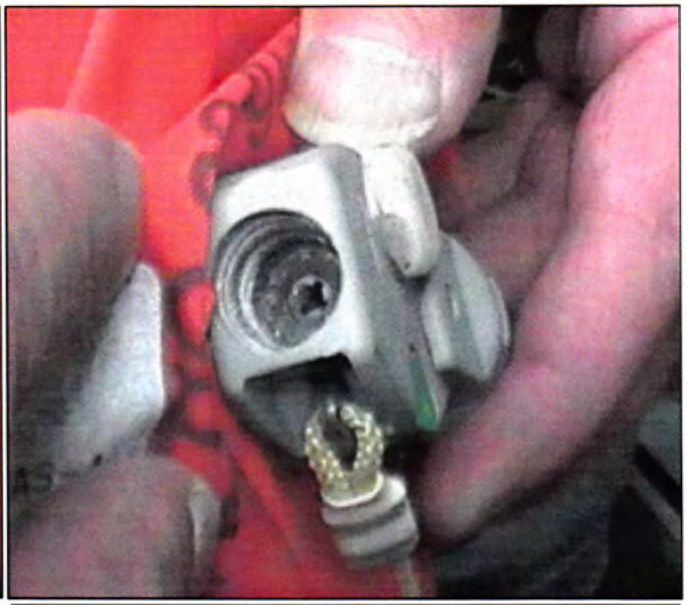

Fig.15. Halkey Roberts inflation mechanism thread – damage at top of thread.

The automatic cap was unscrewed from the main body of the inflation mechanism to inspect the automatic inflator components. There was a white residue present, as seen in Fig.14. This is further indication that the system had previously automatically activated. The Halkey Roberts red bobbin was marked with HRC 02/97. This indicates a manufacture date of February 1997.

Fig.16. Halkey Roberts automatic cap with bobbin.

[redacted]

[redacted]

Inflation tests

The lifejacket sample was fitted with a new 33g CO_2 cylinder. The new fully charged cylinder was screwed into the inflation mechanism*. The cylinder needed slight manipulation to screw in to the inflation mechanism as there was damage to the top of the thread of the inflation mechanism (see Fig.15). Once screwed in correctly the inflation mechanism pin (which was already in a fired upright position) pierced the new cylinder and the lifejacket inflated successfully (see Fig. 17 and 18).
The lifejacket was visually examined for damage.
There was no damage to the inflatable chamber and the lifejacket maintained its operating pressure.
The sample was then left at room temperature for 24h and inspected. The sample had shown a slight loss of pressure after 24h. This is expected with an inflation using CO_2 gas.
In addition a leakage test was carried out to check the integrity of the inflatable chamber. When submerged under a head of fresh water there was no leakage of the inflatable chamber.

*Note. The automatic cartridge was not re-armed for this test.

Fig.17.Lifejacket inflated – front view.

Fig.18.Lifejacket inflated – back view.

Additional Observations and Comments:

1. The damage to the top of the thread of the inflator is most likely due to the CO_2 cylinder not being screwed in to the inflation mechanism correctly, allowing movement of the cylinder over time and resulting in damage to the top of the thread. This damage did not affect the correct functioning of the inflation mechanism.

2. There was no other damage or defects found on the lifejacket or lifejacket components.

3. Markings of the deck safety harness label, CO_2 cylinder and automatic bobbin indicate a manufacture date of 1997. The lifejacket markings indicate a maximum lifespan of 10 years for this model of lifejacket.

4. There is no record of servicing of the lifejacket and therefore the lifejacket has not been serviced according to the manufacturer's instructions.

Conclusions

1. **The CO_2 cylinder was not correctly fitted to the inflation mechanism.**

2. **There was evidence that the automatic element had previously activated and thus if the CO_2 cylinder had been screwed in to the inflation mechanism correctly the cylinder would have been pierced and the lifejacket would have inflated.**

3. **The lifejacket inflated correctly when a cylinder was screwed in correctly.**

4. **There was no damage to the lifejacket which would affect its functioning as an inflatable lifejacket.**

- End of Report -

[redacted]

[redacted]

IMO MSC/Circ.982 Guidelines on ergonomic criteria for bridge equipment and layout, Section 5

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MSC/Circ.982
20 December 2000

GUIDELINES ON ERGONOMIC CRITERIA FOR BRIDGE EQUIPMENT AND LAYOUT

1 The Maritime Safety Committee, at its seventy-third session (27 November to 6 December 2000), adopted the annexed Guidelines on Ergonomic Criteria for Bridge Equipment and Layout which have been developed to assist designers in realising a sufficient ergonomic design of the bridge, with the objective of improving the reliability and efficiency of navigation.

2 These Guidelines have been prepared to support provisions of the revised regulation V/15 of the SOLAS Convention – Principles relating to bridge design, design and arrangement of navigational systems and equipment and bridge procedures, which is expected to enter into force on 1 July 2002.

3 Member Governments are invited to bring these Guidelines to the attention of all parties concerned.

***

ANNEX

GUIDELINES ON ERGONOMIC CRITERIA FOR BRIDGE EQUIPMENT AND LAYOUT

Contents

1 Scope

The Guidelines are developed to realize a successful ergonomic design of the bridge and the equipment on the bridge, which will improve the reliability and efficiency of navigation. These Guidelines therefore contain ergonomic requirements as well as a functionally oriented bridge layout to support watch-keeping personnel in their tasks by a user-centred design of the bridge equipment and layout.

2 Purpose

The purpose of these Guidelines is to provide ergonomic requirements for the bridge equipment and layout to render assistance to enable consistent, reliable and efficient bridge operation.

3 Application

These Guidelines are intended to apply to new ships.

4 Description of the Workstations on the Bridge

Workstation for navigating and manoeuvring:
Main workstation for ship's handling conceived for working in seated/standing position with optimum visibility and integrated presentation of information and operating equipment to control and consider ship's movement. It should be possible from this place to operate the ship safely, in particular when a fast sequence of actions is required.

Workstation for monitoring:
Workstation from which operating equipment and surrounding environment can be permanently observed in seated / standing position; when several crew members are working on the bridge it serves for relieving the navigator at the workstation for navigating and manoeuvring and/or for carrying out control and advisory functions by master and/or pilot.

Workstation for manual steering (Helmsman's workstation):
Workstation from which the ship can be steered by a helmsman as far as legally or otherwise required or deemed to be necessary, preferably conceived for working in seated position.

Workstation for docking (bridge wing):
The workstation for docking operations on the bridge wing should enable the navigator together with a pilot (when present) to observe all relevant external and internal information and control the manoeuvring of the ship.

Workstation for planning and documentation:
Workstation at which ship’s operations are planned (e.g. route planning, deck log). Fixing and documenting all facts of ship's operation.

Workstation for safety:
Workstation at which monitoring displays and operating elements or systems serving safety are co-located.

Workstation for communication:
Workstation for operation and control of equipment for distress and safety communications (GMDSS) and general communications.

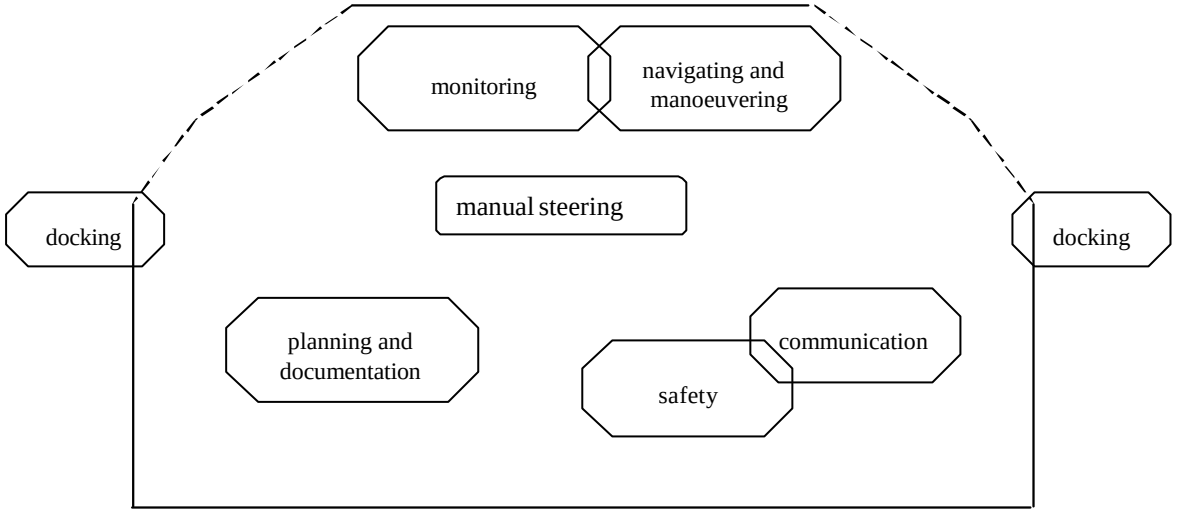


Fig. 1: Example of function areas – showing a possible location of workstations

In APPENDIX 2 the recommended equipment for the various workstations is listed.

Ergonomic Requirements

5.1 Bridge Layout

5.1.1 Sight

5.1.1.1 Field of Vision

5.1.1.1.1 Minimum Field of Vision

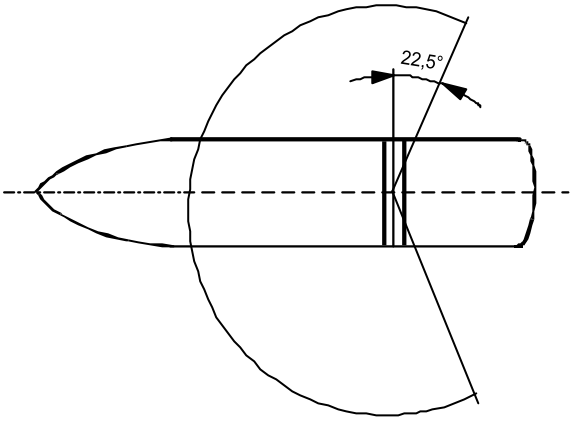
The view of the sea surface from the navigating and manoeuvring workstation should not be obscured by more than two ship lengths or 500 m, whichever is less, forward of the bow to 10° on either side under all conditions of draught, trim and deck cargo.

5.1.1.1.2 Field of Vision around the Ship

There should be a field of vision around the vessel of 360° obtained by an observer moving within the confines of the wheelhouse.

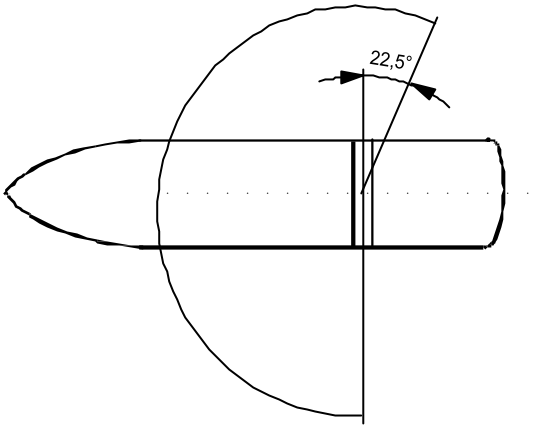
5.1.1.1.3 Navigating and Manoeuvring Workstation

The horizontal field of vision from the navigating and manoeuvring workstation should extend over an arc of not less than 225°, that is from right ahead to not less than 22.5°, abaft the beam on either side of the ship.



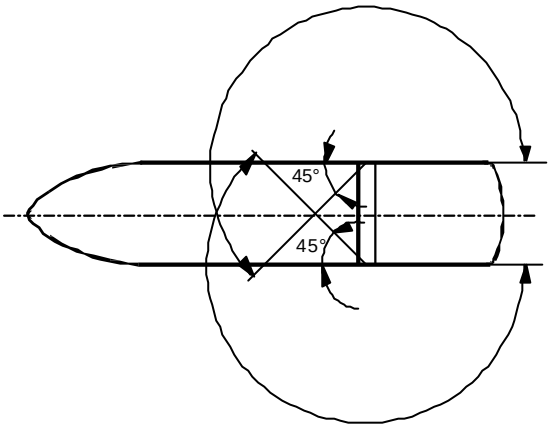
5.1.1.1.4 Monitoring Workstation

From the monitoring workstation, the field of vision should extend at least over an arc from 90° on the port bow, through forward, to 22.5° abaft the beam on starboard.



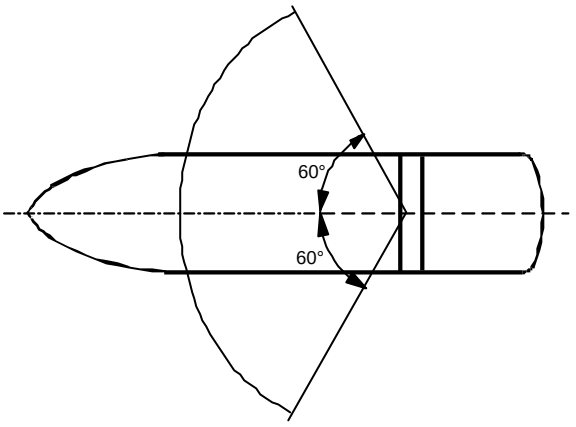
5.1.1.1.5 Bridge Wing

From each bridge wing the horizontal field of vision should extend over an arc at least 225°, that is at least 45° on the opposite bow through right ahead and then from right ahead to right astern through 180° on the same side of the ship.



5.1.1.1.6 Main Steering Position

From the main steering position (workstation for manual steering) the horizontal field of vision should extend over an arc from right ahead to at least 60° on each side of the ship.



5.1.1.1.7 Blind Sectors

The safe look-out from the navigating and manoeuvring workstation should not be influenced by blind sectors.

No blind sector caused by cargo, cargo gear or other obstructions outside of the wheelhouse forward of the beam which obstructs the view of the sea surface as seen from the navigating and manoeuvring workstation, should exceed 10°. The total arc of blind sectors should not exceed 20°. The clear sector between two blind sectors should be at least 5°. Over an arc from right ahead to at least 10° on each side, each individual blind sector should not exceed 5°.

5.1.1.1.8 View of the Ship's Side

The ship’s side should be visible from the bridge wing. Bridge wings should be provided out to the maximum beam of the ship. The view over the ship’s side should not be obstructed.

IMO Resolution A.708 (17) Navigation Bridge Visibility and Functions

Resolution A.708(17)

Adopted on 6 November 1991
(Agenda item 10)

NAVIGATION BRIDGE VISIBILITY AND FUNCTIONS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECOGNIZING that the lack of adequate bridge visibility may adversely affect the safety of the ship and the safety of other ships and the marine environment,

CONSIDERING the need to ensure that the design of ships provides at all times adequate visibility from the navigation bridge for the purposes of safe navigation,

NOTING WITH CONCERN reports that some ships' navigation bridges are being used for purposes other than navigation, communications and other functions essential to the safe operation of the ship, its engines and cargo,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its fifty-ninth session,

1. URGES Governments to ensure that:
   (a) the visibility from the navigation bridge of ships conforms to the guidelines on navigation bridge visibility set out in the annex to the present resolution;
   (b) the ship's navigation bridge is not used for purposes other than navigation, communications and other functions essential to the safe operation of the ship, its engines and cargo;

2. INVITES the Maritime Safety Committee to consider developing relevant provisions to ensure an adequate standard of visibility from the ship's wheelhouse, by means of an appropriate amendment to the International Convention for the Safety of Life at Sea, 1974.

Annex

GUIDELINES ON NAVIGATION BRIDGE VISIBILITY

1 SCOPE

1.1 These guidelines have been developed to ensure that designs of ships provide adequate visibility from the navigation bridge.

2 APPLICATION

2.1 The guidelines apply to ships constructed after 2 January 1992 where bridge duty is regularly maintained. The Administration should urge designers and builders of ships to use these guidelines during a ship's design process.

2.2 When ships of unconventional design cannot comply with the guidelines, Administrations should consider arrangements that provide a level of visibility that is as near as possible to the level recommended in these guidelines.

2.3 Administrations should consider the application of 3.2 and 3.3 to existing ships as well. However, structural alterations or addition of equipment need not be required.

3 FIELD OF VISION

3.1 Every effort should be made to place the navigation bridge above all other decked structures, not including funnels, which are on or above the freeboard deck.

3.2 The view of the sea surface from the conning position should not be obscured by more than two ship lengths, or 500 m, whichever is less, forward of the bow to 10° on either side irrespective of the ship's draught, trim and deck cargo.

3.3 Blind sectors caused by cargo, cargo gear and other obstructions outside of the wheelhouse forward of the beam obstructing the view of the sea surface as seen from the conning position, should not exceed 10° each. The total arc of blind sectors should not exceed 20°. The clear sectors between blind sectors should be not less than 5°. However, in the view described in 3.2, each individual blind sector should not exceed 5°.

3.4 The height of the lower edge of the navigation bridge front windows above the deck should be kept as low as possible. In no case should the lower edge present an obstruction to the forward view as described in these guidelines.

3.5 The upper edge of the navigation bridge front windows should allow a forward view of the horizon, for a person with an eye height of 1,800 mm, at the conning position when the ship is pitching in heaving seas.

3.6 The horizontal field of vision from the conning position should extend over an arc from more than 22.5° abaft the beam on one side, through forward, to more than 22.5° abaft the beam on the other side.

3.7 From each bridge wing the field of vision should extend over an arc from at least 45° on the opposite bow through dead ahead and then aft to 180° from dead ahead.

3.8 From the main steering position the field of vision should extend over an arc from dead ahead to at least 60° on each side.

3.9 The ship's side should be visible from the bridge wing.

4 WINDOWS

4.1 Framing between navigation bridge windows should be kept to a minimum and should not be installed immediately forward of any workstation.

4.2 To help avoid reflections, the bridge front windows should be inclined from the vertical plane top out, at an angle of not less than 10° and not more than 25°.

4.3 Polarized and tinted windows should not be fitted.

4.4 A clear view through at least two of the navigation bridge front windows and, depending on the bridge configuration, through an additional number of clear view windows should be provided at all times regardless of weather conditions.

Shoreway master’s standing orders with post accident proposed amendment

Bridge

Captain's standing orders at time of accident

Inform Captain:

- If visibility is restricted to less than 1 mile
- On failure to identify a navigation mark or obtain position
- If the radio equipment malfunctions
- In heavy weather, by any doubt about the possibility of weather damage
- If the ship meets any hazard to navigation
- If traffic conditions or the movements of other ships are causing concern
- If difficulties are experienced in maintaining course
- If, unexpectedly, land or a navigation mark is seen or a change in soundings occurs
- On breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator
- Emergency traffic in the area of operation
- Any accidents, incidents and/or damages
- Any essential changes to dredging and/or survey equipment
- In any other emergency or if any doubt

-to be filled in by captain-

Sole Look-out:

- Full account have to be taken off all relevant factors not limited to:
  - State of weather
  - Visibility
  - Traffic density
  - Proximity of dangers to navigation
  - Attention necessary when navigating in or near traffic separation schemes.
- If any doubt assistance in look-out has to be posted, or master advice has to be requested.

Proposed amendment following accident

Safety flash issued to Boskalis fleet following the accident

Boskalis Westminster

NINA NO INJURIES NO ACCIDENTS

SAFETY FLASH

June 2014 (2)

Dredger ‘Shoreway’ collision with sailing vessel

On the 8th June 2014 at approximately 13:25 BST, the trailer dredger Shoreway was sailing outbound in the shipping lane from the port of Felixstowe.

Approximately 7 miles offshore, the Shoreway collided with a sailing vessel. Crew on board the Shoreway immediately alerted VTS and launched their Rescue Boat into the water.

The crew of the Shoreway recovered one (male) crew member and one dog from the sailing vessel. The sailing vessel sank shortly after the collision. Search and Rescue (SAR) operations were continued by the crew of the Shoreway, until taken over by the Coastguard.

The rescued crew member and his dog were transferred to a Pilot vessel, and the SAR for the remaining (female) crew member and a second dog was going to continue.

A full investigation by the Marine Accident Investigation Branch (MAIB) is currently in progress.

In the meantime, at your next toolbox talk opportunity, please reflect on this incident and discuss / review your procedures for navigating through areas frequented by sailing vessels and other traffic.

Consider:

International Regulations for Preventing Collisions at Sea

Rule 5: Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

International Regulations for Prevention of Collisions at Sea (COLREGS) 1972 - Rules 2, 5, 17 & 18

INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA, 1972

(as amended by Resolutions A464(XII), A626(15), A678(16), A736(18) and A.910(22))

PART A - GENERAL

Rule 2

Responsibility

(a) Nothing in these Rules shall exonerate any vessel, or the owner, master or crew thereof, from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

(b) In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from these Rules necessary to avoid immediate danger.

PART B - STEERING AND SAILING RULES

Section I - Conduct of vessels in any condition of visibility

Rule 5

Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

Section II - Conduct of vessels in sight of one another

Rule 17

Action by stand-on vessel

(a) (i) Where one of two vessels is to keep out of the way the other shall keep her course and speed.

(ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

(b) When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, she shall take such action as will best aid to avoid collision.

(c) A power-driven vessel which takes action in a crossing situation in accordance with sub-paragraph (a)(ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side.

(d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

Rule 18

Responsibilities between vessels

Except where Rules 9,10 and 13 otherwise require:

(a) A power-driven vessel underway shall keep out of the way of:

(i) a vessel not under command;

(ii) a vessel restricted in her ability to manoeuvre;

(iii) a vessel engaged in fishing;

(iv) a sailing vessel.

(b) A sailing vessel underway shall keep out of the way of:

(i) a vessel not under command;

(ii) a vessel restricted in her ability to manoeuvre;

(iii) a vessel engaged in fishing.

(c) A vessel engaged in fishing when underway shall, so far as possible, keep out of the way of:

(i) a vessel not under command;

(ii) a vessel restricted in her ability to manoeuvre.

(d) (i) Any vessel other than a vessel not under command or a vessel restricted in her ability to manoeuvre shall, if the circumstances of the case admit, avoid impeding the safe passage of a vessel constrained by her draught, exhibiting the signals in Rule 28.

(ii) A vessel constrained by her draught shall navigate with particular caution having full regard to her special condition.

(e) A seaplane on the water shall, in general, keep well clear of all vessels and avoid impeding their navigation. In circumstances, however, where risk of collision exists, she shall comply with the Rules of this Part.

(f) (i) A WIG craft shall, when taking off, landing and in flight near the surface, keep well clear of all other vessels and avoid impeding their navigation;

(ii) A WIG craft operating on the water surface shall comply with the Rules of this Part as a power-driven vessel.

Annex I

Extract from STCW Code - Keeping a Safe Navigational Watch

STCW Extract

Part 4-1 – Principles to be observed in keeping a navigational watch

13 The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the International Regulations for Preventing Collisions at Sea, 1972, as amended.

Lookout

14 A proper lookout shall be maintained at all times in compliance with rule 5 of the **International Regulations for Preventing Collisions at Sea, 1972**, as amended and shall serve the purpose of:

.1 maintaining a continuous state of vigilance by sight and hearing, as well as by all other available means, with regard to any significant change in the operating environment;

.2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

.3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.

15 The lookout must be able to give full attention to the keeping of a proper lookout and no other duties shall be undertaken or assigned which could interfere with that task.

16 The duties of the lookout and helmsperson are separate and the helmsperson shall not be considered to be the lookout while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper lookout. The officer in charge of the navigational watch may be the sole lookout in daylight provided that, on each such occasion:

.1 the situation has been carefully assessed and it has been established without doubt that it is safe to do so;

.2 full account has been taken of all relevant factors, including, but not limited to:

– state of weather;
– visibility;
– traffic density;
– proximity of dangers to navigation; and
– the attention necessary when navigating in or near traffic separation schemes; and

.3 assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

17 In determining that the composition of the navigational watch is adequate to ensure that a proper lookout can continuously be maintained, the master shall take into account all relevant factors, including those described in this section of the Code, as well as the following factors:

.1 visibility, state of weather and sea;

.2 traffic density, and other activities occurring in the area in which the vessel is navigating;

.3 the attention necessary when navigating in or near traffic separation schemes or other routeing measures;

.4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres;

.5 the fitness for duty of any crew members on call who are assigned as members of the watch;

.6 knowledge of, and confidence in, the professional competence of the ship's officers and crew;

.7 the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and manoeuvring capability;

.8 activities taking place on board the ship at any particular time, including radio communication activities, and the availability of assistance to be summoned immediately to the bridge when necessary;

.9 the operational status of bridge instrumentation and controls, including alarm systems;

.10 rudder and propeller control and ship manoeuvring characteristics;

.11 the size of the ship and the field of vision available from the conning position;

.12 the configuration of the bridge, to the extent such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and

.13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the Organization.

Watch arrangements

18 When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, inter alia, shall be taken into account:

.1 at no time shall the bridge be left unattended;

.2 weather conditions, visibility and whether there is daylight or darkness;

.3 proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;

.4 use and operational condition of navigational aids such as ECDIS, radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;

.5 whether the ship is fitted with automatic steering;

.6 whether there are radio duties to be performed;

.7 unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and their limitations; and

.8 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

MAIB safety flyer to leisure boat users

MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

FLYER TO THE LEISURE INDUSTRY

ORCA: accident leading to a fatality on 8 June 2014

Narrative

At 1331 on 8 June 2014 the dredger *Shoreway* and the sailing yacht *Orca* collided 7 miles off Felixstowe. Damage to *Orca* was catastrophic **(Figure 1)** and it sank within minutes of the collision. The yacht's skipper was rescued from the water by *Shoreway*'s rescue boat but the skipper's wife could not be found despite an extensive air and sea search. Her body was recovered from the sunken yacht by divers the next day. There was no damage to *Shoreway.*

Orca's skipper saw *Shoreway* when it was in the deep water channel outbound from Harwich Haven. *Orca* was under sail returning towards its marina berth in Harwich Haven. The skipper assumed the dredger would remain in the deep water channel and decided to engage his autopilot and go below for a short period. At this stage *Shoreway* was approximately 1.6 miles away and from its aspect, the skipper assessed there was no risk of collision. However, *Shoreway* altered course to leave the deep water channel soon after, placing *Orca* on a collision course. Despite the clear visibility and all navigation aids being available, the officer on watch on the bridge of *Shoreway* failed to see *Orca* until the collision was unavoidable.

The MAIB investigation found that the vessels collided in good visibility as neither the chief officer, who was alone on the bridge of *Shoreway*, nor the skipper of *Orca*, who was below deck in the cabin, were maintaining a proper lookout in the period immediately prior to the collision.

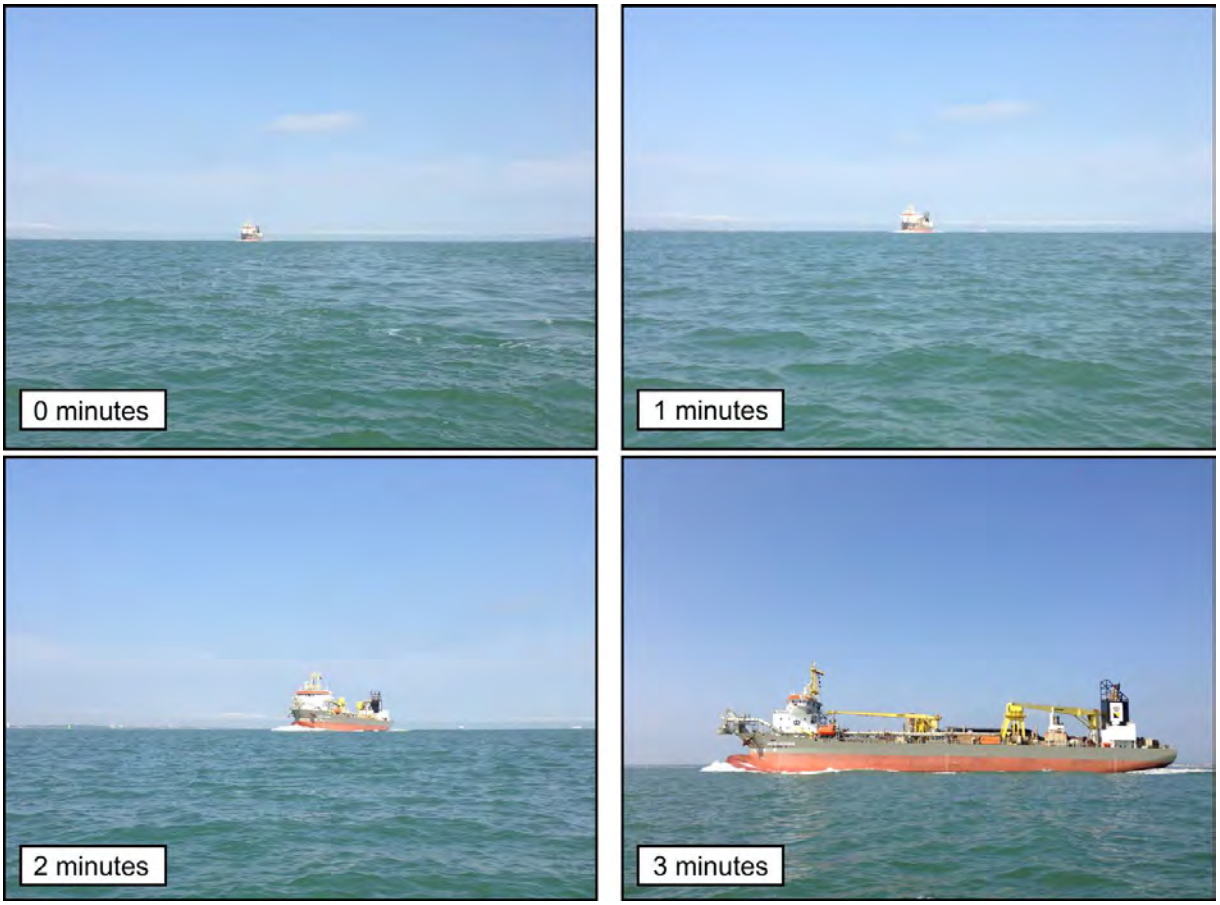
Safety lessons

- It is essential that all vessels maintain a proper lookout at all times. Had the crew of either *Shoreway* or *Orca* done so, this collision could have been avoided.

- Leisure boat users should never assume that they have been seen by other vessels, nor should they assume that the other vessels will always take avoiding action. Due to the good visibility, the officer on watch on *Shoreway* was not using his radar and had not seen the target of *Orca* that had been visible on his screen for 11 minutes before the collision.

- Leisure sailors need to be particularly aware of closing speeds between their own vessels and other vessels. In this case, *Shoreway* was travelling at 12.9kts but many types of vessels, including ferries, cruise ships and container ships, regularly sail at speeds over 25kts and, as a result, distances that initially appear sufficient can be reduced surprisingly quickly.

The following four pictures, taken from a stationary vessel, give an indication of how rapidly a vessel, in this case a dredger, can approach.



- *Orca*'s skipper's automatic inflation lifejacket failed to inflate on immersion in the water as the CO_2 bottle was not correctly fitted to the inflation mechanism. To remain effective, inflatable lifejackets must be serviced in accordance with the manufacturer's guidelines.

This flyer and the MAIB's investigation report are posted on our website: www.gov.uk/maib

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Marine Accident Investigation Branch
May 2015

Letter issued to all Harwich Haven PEC holders following accident

Date

Dear (PEC Holder)

Following a review of General Directions and PEC requirements subsequent to a serious marine incident, the following is drawn to your attention.

General Direction 3.1 Bridge Manning

The Master of every vessels underway in the Authority's area of jurisdiction shall ensure that there are at least two persons on the bridge at all times.

(i) Master, Pilot or PEC holder
(ii) A crew member capable of taking charge of the vessel

This General Direction is in addition to and does not supersede Rule 5 of the International Regulations For The Prevention of Collision At Sea which requires all vessels to maintain a proper lookout **at all times.**

Failure to observe either of the above requirements will be viewed seriously by the Authority and may result in the revocation of a PEC or a criminal prosecution.

Yours faithfully

Harbour Master & Marine Manager