



# *Loss Prevention • Guide*

**NORTH**   
SERVICE, STRENGTH, QUALITY

## COLLISIONS: HOW TO AVOID THEM

*North of England P&I Association*

# *Loss Prevention* • *Guide*



## COLLISIONS: HOW TO AVOID THEM

NORTH OF ENGLAND P&I ASSOCIATION

Published by North of England P&I Association Limited  
The Quayside, Newcastle upon Tyne, NE1 3DU, United Kingdom

Telephone +44 191 232 5221  
Fax +44 191 261 0540  
Email loss.prevention@nepia.com

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the written permission of the publisher.

Copyright © North of England P&I Association Limited 2013

The Author asserts moral copyright in the work.

ISBN 978-0-9558257-9-8

Author: North of England P&I Association

Printed and bound in the UK

### ***Acknowledgements***

Between 2001 and 2004 North issued a poster series on COLREGs which was followed up by a loss prevention guide. The authors of this new guide acknowledge the work that has gone before and especially that of Captain Roger Syms. What follows is largely based on the foundations laid down by him.

North acknowledges the generosity of the UK Marine Accident Investigation Branch in permitting many of the case studies that appear in this book to be based upon its Safety Digests.

### ***Disclaimer***

The purpose of this guide is to provide a source of information which is additional to that available to the maritime industry from regulatory, advisory and consultative organisations. Whilst care is taken to ensure the accuracy of the information, no warranty of accuracy is given and users of that information are expected to satisfy themselves that the information is relevant and suitable for the purposes to which it is applied. In no circumstances whatsoever shall the contributors or North of England P&I Association be liable to any person whatsoever for any loss or damage whatsoever or howsoever arising out of or in connection with the supply (including negligent supply) or use of this information.

## **GUIDE TO USING ELECTRONIC VERSION**

1. All book sections, headings and subheadings appear as bookmarks in the left-hand navigation pane – use this as the primary navigation.
2. Use the 'Full Acrobat Search' button (or Ctrl+Shift+F) to search for all occurrences of a word or phrase in the text (click 'Arrange Windows' to fit all on screen).
3. Click on text which refers to another part of the book to go there, use the Acrobat 'return to previous page view' button to go back.
4. Many words or phrases are linked to further information in other parts of the book (cursor changes to a hand) – click to go there and use the Acrobat 'return to previous page view' to go back.
5. Click on text which refers to another publication or organisation to go its website via your browser.

## **TERMS OF USE**

This publication may be used solely by the Authorised User.

The Authorised User shall comprise any company or individual (or employees thereof) to which North of England P&I Association has granted permission to use this publication.

Any other unauthorised manner of exhibition, broadcast or distribution of the information, form, content or presentation contained herein and any public performance, diffusion, editing, copying, reselling, hiring in whole or in part, is prohibited.

# CONTENTS

	<i>Page</i>		<i>Page</i>
<b>FOREWORD</b>	<b>2</b>	<b>CASE STUDIES</b>	
<b>INTRODUCTION</b>	<b>3</b>	Introduction	28
<b>THE RULES</b>		Case Study 1. Who started this?	29
Rule 2: Responsibility	4	Case Study 2. Is it good to talk?	30
Rule 5: Look-out	6	Case Study 3. What were they thinking?	31
Rule 6: Safe speed	8	Case Study 4. Watch out astern	32
Rule 7: Risk of collision	10	Case Study 5. To cross or not to cross?	33
Rule 8: Action to avoid collision	12	Case Study 6. Fishing?	34
Rule 10: Traffic separation schemes	14	<b>PLOTTING SHEETS</b>	
Rule 13: Overtaking	16	Plotting Sheet 1. Open sea	35
Rule 14: Head-on situation	18	Plotting Sheet 2. Traffic separation scheme	37
Rule 15: Crossing situation	20	Plotting Sheet 3. Coastal waters	39
Rule 16: Action by give-way vessel	22		
Rule 17: Action by stand-on vessel	24		
Rule 19: Conduct of vessels in restricted visibility	26		

## FOREWORD

When cases arising out of collisions between ships reach the Admiralty Court it is apparent that deck officers are provided with considerable radar and other electronic assistance to enable them to avoid collisions with other ships. See for example *Samco Europe v MSC Prestige* [2011] 2 Lloyd's Law Reports 579, a collision which occurred in good visibility in the Gulf of Aden between a very large crude carrier and a container ship despite the fact that both vessels were equipped with automatic radar plotting aids, automatic identification systems and electronic chart display and information systems, and observed each other by radar at a distance of about 15 nautical miles.

The question which arises is why, despite all the impressive electronic assistance designed to enable deck officers to avoid collisions, collisions still occur. The answer is, and always has been since radar was first introduced, that the rules of navigation set out in the International Regulations for Preventing Collisions at Sea 1972 must still be applied by deck officers. Thus, in *Samco Europe v MSC Prestige* the officer of the watch on board *MSC Prestige* failed to take early and substantial action to keep out of the way of *Samco Europe* in breach of Rules 15 and 16 of the COLREGs and the officer of the watch on board *Samco Europe* altered course to port in breach of Rule 17 of the COLREGs.

This short and compact guide to COLREGs therefore has a vital and necessary role. It reminds mariners of the basics of the COLREGs and that they must be kept well in mind and obeyed notwithstanding the profusion of equipment on the modern bridge. That equipment does not avoid collision. It is merely an aid to collision avoidance. What avoids collisions is compliance with the COLREGs.

*The Hon Mr Justice Nigel Teare*

*Admiralty Judge*

*The Royal Courts of Justice, London, UK*

# INTRODUCTION

Collisions are among the most high profile of all maritime accidents. The number of collisions and their cost, in personal and financial terms, has increased in recent years and 'human error' seems to be the only common factor.

## THE COLREGS

Collisions should not happen but they do; sometimes with disastrous consequences. Proper application of the International Regulations for Preventing Collisions at Sea 1972 (COLREGs) by every watchkeeper on every vessel is the only way to reduce the risk of collision. Indeed, if the regulations are followed to the letter, then a collision should never occur.

Today's watchkeeper is required to gather, understand and appraise information from a range of sources; from sophisticated radar, automatic radar plotting aids (ARPA), electronic chart display and information systems (ECDIS), automatic identification systems (AIS) and global positioning systems (GPS) to compass bearings, visual sightings and sound signals. This information is the starting point of a decision making process and the watch keeper must then apply the COLREGs to the factual situation in order to identify the correct steps leading to the correct outcome.

## IDENTIFYING RISK

The concept of the 'risk of collision' is a key feature of the COLREGs. The risk of collision must be identified, assessed and avoided at all times and this is the responsibility of every watchkeeping officer on every vessel.

The best lesson you can learn from this guide is to acknowledge the watchkeeper's responsibility to identify a 'risk of collision' and to take all

necessary steps to avoid or minimise that risk.

The aim of this guide is to deliver that message by encouraging discussion between all watchkeepers, from cadets to masters and inspecting officers. We learn best from our experience and from the experience of the people around us, and there is no better way of understanding COLREGs than through discussion, whether in bridge team meetings, at onboard training sessions, during a quiet watch or in the mess room.

## KEY RULES

This is not a textbook on the COLREGs. Rather, it is a focus for discussion of those regulations that we at North believe are the key to collision avoidance and which we see breached time and again when collisions occur.

We think the rules that are discussed in this guide are the ones which are most often misinterpreted and misapplied. We hope that this guide will demonstrate how these rules fit together and how the interpretation and application of each of them can be influenced, sometimes wrongly, by the vast mass of information now available from electronic aids to navigation.

At the end of the guide are collision case studies and simple plotting sheets which you can use to illustrate developing situations. We hope that the case studies and the questions they ask will be the starting point for wide-ranging discussions on all aspects of collision avoidance.

## ***Rule 2*** **RESPONSIBILITY**





## **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.

### **IT'S YOUR RESPONSIBILITY**

Rule 2 is a vital rule that is often misunderstood.

It is different from the majority of the COLREGs because it does not tell you what to do or when to do it. Instead, Rule 2 highlights the fact that **you are responsible for your own actions**. You are the one who has to make the immediate decision on what to do in order to comply with the rules.

Your ship's safety management system may tell you when to call the master or what to do if visibility reduces, but it is Rule 2 that makes you responsible to your fellow crew and to the ships around you.

Your responsibility is not only to follow the COLREGs – you are also responsible for doing everything necessary to avoid the **risk of collision** and the dangers of navigation.

- Rule 2 (a) requires you to follow both the rules and 'the ordinary practice of seamen'. This means that you must always use common sense.
- Rule 2 (b) is often misunderstood so read it carefully. It only allows you to depart from the rules if that is the only way to avoid an immediate danger. But, in almost every situation, it is the proper application of the rules that will keep you out of that danger. Rule 2(b) is never a justification for not following the rules properly.

Rule 2 allows no excuses. It is written in old-fashioned language so please read it carefully and often to make sure that you understand it. Always ask yourself:

- How does Rule 2 apply to this situation?
- What does Rule 2 require me to do?

### **SUMMARY**

**It is always your responsibility to comply with COLREGs and avoid collisions.**

## ***Rule 5*** **LOOK-OUT**



## **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.

### **KEEP A LOOK-OUT**

Between them, Rule 2 on responsibility and Rule 5 are the most important of all the COLREGs.

Rule 5 is short but it has two vital elements:

- You must **pay attention to everything** – not just looking ahead out of the bridge windows but looking all around the vessel, using all your senses and all personnel and equipment available to you. There must always be someone looking-out. If weather or the situation around you causes concern, then more look-outs may be needed and you must call them without hesitation.
- You must use all of that information continuously to assess the situation your vessel is in and the **risk of collision**.

The requirement to ‘maintain a proper look-out’ includes:

- Looking and listening – maintain a continuous watch by sight and by hearing, both inside and outside the wheelhouse.
- Looking means looking out of the windows, **all the time**.
- Using ECDIS – the prime function of ECDIS is to help you be sure that your ship is not moving into danger. Its other functions are useful but you must not get distracted by them.
- Using ARPA – you must be aware of the effects of clutter, of small targets and the range and limitations of the set.

- Using a radio – you must listen to what is going on around you but you must always think carefully before calling other ships on VHF. It always takes more time than you think and it may cause delay and confusion.
- Monitoring sound signals – ensure you can hear what is going on outside the wheelhouse. Be aware of the effect of keeping a closed wheelhouse and of distracting noises inside it.
- Using a depth indicator – frequently and systematically monitor the depth of water beneath your keel. The seabed is often the nearest point of danger.
- Avoid distractions such as wheelhouse and deck lights, other people, navigational records and routine paperwork, including chart corrections.
- Always remember that you are on bridge watch to keep the ship safe, as set out in Rule 2 on responsibility.

To assess the risk of collision you must continuously ask yourself:

- Is a collision possible, because of the action (or inaction) of any vessel in the vicinity – including your own vessel?
- Is a collision probable? If so, the risk of collision is already here and you need to act urgently. See also Rule 7 on risk of collision.

### **SUMMARY**

**Always keep a proper look-out by sight and hearing.**

# Rule 6

## SAFE SPEED



## Rule 6: SAFE SPEED

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed the following factors shall be among those taken into account:

- |   |   |
|---|---|
| <p>(a) By all vessels:</p> <ul style="list-style-type: none"> <li>(i) the state of visibility;</li> <li>(ii) the traffic density including concentrations of fishing vessels or any other vessels;</li> <li>(iii) the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions;</li> <li>(iv) at night the presence of background light such as from shore lights or from back scatter of her own lights;</li> <li>(v) the state of wind, sea and current, and the proximity of navigational hazards;</li> <li>(vi) the draught in relation to the available depth of water.</li> </ul> | <p>(b) Additionally, by vessels with operational radar:</p> <ul style="list-style-type: none"> <li>(i) the characteristics, efficiency and limitations of the radar equipment;</li> <li>(ii) any constraints imposed by the radar range scale in use;</li> <li>(iii) the effect on radar detection of the sea state, weather and other sources of interference;</li> <li>(iv) the possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range;</li> <li>(v) the number, location and movement of vessels detected by radar;</li> <li>(vi) the more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity.</li> </ul> |
|---|---|

## CHECK YOUR SPEED

Rule 6 requires you to **make your own judgement** on the appropriate speed for your vessel, taking into account the situation you are in and the situation you are moving towards. Excessive speed contributes to many collisions.

Rule 5 on look-out and Rule 6 are closely linked. If you do not obey Rule 5, then you cannot obey Rule 6.

Without exception a **'safe speed' is a reduced speed**, because:

- In most cases, if either ship reduces speed, their closest point of approach (CPA) will increase. The **risk of collision** will then reduce.
- It gives you more time to think and to act. Time to think and to act is all important – too much speed and too little time can fatally impair your risk assessment processes.
- It allows you to stop more effectively.
- If a collision does occur, the resulting damage will be a lot less.

Remember:

- You are responsible for proceeding at a safe speed. If an alteration of speed is necessary, then you do not have to ask permission.
- Radar and ARPA are not infallible. They may miss some targets altogether or they may show large targets as weak echoes.
- Navigational aids such as ECDIS and GPS can be equally suspect. Never rely on one instrument or on one technique – always double-check.
- Constantly monitor your speed – the situation at sea is always changing and a safe speed in one situation can be too fast in another. Situations can change suddenly.
- Maintaining a high speed for commercial reasons **is no excuse and no defence** for proceeding at an unsafe speed.

## SUMMARY

**Always travel at a safe speed.**

## ***Rule 7*** **RISK OF COLLISION**



## **Rule 7: RISK OF COLLISION**

- (a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.
- (b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.
- (c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.
- (d) In determining if risk of collision exists the following considerations shall be among those taken into account:
  - (i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change;
  - (ii) such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

### **IS THERE A RISK OF COLLISION?**

Rule 5 on look-out and Rule 7 are also closely linked. Under Rule 5 you must use all available means to collect information on the situation around you (look-out) and under Rule 7 you must use that information continuously to assess the **risk of collision**.

To assess the risk of collision you must continuously ask yourself:

- Is a collision **possible**, because of the action (or inaction) of any vessel in the vicinity – including your own vessel?
- Is a collision **probable**? If so, the risk of collision is already here and you need to act urgently.

This risk-assessment process is essential if you are to take appropriate action – see Rule 8 action to avoid collision.

Risk-assessment techniques include:

- Look and listen – as with keeping a look-out, you must use all the information and equipment available to determine the risk of collision.
- Use the compass to check the bearing of approaching vessels, and do this regularly. A steady bearing indicates the risk of collision but a risk of collision may exist even with a bearing change, particularly at close range and with large vessels.

- Use radar:
  - With ARPA, use **relative vectors** to determine the risk of collision.
  - Is the target passing ahead or astern or are you going to collide? Remember the primary information you need to answer these questions is relative information.
  - Do not trust ARPA to give you an accurate CPA. Take 0.5 nautical mile off each indication to be safe and, if the CPA is already 0.5 nautical mile, then assume a risk of collision exists.
- Do not just rely on a change of bearing as an indicator of clearance. As a target ship approaches, its change of bearing should accelerate significantly. If the change of bearing does not accelerate then there is a risk of collision.

**Do not relax** – keep monitoring the situation until the target ship is passed and clear.

### **SUMMARY**

**Always assess the risk of collision.**

## **Rule 8**

### **ACTION TO AVOID COLLISION**





## **Rule 8: ACTION TO AVOID COLLISION**

- (a) Any action taken to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.
- (b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.
- (c) If there is sufficient sea-room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.
- (d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.
- (e) If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.
- (f) (i) A vessel which, by any of these Rules, is required not to impede the passage or safe passage of another vessel shall, when required by the circumstances of the case, take early action to allow sufficient sea-room for the safe passage of the other vessel.
- (ii) A vessel required not to impede the passage or safe passage of another vessel is not relieved of this obligation if approaching the other vessel so as to involve risk of collision and shall, when taking action, have full regard to the action which may be required by the Rules of this Part.
- (iii) A vessel the passage of which is not to be impeded remains fully obliged to comply with the Rules of this Part when the two vessels are approaching one another so as to involve risk of collision.

## **DO SOMETHING AND DO IT EARLY**

As soon as you identify a **risk of collision**, you must identify the correct action to avoid collision to ensure the vessels will pass at a **'safe distance'**. You should then take that action to avoid collision as soon as it is appropriate to do so.

Action to avoid collision should always be:

- positive – make a **big alteration** of course and/or speed
- made in good time – which means **early**
- seamanlike – do not make the situation worse for any other ship in the vicinity, assess what they may have to do
- easily seen by the other ship(s) – avoid a series of small alterations of course and/or speed.

Remember, a substantial alteration made early is better than a very large alteration made late. The closer you are to the other vessel the greater the risk of collision and the more you will have to do to pass at a safe distance.

Small alterations of course and speed are also dangerous; they do not often solve the problem and they do not give the other vessel a clear indication of

what you are doing.

Remember to make appropriate **sound and light signals**.

You should confirm your action to avoid collision by monitoring the change in CPA. Keep taking compass bearings and checking the situation until the risk of collision is over. And remember your engine – if your ability to alter course is constrained then **slow down or stop**.

## **Giving way and not impeding**

- If the COLREGs require you 'not to impede' or 'give-way' to another vessel, then you must take very early action to make sure risk of collision does not develop.
- If you are the 'not to be impeded' or stand-on vessel, then you must always be prepared for the give-way vessel not to take the correct action. If a risk of collision develops, you will have to act – remember the caution in Rule 2 on responsibilities and your continuing responsibilities in Rule 17 on action by the stand-on vessel.

## **SUMMARY**

**Always do something positive and timely to avoid a collision.**

# **Rule 10**

## TRAFFIC SEPARATION SCHEMES



## **Rule 10: TRAFFIC SEPARATION SCHEMES**

- (a) This Rule applies to traffic separation schemes adopted by the Organization and does not relieve any vessel of her obligation under any other Rule.
- (b) A vessel using a traffic separation scheme shall:
- (i) proceed in the appropriate traffic lane in the general direction of traffic flow for that lane;
  - (ii) so far as practicable keep clear of a traffic separation line or separation zone;
  - (iii) normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from either side shall do so at as small an angle to the general direction of traffic flow as practicable.
- (c) A vessel shall, so far as practicable, avoid crossing traffic lanes but if obliged to do so shall cross on a heading as nearly as practicable at right angles to the general direction of traffic flow.
- (d)
  - (i) A vessel shall not use an inshore traffic zone when she can safely use the appropriate traffic lane within the adjacent traffic separation scheme. However, vessels of less than 20 metres in length, sailing vessels and vessels engaged in fishing may use the inshore traffic zone.
  - (ii) Notwithstanding sub-paragraph (d) (i), a vessel may use an inshore traffic zone when en route to or from a port, offshore installation or structure, pilot station or any other place situated within the inshore traffic zone, or to avoid immediate danger.
- (e) A vessel other than a crossing vessel or a vessel joining or leaving a lane shall not normally enter a separation zone or cross a separation line except:
- (i) in cases of emergency to avoid immediate danger;
  - (ii) to engage in fishing within a separation zone.
- (f) A vessel navigating in areas near the terminations of traffic separation schemes shall do so with particular caution.
- (g) A vessel shall so far as practicable avoid anchoring in a traffic separation scheme or in areas near its terminations.
- (h) A vessel not using a traffic separation scheme shall avoid it by as wide a margin as is practicable.
- (i) A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.
- (j) A vessel of less than 20 metres in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.
- (k) A vessel restricted in her ability to manoeuvre when engaged in an operation for the maintenance of safety of navigation in a traffic separation scheme is exempted from complying with this Rule to the extent necessary to carry out the operation.
- (l) A vessel restricted in her ability to manoeuvre when engaged in an operation for the laying, servicing or picking up of a submarine cable, within a traffic separation scheme, is exempted from complying with this Rule to the extent necessary to carry out the operation.

## **NO RIGHTS IN TRAFFIC SEPARATION SCHEMES**

Rule 10 is one of the longest rules and one of the hardest to understand. Always remember the following.

- There is no right of way – a traffic separation lane does **not give you right of way over any other vessels** (except a vessel that is fishing inside a traffic separation lane).
- All of the other rules continue to apply within a traffic separation scheme.
- The actions of vessels navigating in and near a traffic separation scheme can be unpredictable.

Traffic separation schemes are established in busy areas of difficult navigation. You can expect above-average density of traffic, crossing vessels, fishing vessels and high-speed craft. Study the passage plan before your watch, be prepared and, if you need assistance, ask for it well in advance.

Tips for navigating in traffic separation schemes are:

- Always follow all the other rules.
- Keep in your lane.
- Try to avoid overtaking – especially towards the end of the scheme.
- Avoid VHF calls to other ships – it will only distract them.
- Beware of fishing vessels – they are allowed to fish in traffic separation lanes.
- Look out for crossing vessels – they should cross the scheme at right angles but they may navigate parallel to the scheme for a while to find an opportunity to cross.
- Look out for high-speed craft – especially wide on your beam.
- If you are not happy, **slow down or stop**.
- **Be wary at all times.**

## **SUMMARY**

**You have no additional rights of way in a traffic separation scheme.**

# **Rule 13**

## **OVERTAKING**



### **Rule 13: OVERTAKING**

- (a) Notwithstanding anything contained in the Rules of Part B, Sections I and II, any vessel overtaking any other shall keep out of the way of the vessel being overtaken.
- (b) A vessel shall be deemed to be overtaking when coming up with another vessel from a direction more than 22.5 degrees abaft her beam, that is, in such a position with reference to the vessel she is overtaking, that at night she would be able to see only the stern light of that vessel but neither of her sidelights.
- (c) When a vessel is in any doubt as to whether she is overtaking another, she shall assume that this is the case and act accordingly.
- (d) Any subsequent alteration of the bearing between the two vessels shall not make the overtaking vessel a crossing vessel within the meaning of these Rules or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

### **KEEP CLEAR WHEN OVERTAKING**

Rule 13 has no exceptions; the overtaking vessel always keeps out of the way.

If you are **not sure whether you are overtaking another vessel, then Rule 13 says that you are.**

Remember:

- Always presume the other ship does not know you are there.
- Avoid crossing ahead – it is always **safer to cross astern**.
- Do not pass close – overtaking always takes time, so make sure both ships have plenty of room to manoeuvre. Never assume that the other ship will maintain its course and speed.
- Beware of interaction – if you are forced to pass close, be very careful of interaction between the two vessels.

Remain vigilant – remember; you remain an overtaking vessel until you are finally passed and clear.

**Once you are an overtaking vessel, you are always an overtaking vessel.**

### **SUMMARY**

**Always keep clear of a ship you are overtaking.**

## **Rule 14**

### **HEAD-ON SITUATION**



### **Rule 14: HEAD-ON SITUATION**

- (a) When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other.
- (b) Such a situation shall be deemed to exist when a vessel sees the other ahead or nearly ahead and by night she would see the mast head lights of the other in a line or nearly in a line and or both sidelights and by day she observes the corresponding aspect of the other vessel.
- (c) When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly.

### **SHIP AHEAD? ALTER TO STARBOARD**

If there is a ship ahead you should **alter course to starboard**.

The ship does **not need to be exactly right ahead** – Rule 14 applies to any vessel coming towards you on a roughly opposite course and roughly within half a point (6 or 7 degrees) on either side of your bow.

At night, if you can see the other ship's masthead lights in line, or nearly in line, and/or both its sidelights, then Rule 14 applies. **If you are not sure, then Rule 14 still applies.**

To understand Rule 14, you must also understand Rule 8 on action to avoid a collision and Rule 16 on action by the give-way vessel:

- Rule 8 (a) says, 'Any action to avoid collision shall be taken in accordance with the Rules of this Part' ('this Part' being the steering and sailing rules). This means that if you have a vessel fine to starboard, even some distance away, altering to port to increase the 'green to green' clearance may not be in accordance with the COLREGs.
- If there is any **risk of collision** then you should always go to starboard, as Rule 14 says.
- Rule 16 says that if you are to keep out of the way, you must take early and substantial action. This means you should alter your course (or speed) good and early.
- Do not wait for the other vessel to act. The closer you get, the bigger the alteration you will have to make.

### **SUMMARY**

**Always alter course to starboard when you see a ship approaching you from ahead.**

# **Rule 15**

## **CROSSING SITUATION**





### **Rule 15: CROSSING SITUATION**

When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

#### **WATCH VESSELS TO STARBOARD**

A vessel crossing from your **starboard side** has **right of way**.

The other vessel will be watching you carefully and it will be anxious until it knows you are taking the correct action.

**Make life easy for both ships:**

- Give way early – if you are the give-way vessel, then take early action so the other vessel knows your intentions.
- Avoid crossing ahead – if possible, always **go to starboard and go astern** of the other vessel.
- Be considerate – if the other vessel is hampered in any way, then your early action will reassure it.
- Be positive – especially if you are in any doubt.
- Do not forget your engine – you always have the option of using your engine as well as your helm. **Slowing down** will give both ships more time and more space.

#### **SUMMARY**

**Always give way to a ship you see crossing from your starboard side.**

## **Rule 16**

### **ACTION BY GIVE-WAY VESSEL**



## **Rule 16: ACTION BY GIVE-WAY VESSEL**

Every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear.

### **KEEP EVERYONE HAPPY**

Rule 16 is one of the shortest rules but it makes life easier for everyone. The basic points are:

- Do not hesitate – alter course or speed **early**.
- Do not make small alterations – only a **big alteration** of course or speed will show the other vessel exactly what you are doing.
- Do not assume anything – keep checking the CPA and keep taking compass bearings to make sure your action has the desired effect.
- **Keep everybody happy.**

Following Rule 16 makes life easier for all vessels. If the other vessel is happy with your alteration there is less chance of it doing something unexpected. Treat other vessels as you would like to be treated yourself. Good seamanship includes **courtesy and common sense**.

### **SUMMARY**

**Always give way to a stand-on ship early, clearly and courteously.**

## **Rule 17**

### **ACTION BY STAND-ON VESSEL**



### **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.

#### **IS IT GIVING WAY?**

Rule 17 is one of the harder rules to understand and to follow. If you are the 'stand-on vessel' then you cannot relax.

Rule 17 has **three** stages and you **must** identify and assess each of them:

- Rule 17 (a) (i): when you are the 'stand-on vessel', you must keep your course and speed. You must not do anything unexpected.
- Rule 17 (a) (ii): 'as soon as it becomes apparent' that the give-way vessel is not taking appropriate action, then you **may** take your own action to avoid a collision.
- Rule 17 (b): when a collision cannot be avoided by the give-way vessel alone, then you **must** take the best action you can to avoid colliding. Your action under Rule 17(b) must still be in time to avoid a collision so you must not leave it too late

But **do not go to port in a crossing situation** – if the other ship goes to starboard, as it should, then both ships will turn towards each other.

Do not forget the 'wake up' signal under Rule 34(d) on manoeuvring and warning signals. Blow your horn and flash your lights at the other vessel but think twice before calling it on VHF, because that always takes valuable time during which the **risk of collision** will increase.

#### **SUMMARY**

**When approaching a give-way ship, maintain course and speed but always be prepared to take action to avoid a collision.**

## ***Rule 19***

# CONDUCT OF VESSELS IN RESTRICTED VISIBILITY



### **Rule 19: CONDUCT OF VESSELS IN RESTRICTED VISIBILITY**

- (a) This Rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.
- (b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate manoeuvre.
- (c) Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of Section I of this Part.
- (d) A vessel which detects by radar alone the presence of another vessel shall determine if a close quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration of course, so far as possible the following shall be avoided:
  - (i) an alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;
  - (ii) an alteration of course towards a vessel abeam or abaft the beam.
- (e) Except where it has been determined that a risk of collision does not exist, every vessel which hears apparently forward of her beam the fog signal of another vessel, or which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.

### **RESTRICTED VISIBILITY CHANGES EVERYTHING**

Different rules apply in restricted visibility. Restricted visibility includes fog, mist, snow, heavy rain and sandstorms – any situation where you cannot see the other ship or its navigation lights.

There are no ‘stand-on’ or ‘give-way’ vessels in restricted visibility. Every vessel must take action and **every vessel must proceed at a safe speed** with its engines ready for immediate manoeuvre.

You must assess if your ship is getting close to another ship and/or if there is a **risk of collision**. In both cases you should:

- **avoid altering to port** for a vessel forward of the beam, except for a vessel you are overtaking (Rule 19 (d) (i))
- **avoid altering towards** any ship abeam or abaft the beam (Rule 19 (d) (ii)).

You should also remember Rule 7 on risk of collision – there is a risk of collision if you are in any doubt.

And remember Rule 5 on look-out – you must always maintain a proper look-out by sight and hearing.

### **SUMMARY**

**Always be prepared to give way to ships you cannot see.**

## ***Case Studies***

### INTRODUCTION

The following six case studies are based on real collisions that have occurred in recent years. Fortunately nobody died as a result of any of these collisions but damage to the ships and cargoes involved cost owners and insurers well over US\$100 million.

Each case study is set out as simply as possible, with the minimum information necessary to describe the developing situation. In five of the case studies you are the watchkeeper on one of the vessels.

Each case study also asks a number of questions – but the answers are not provided. The intention is to discuss the questions with members of the bridge team so that you will be able to agree on the answers to each question. In coming to your answers we suggest you identify the relevant rules and discuss exactly how they apply to the case study.

At the end of the guide are simple plotting sheets which you can use to plot and help understand situations. Additional case studies will be published from time to time in North's loss prevention publication *Signals*.

The case studies and the questions they ask are intended to be the starting point for wide-ranging discussions on all aspects of collision avoidance.



## Case Study 1

### WHO STARTED THIS?

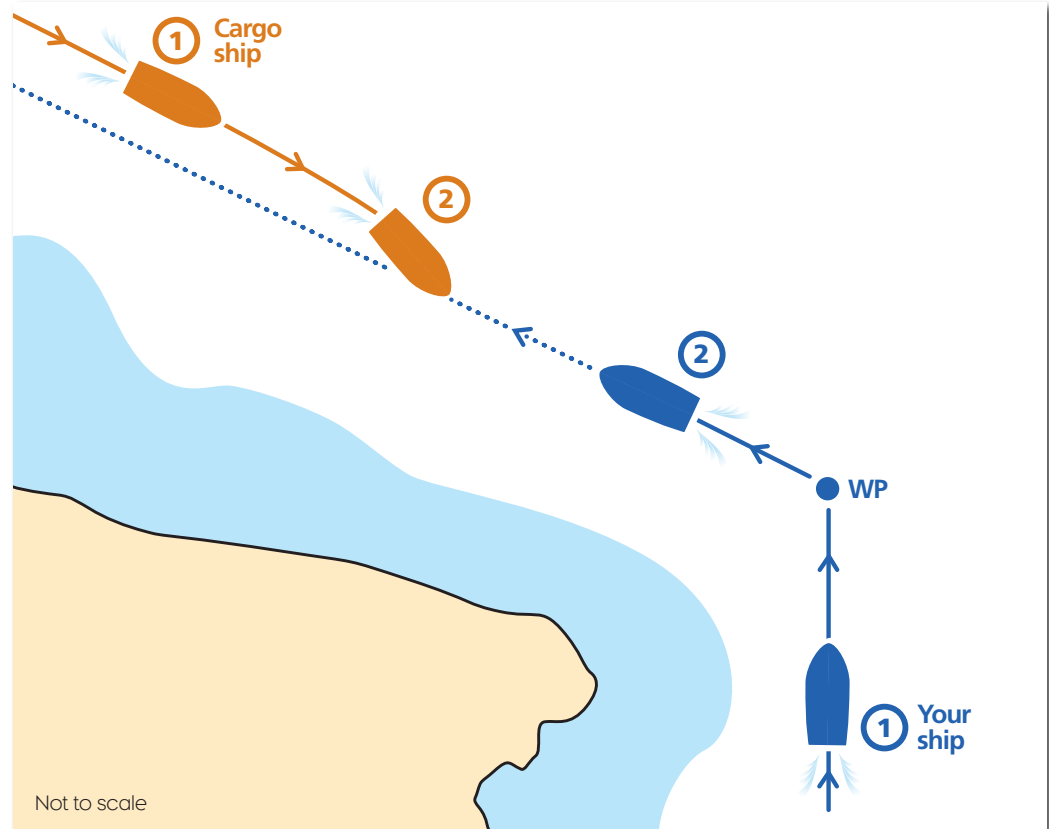
#### SCENARIO

Your vessel is rounding a headland and approaching a waypoint for an alteration to port. A cargo ship is approaching the headland from the other direction. The ships are now in position 1.

The cargo ship sees your port aspect and alters course to starboard as the 'give-way' vessel. You are unaware of its alteration and so you alter course to port to follow your passage plan. You want to keep to your passage plan. The ships are now in position 2.

#### QUESTIONS

1. What action should you have taken at position 1?
2. What action should you take now, at position 2?



## Case Study 2

### IS IT GOOD TO TALK?

#### SCENARIO

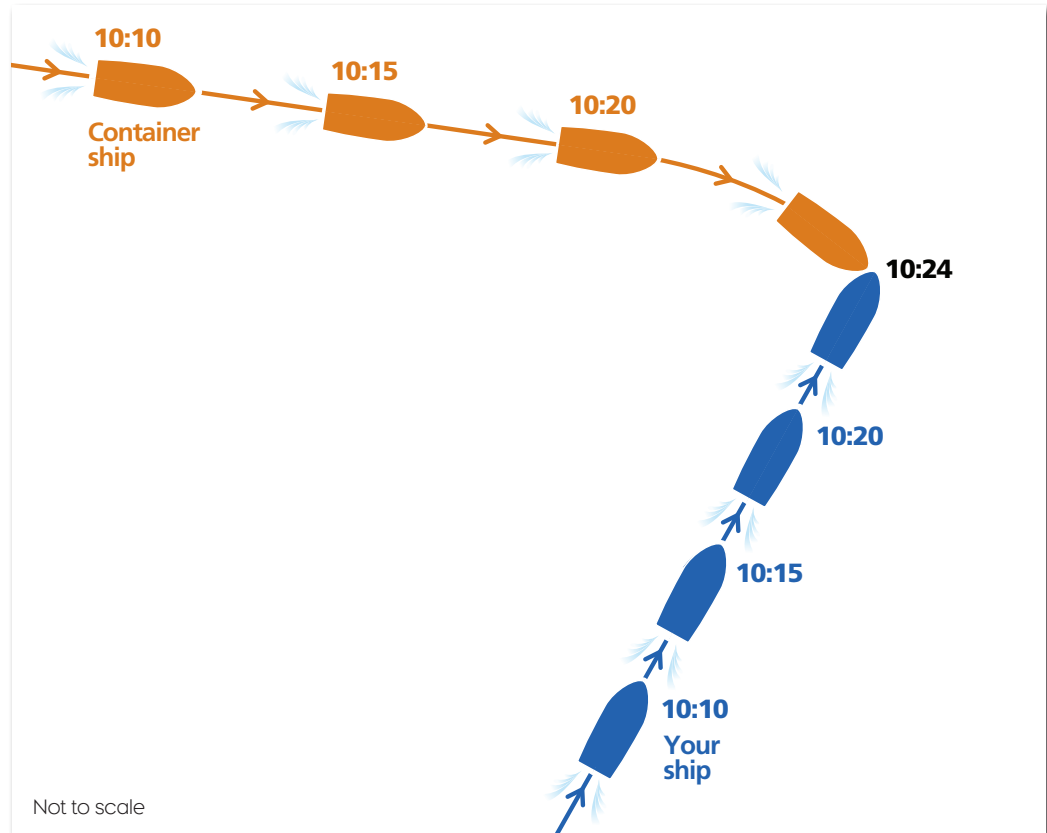
You are the watchkeeper on a bulk carrier heading north-east at 8 knots. On your port bow at 5 nautical miles is a container ship making a speed of 18.5 knots on a course to pass 0.3 nautical miles ahead. You believe this closest point of approach (CPA) is too close

At 3 nautical miles apart you call the container ship on VHF to ask its intentions. The watchkeeper says he will pass ahead but you ask him to alter course to starboard to pass astern.

Two minutes later you call again and insist the container ship alters course to starboard. The watchkeeper on the container ship changes his mind and begins to alter course to starboard. Two minutes later the ships collide.

#### QUESTIONS

1. What caused the collision?
2. What was a safe CPA?
3. Did the VHF conversations improve the situation?



## **Case Study 3**

### WHAT WERE THEY THINKING?

#### **SCENARIO**

In open waters a bulk carrier and a container ship were closing at full sea speed. The bulk carrier was steering north-west at 16 knots and the container ship was steering south-east at 24 knots. The closest point of approach (CPA) was 0.45 nautical miles, green to green. This is position 1.

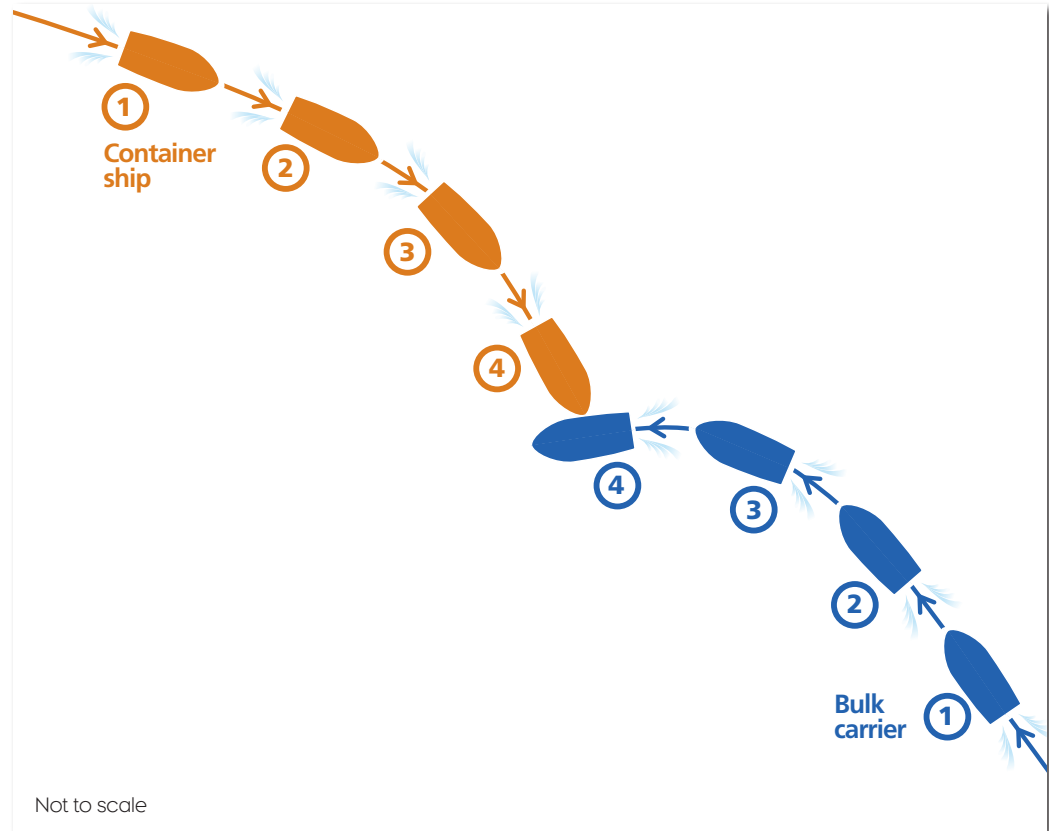
At 4.5 nautical miles apart the container ship altered 6° to starboard. Shortly afterwards the bulk carrier altered 5° to port. This is position 2.

At 2.3 nautical miles the container ship altered 5° to starboard and the bulk carrier altered 10° to port. This is position 3.

Just before collision the container ship altered 18° to starboard and the bulk carrier altered 55° to port. This is position 4.

#### **QUESTIONS**

1. What were the faults of each ship?
2. What should each ship have done?
3. By what percentage was each ship responsible for the collision?



## Case Study 4

### WATCH OUT ASTERN

#### SCENARIO

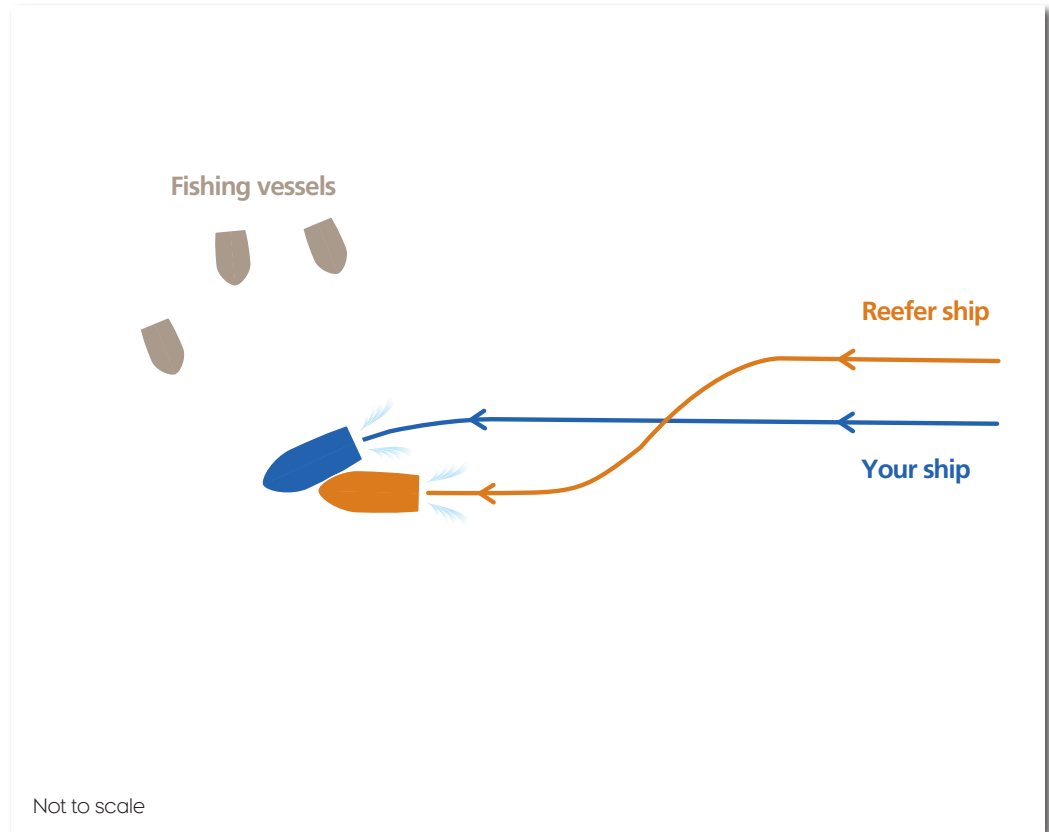
You are the watchkeeper on a general cargo ship, steering west at 12 knots. Your radar display is offset to show 9 nautical miles ahead and 3 nautical miles astern and you are keeping a close watch on a group of fishing vessels on your starboard side.

You never see a reefer vessel overtaking from your port quarter with a closest point of approach (CPA) of 0.5 nautical miles on your port side.

You alter course to port to increase your CPA from the fishing vessels. The reefer ship does not notice your alteration until too late and the vessels collide.

#### QUESTIONS

1. Which is the stand-on vessel?
2. What should the stand-on vessel have done?
3. What should the other vessel have done?
4. Would your answers be different if the incident occurred within a traffic separation scheme?



## Case Study 5

### TO CROSS OR NOT TO CROSS?

#### SCENARIO

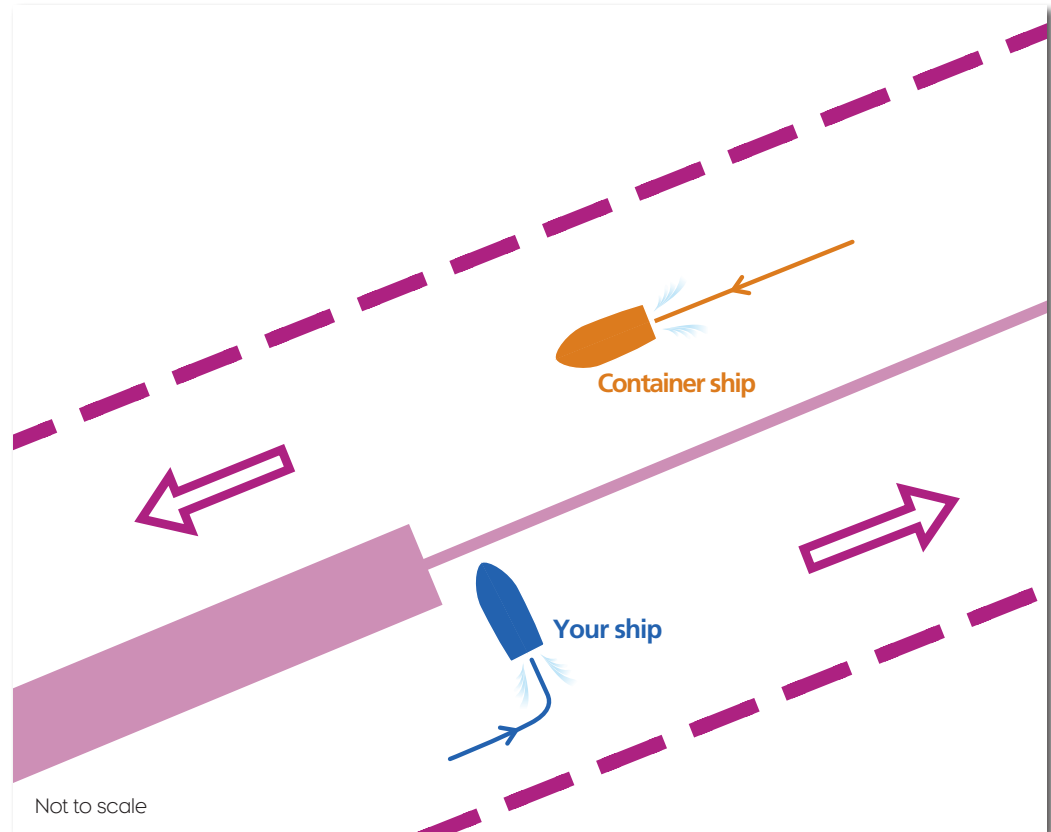
You are the watchkeeper on a coastal tanker navigating the north-east lane of a traffic separation scheme. You need to alter course to port to cross the traffic separation scheme.

A 'trial manoeuvre' on ARPA indicates you will pass 1 nautical mile ahead of a container ship navigating in the south-west lane at 23 knots.

Because of the adverse tide you make the alteration a bit later than expected. You do not re-check the approaching container ship and a few moments later you are surprised to see it close on your starboard side.

#### QUESTIONS

1. Did anyone do anything wrong?
2. What do you do now?
3. What should the container ship do now?



## Case Study 6

### FISHING?

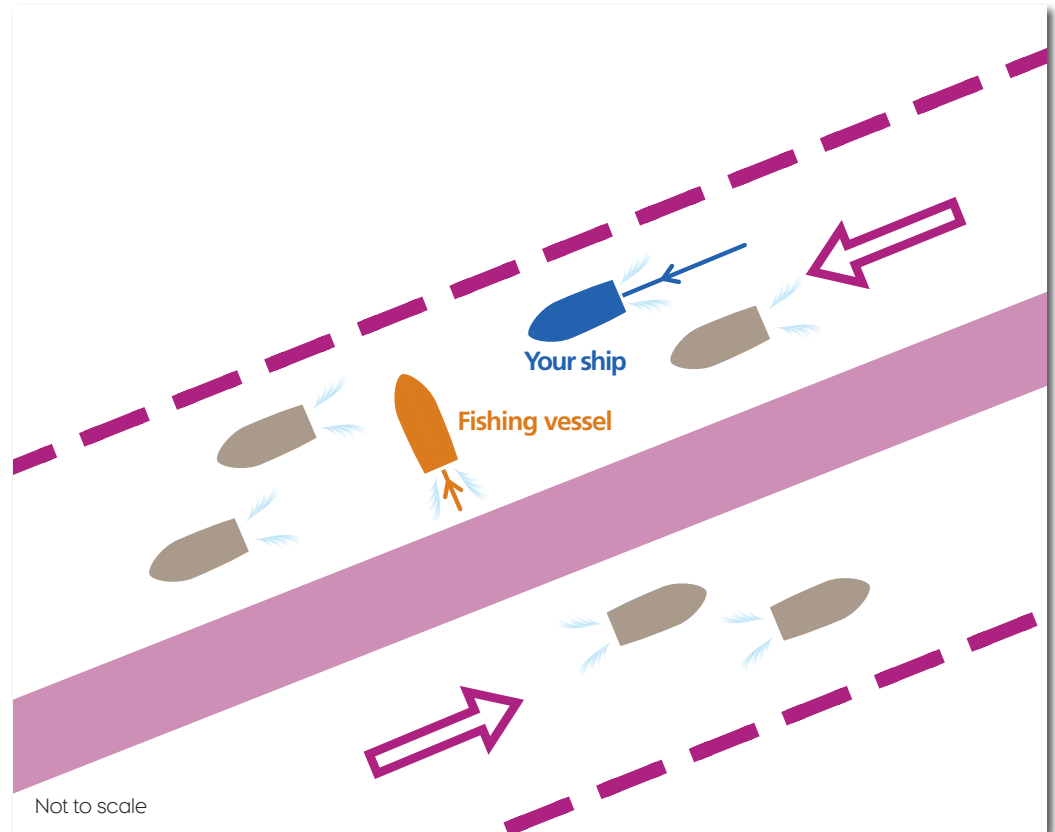
#### SCENARIO

You are the watchkeeper on a cargo ship following the busy south-west lane of a traffic separation scheme.

On your port bow, some miles ahead, a fishing vessel is crossing the traffic separation scheme on a 90° track. It is proceeding very slowly and showing the shapes and the lights of a trawler.

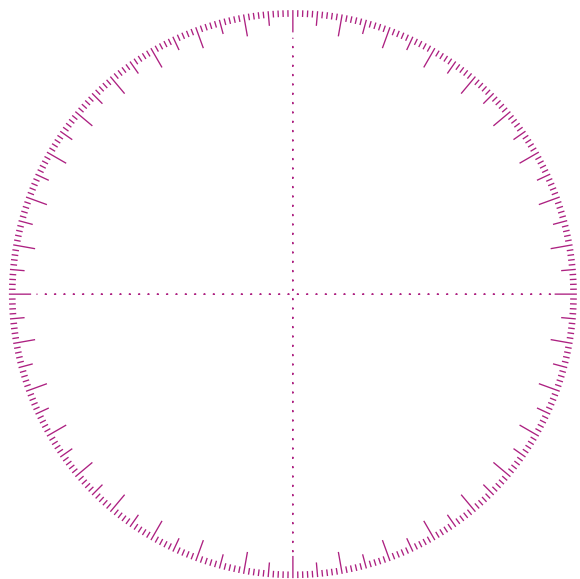
#### QUESTIONS

- 1 Is the fishing vessel complying with COLREGs?
- 2 Who has right of way?
- 3 What should you do?
- 4 What should the fishing vessel do?



# ***Plotting Sheet 1***

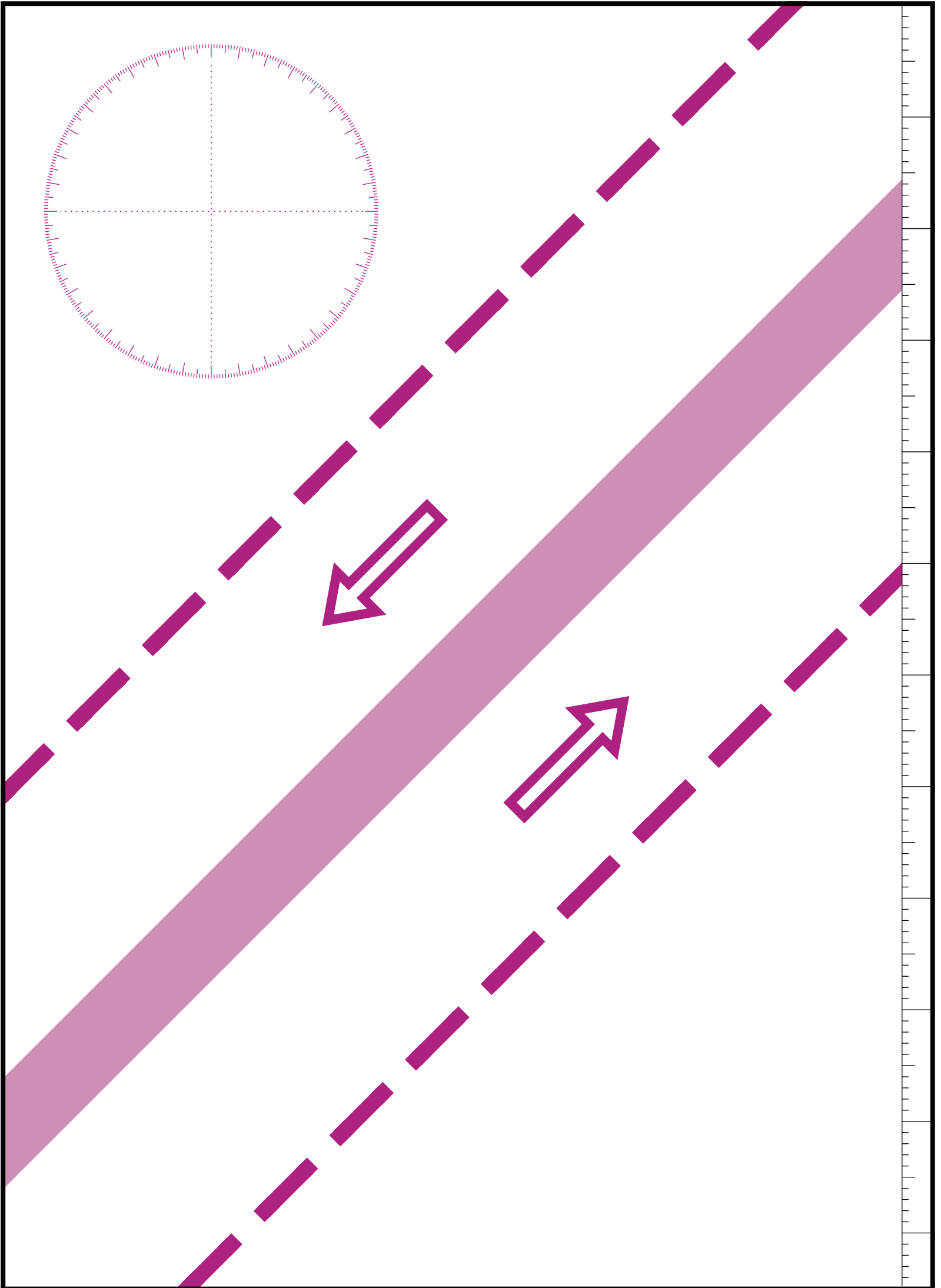
OPEN SEA





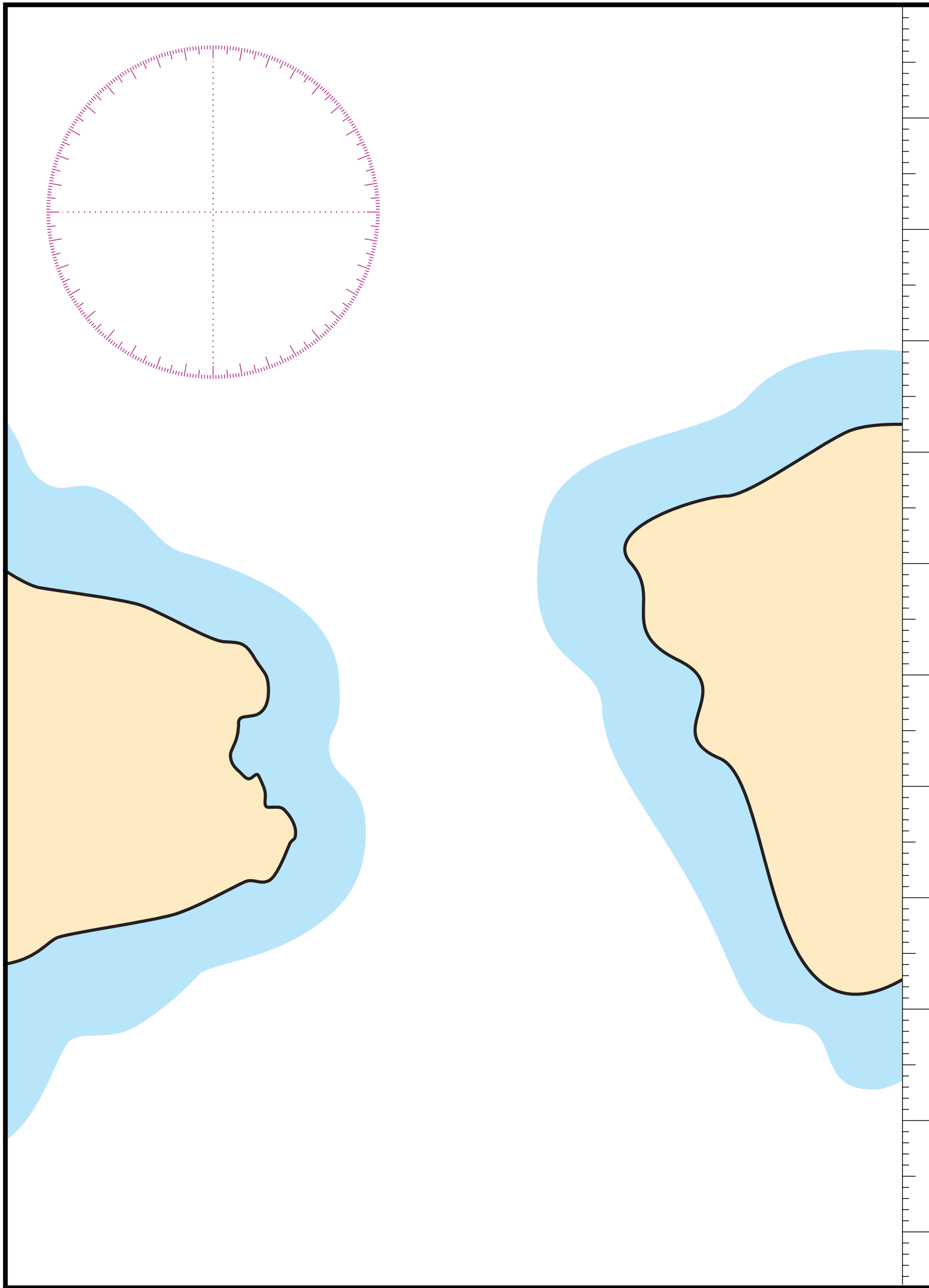
# ***Plotting Sheet 2***

## **TRAFFIC SEPARATION SCHEME**



# ***Plotting Sheet 3***

## **COASTAL WATERS**



# COLLISIONS: HOW TO AVOID THEM

*North of England P&I Association*

The International Regulations for Preventing Collisions at Sea 1972 (COLREGs) are the foundations upon which safe navigation and conduct of vessels are built.

North's loss prevention guide on the COLREGs is intended to provide practical advice to all watchkeepers, from cadets to masters and inspecting officers, on the key collision avoidance rules. It is also intended to serve as a focus for discussion in bridge team meetings, at on-board training sessions, during a quiet watch or in the mess room.

The 12 rules discussed in the guide are those that are most often misinterpreted and appear to have been breached time and again when collisions occur. This guide demonstrates how these rules fit together and how the interpretation and application of each of them can be influenced, sometimes wrongly, by the vast mass of information now available from electronic aids to navigation.

At the end of this guide is a series of collision case studies and simple plotting sheets, which readers can use to illustrate developing situations while on watch.

The case studies and the questions they ask are designed to be the starting point for wide-ranging discussions on all aspects of collision avoidance.



North is a leading marine mutual liability insurer based in Newcastle upon Tyne, UK, with regional offices in Greece, Hong Kong, Japan and Singapore. The Club has developed a worldwide reputation for the quality and diversity of its loss prevention initiatives.

**£30**  
**ISBN: 978-0-9558257-9-8**