THE NAVIGATOR
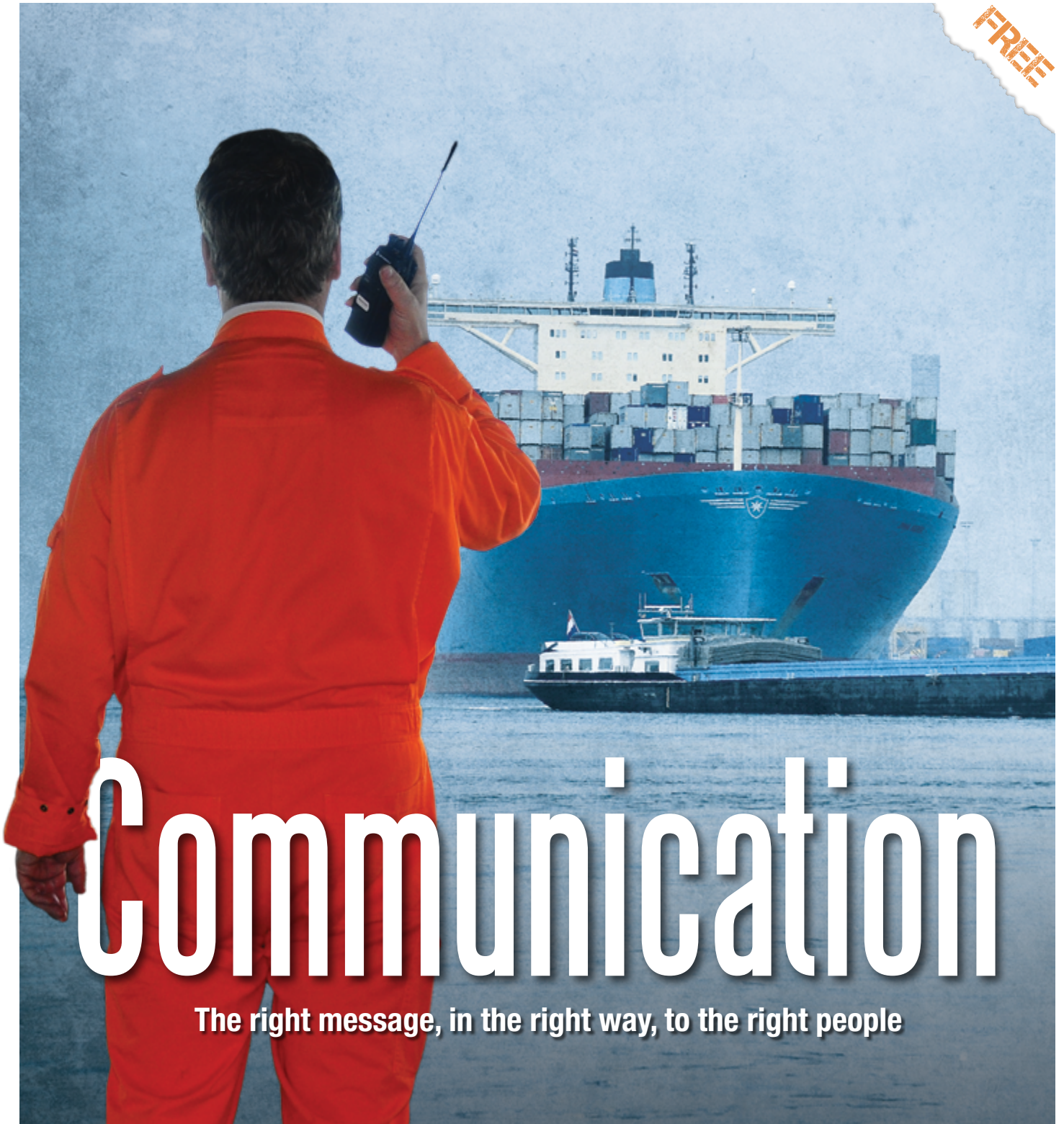
Inspiring professionalism in marine navigators

FREE

Communication

The right message, in the right way, to the right people

The Nautical Institute

ROYAL INSTITUTE OF NAVIGATION

A free publication by **The Nautical Institute** in association with the **Royal Institute of Navigation**

Communication's what you need

Communication and navigation are intrinsically linked. Right from the start of voyage planning, the navigator needs up-to-date information that will affect the passage of the ship, such as chart corrections, Maritime Safety Information (MSI) and weather reports; not to mention charterer's instructions. This information needs to be effectively communicated to the vessel and presented in a format that aids decision-making. During the voyage, communication is essential not only among the bridge team onboard, but also with shore authorities such as VTS, and, occasionally, with other ships. Automated digital communications will become increasingly important, with AIS being a crucial example. Telex, on which Navtex is based, formed the maritime digital communications of yesteryear.

In this issue of *The Navigator*, we will explore how effective communication supports good navigation, looking at both verbal communications and data transmission. We are living in an age that sees large amounts of data routinely sent to ships. However, for this data to be translated into good information that facilitates good decisions, it needs to be accurate, managed, understood and applied correctly – no mean feat. Good verbal communication is also essential between the bridge team, the Pilot and shore authorities. Language skills, common understanding, the use of the IMO Standard Maritime Communication Phrases (SMCP) and even culture play a great part in ensuring safe and efficient navigation. Many collisions and groundings have been attributed, directly or indirectly, to poor communication.

Many companies have gone as far as establishing communication policies, stating, for example, that a common language, usually English, be used in all common areas of a ship and in particular on the bridge. In The Nautical Institute's book *Mentoring at Sea*, author Captain LeGoubin argues that using a common language is the single best practice for improving shipboard operations. Not only can all mariners learn, just from overhearing, how problems are solved and decisions are made, but the use of a common language helps avoid social exclusion.

Broadband communication is slowly becoming a standard feature onboard ships. The internet has revolutionised life ashore, and will also revolutionise life at sea for navigators. Increasingly, mariners will need to be competent in data/information management; they will need to understand both the risks of being connected and the benefits.

We invite you to explore these issues of communication on a personal basis, discuss them as a bridge team, consider them in context of company policy and share them with your professional community.

INSIDE THIS ISSUE

ALL AT SEA

Emma Ward

We welcome your news, comments and opinions on the topics covered in *The Navigator*. If you would like to get in touch with us, please contact the editor, Emma Ward at navigator@nautinst.org, or look out for the LinkedIn discussion. We look forward to hearing from you.

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BRM

When I joined my first ship in 1962, the concept of a junior officer challenging the Captain on the bridge was totally alien. Today, fifty-two years later, I still enjoy navigating and ship handling and the BRM makes things far safer, with total involvement. It makes a difference. It works.
Sandy Yeats

Radar maintenance

I am surprised that no one highlighted maintenance of Radar in Issue 06. The magnetron does not last forever – an old magnetron will mean a poor to non-existent picture at times. As the magnetron gets older, the auto tuning mode generally gives a poorer picture than can be achieved with manual tuning. This is where competent manual tuning can get the best out of a unit past its use-by date.
Troy Evans

Importance of navigation

I am a third year maritime management student, and also studying to be a deck officer. *The Navigator* is especially good for students like me, because it focuses on the most important issues of navigation and gives valuable tips that can maybe not be learned in the classroom.

Reading *The Navigator* also makes me aware that my profession is very important to the environment, industry and society.
Akangbe Oluwaseun Samuel

Reading articles regarding maritime issues helps us improve our job onboard, and *The Navigator* is one of those publications that gives insight and knowledge to day-to-day issues onboard

the vessel. Furthermore, it gives us new knowledge and information surrounding the maritime industry.

This publication is a must-read and a good reference for the improvement of ship's crew and working environment.
Jose Mari F. Geraldo
3/OFF, *M/T Jo Provel*

Crossing boundaries

I appreciate that the youth of today are into digital etc, but I like to leave copies of *The Navigator* around for people to read or even have them sign them as acknowledgment and use the topics as training. They cross boundaries to other departments, as the articles are interesting and the MARS pages are just great lessons.

They even leave the bridge and end up in the lounge where we hope they are read by other departments. Please keep them coming and extend the topic range.
Shaun Beal
Master, *Cable Innovator*

Life as a cadet

I have been a deck cadet on *MT Kronviken* for almost 10 months now. I am glad that I have survived the ups and downs of being onboard, and within just two months I will finish my contract onboard. I have actually integrated the things I learned from your circulars into my daily watch-keeping duties. Your November issue, Bridge Resource Management, quotes a Chinese proverb: "Tell me and I will forget, show me and I may remember, involved me and I will understand." This is by far the best quote I have read/learned since I joined shipping and I will always remember this.

More powers to your organisation and keep on spreading free circulars, because I believe that cadets like me, who hunger for learning, really need them!
KC Abigail L. Chin
Deck Cadet, *M/T Kronviken*

Happy talk:
verbal communications and effective navigation

Our ability to communicate with each other defines our existence. Life would be very difficult if we could not communicate our thoughts to each other. Even falling in love would be hard! Communication with our fellow humans defines our relationships in life. It also defines our ability to perform our tasks and duties in the workplace. This article explains why the role of verbal communications during navigation is critical

Navigating a ship into a port and berthing it safely is a difficult task requiring the combined efforts of the entire bridge team. A mistake on the part of any one individual could lead to an accident. In case of fog or bad weather, the risks get bigger. In some ports and in some fairways, or river passages, the ship may be operating with such small margins of safety that there is no room for communication errors.

Think about a passage of a VLCC in the Malacca Straits, or a passage in the St Lawrence Seaway, or the Mississippi. How many seconds would you have before grounding, if a wrong helm or incorrect engine order is executed?

The entire team has to work together to safely navigate the vessel. Now, imagine the mix of nationalities on many ships today. The officers might be from one or two nationalities with ABs from another. The Pilot, tug crews and linesmen may come from different countries, as might the port control and VTS operator personnel.

Each of these individuals may have different accents, even if they speak a common language. Yet it is generally agreed that good verbal communication between all these professionals is critical to the safety of the vessel.

Effective bridge communication

The purpose of communication is to convey your thoughts to another person, and to get them to carry out the actions you want them to take. It is important to encourage them to speak their mind too, so that you are sure that your message has been clearly understood. If the communication fails in getting the listener to carry out the desired action correctly, it could lead to an accident.

Considering the multi-national environment in the maritime world, it is essential that when you speak, you do so clearly and slowly. Use simple words and short sentences and ensure that you are loud enough to be heard above the general sound level in the surroundings.

English may not be the first, second or even the third language of your listener. The IMO Standard Maritime Communication Phrase (SMCP) is a good resource to use, since seafarers from all countries are familiar with it. Using the standard phrases is good practice even if English is your first language. It makes things clearer to the listener.

After speaking, wait to see if the words
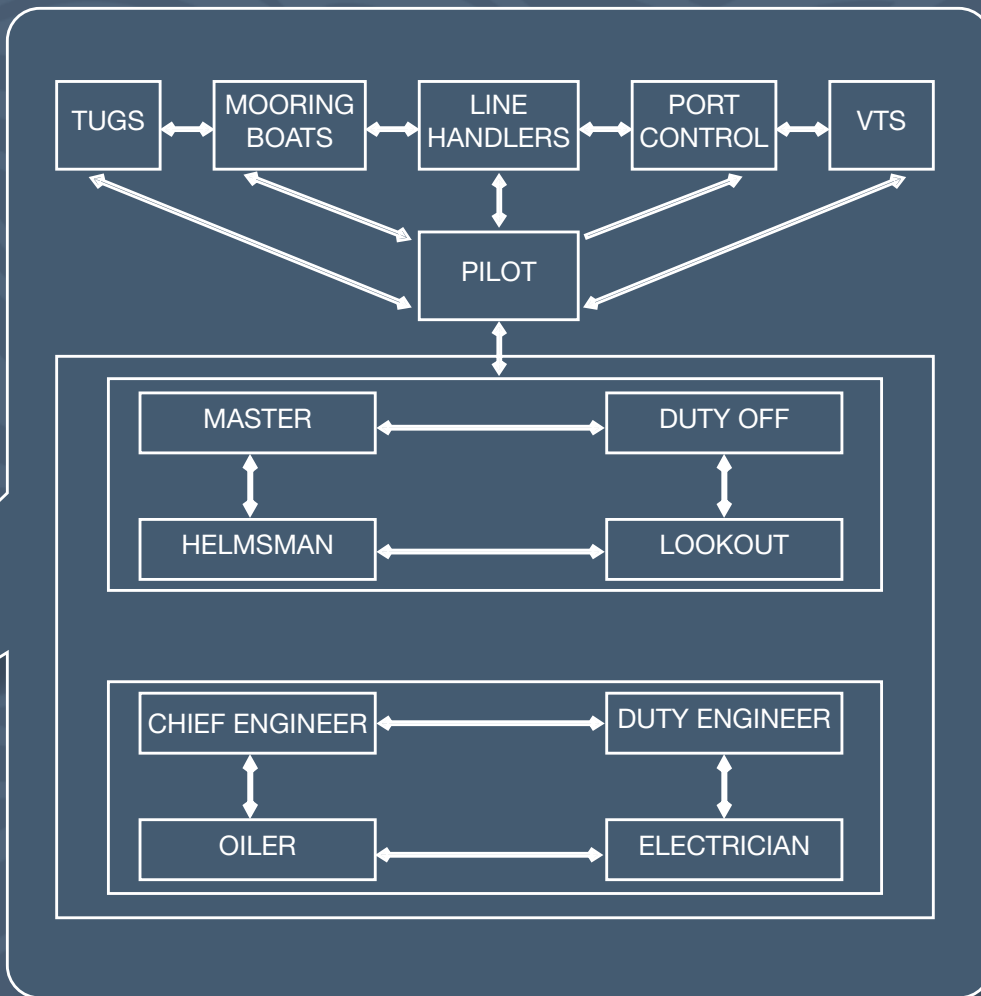
You do the maths

This diagram shows all the individuals and groups of individuals involved in bringing a ship into port - and the communications between them. It may not be easy to get statistics of the number of accidents that have happened due to poor communications between everyone involved. However, it is not hard to accept that accidents can and do happen if communication between all the people listed is not good enough.

If you're good at mathematics, you can work out the various permutations. You will probably find that, with all the players in the diagram, there could be more than a million chances of error, if communications are not handled properly.

are understood by the listener. As a general rule, the policy onboard should require the listener to repeat what they have heard and for the speaker to then acknowledge that what the listener has just repeated was correct. This is generally referred to as 'Closed Loop Communication'.

The speaker's duty does not end once the listener has repeated the communication. To avoid accidents, the speaker must then observe and verify that the correct action has been carried out.

Communication subtleties

These rules of speaking and listening are taught in most colleges as part of their Bridge Team Management (BTM) or Bridge Resource Management (BRM) courses.

However, there are several other important aspects of communication not taught quite so often. For example, it's important to note your own tone and body language, as this can affect the listener's response to the communication.

An angry or irritable tone discourages the listener from sharing his or her thoughts in the future. If a junior officer is intimidated,

he or she will be reluctant to convey their doubts about the navigational situation and thereby reduce the overall effectiveness of the bridge team. Imagine if, due to being afraid of angering a senior person, the junior officer fails to report that the ship is setting off towards the wrong side of the channel!

An encouraging tone helps give bridge team members the confidence to share their thoughts and concerns. A smile or convivial pat on the shoulder while talking to someone, or even a simple encouraging nod to acknowledge the contribution of a team member, can go a long way in establishing a stronger rapport and sense of team spirit on the bridge.

We often hear the words 'planning' and 'risk assessment' onboard ships. While I'm certainly not advocating carrying out a risk assessment every time you speak, it's nevertheless important to consider 'planning' your more important communications, especially if you are not very comfortable in the language being spoken.

It's a good idea to prepare your questions and perhaps even keep notes ready, in order to ensure that you

achieve the required goals through the conversation. If you are concerned about the clarity of your speech, or your accent, try to practise as often as you can. Watching movies in that language is also an effective learning tool. Thanks to shorter stays in ports, and difficulties arising from security concerns, it may no longer be possible to make friends ashore to practise your language skills on!

Stay alert

Navigating a ship requires constant alertness and vigilance, especially in congested or shallow waters and during port approaches and berthing. Verbal communications on the bridge should therefore be kept to the minimum required for navigating. It's easy to get distracted discussing the football game or the latest movie. Too many or too few communications become harmful to safe navigation; getting the balance right is key.

Author: Captain Pradeep Chawla, Anglo Eastern Group

Interpreting data:

a human-technology partnership

A large amount of data is now available to us all, both on a private and professional basis. Every day, we make decisions based on incomplete information, recognise patterns and act on other behaviours that a computer would and could not do. So, while computers are a good tool to help us find out what's going on in the world, using them in isolation is not the only way. This article looks at how to make sense of what computers are telling us and how to combine our human abilities and their technological strengths to develop effective, informed communications.

Data and information: what's the difference?

Data is 'raw', non-interpreted information. Information can, conversely, be described as 'interpreted data'. For data to become information, it must be meaningful to a human operator, in terms of both the task at hand and its overall context. For example, the computer message, '*error 468*' is data, while '*error GPS 1 is off line*' is information that a human user can understand and act upon. To achieve meaningful communications, it could be argued that we need to deal with information, not just data. Unless we understand the meaning of the message, there is little point in having communication (at least where humans are involved).

Information management - how to avoid overload

New technologies bring with them increased communication possibilities and better access to data. Today, the challenge is to make relevant data/information available at the right time. If there is 'too much' data, or if it is presented in an inappropriate way, extra time and effort will have to be spent on interpreting the data's basic content, rather than analysing its implications for the present situation and using it to inform future actions.

The right information therefore has to be available, but not in such large amounts that we become overloaded by it. If machines were smart enough to run without human interaction, they would know what information to present and when. Currently, humans remain better than machines at data interpretation, unless they drown in too much of it at once. You need to manage the amount of information available to you by focusing on the task at hand and knowing what you need to perform and when. It is all too easy to be sidetracked by too much information coming in all at once.

How much information do you need onboard?

Settings on bridge equipment should always be appropriate to the situation you are in. Lower ranges on the radar, for example, when closer to land or a large object, as well as choosing the band according to current weather conditions. Consider, too, who is on the bridge. Is it just you, or is there a whole team? Different people may need different sets of information – the Pilot, Master, OOW etc. What might work for you may not be the ideal setting for others. Standardisation is often hailed as a solution, but it does not mean you will always have things your way.

The more notice you have before an action needs to be performed, the more information you can (potentially) have on your screen/s. Yet the closer you get (in distance or time), the more you need to unclutter your screen. You need to make sure you have both time to think and time to act. As people gain experience, they spend more time examining the situation at hand and less time considering multiple potential options. Novices, on the other hand, spend more time thinking about the options and less on comprehending the situation. As your experience grows, your "library" of situations and options will also expand, and you can recognise what to do quickly and more easily.

When you do not have enough time to think things through, you will have to make a trade-off, usually between thoroughness and efficiency. To save time, you may well have to take a shortcut or find a work-around. Be aware of this and plan well in advance, while you still have the time.

Trustworthiness and accuracy

A lot of information today is presented in a graphically appealing way, which may mislead us at first. We humans judge trustworthiness like this when we meet people, and also when we "meet" new information. If it "seems" and looks trustworthy, we consider that it probably is. However, this may not always be true. We must manage the available time and resources to try and find time to check the information out. Flaws in data and information may come from:

> Origin – i.e. they exist within the system from the beginning
> Installation or maintenance - for example, the systems are not correctly integrated
> Operational error
> External manipulation – this is more common than you might think.

THE RIGHT INFORMATION HAS TO BE AVAILABLE, BUT NOT IN SUCH LARGE AMOUNTS THAT WE BECOME OVERLOADED BY IT
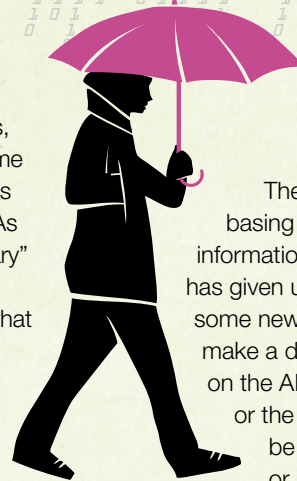
There will always be a risk when basing a decision on incomplete information. AIS is one innovation that has given us many benefits, but also some new risks. If, for example, you make a decision to pass a ship based on the AIS data on the next port of call or the ship's speed, that data may be faulty due to programming or incorrect incoming sensor data. It will therefore lead to what will look like a bad decision after the event. Always be wary, and double check your information any way you can.

Check, check and check again

There's a reason you were told as a maritime student to always use more than one source of information. There's a reason, too, that the COLREGS state you should check: "*by sight and hearing, as well as by all available means appropriate in the prevailing circumstances and conditions…*".

The hardware may have changed, but the basic principle remains the same. Technology is not always trustworthy on its own, and human judgment may sometimes be based on incomplete data. Using both technology and human instinct in combination will help strengthen the approach and ensure a safer operation.

Author: Margareta Lützhöft
Deputy Director, National Centre for Ports and Shipping, Australia

WATCH-OUT

In this series, we take a look at maritime accident reports and the lessons that can be learned

Communications **breakdown!**

What happened?

A container ship collided with a bulk carrier in the early hours of the morning, causing serious damage to both vessels and a substantial spillage of heavy fuel oil into the water. The container ship had to alter course to pass between a group of fishing boats. This brought her into direct risk of collision with a bulk carrier ahead. The bulk carrier's officer of the watch communicated with the container ship via VHF radio to try and avoid a clash. He spoke in Mandarin to the container ship's Chinese second officer, who was on the bridge for familiarisation purposes. The second officer agreed to the request to have his vessel pass around the bulk carrier's stern.

The container ship's Filipino officer of the watch did not understand the exchange and therefore did not carry out the correct preventative manoeuvres. Further confusion over VHF radio communications resulted in both vessels altering course to starboard and colliding with each other.

Why did it happen?

Both the container ship's second officer and the bulk carrier's officer of the watch considered it appropriate to use VHF radio for collision avoidance, against standard industry best practice and advice. Language barriers worsened everyone's understanding, as the Chinese officer failed to fully translate the radio communications with the bulk carrier to his Filipino colleague. Furthermore, the officer of the watch showed a worrying lack of situational awareness.

The issues

> Inappropriate use of VHF radio for collision avoidance
> Failure to translate conversation held in Mandarin for the benefit of the Filipino OOW
> Lack of situational awareness shown by container ship's officer of the watch

What changes have been made?

Both ship companies involved have taken steps to prevent a recurrence of this costly collision. All Masters have been reminded of the importance of engaging with and motivating crew in the safe and efficient management of their vessels.

Safety management systems have been reviewed and amended to make sure VHF radio is not used for collision avoidance.

CONFUSION OVER VHF RADIO COMMUNICATIONS RESULTED IN BOTH VESSELS ALTERING COURSE ... AND COLLIDING WITH EACH OTHER
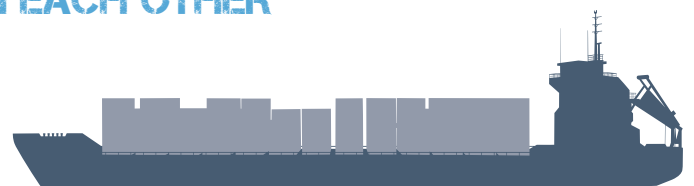
Keeping everybody in the loop

Third Officer **Jonas Wiesand** talks about his experiences working in the yachting sector and discusses the importance of knowing how to ask for information - and communicate it correctly

What is your background?
I completed my cadetship onboard Pacific International Lines container ships with Anglo Eastern at Fleetwood Nautical Campus in Blackpool, England. Before that, I was sailing as a deckhand. I'm currently third officer on a large private motor-yacht.

What made you interested in a career at sea?
I've always had a healthy appetite for sailing and outdoor pursuits. I saw a flyer advertising the basic STCW course, offering the possibility to work on super-yachts as a deckhand thereafter. I'd be lying if I said it wasn't the sunshine and the money that appealed to me at first, but along the way, I discovered a passion for being at sea.

What do you particularly enjoy about your work?
I enjoy the constantly changing environment and thrive on the different challenges that present themselves to me on a daily basis. The responsibility of being the officer of the watch, and all that entails, is incredibly rewarding too.

What advice would you give someone wanting to work in the private yachting sector?
Attention to detail is absolutely essential. So is expecting the unexpected; being

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Name: Jonas Wiesand

Current position: Third officer

Education: Fleetwood Nautical Campus

Cadetship: Pacific International Lines

Previous positions: Deckhand

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flexible is a must. Our plans change constantly. People skills are also important, as yachts are crewed by people from all walks of life.

How does it differ from commercial shipping?
The biggest difference is that we are not run as a viable, profit-making business. Our main goal is to provide the highest standard of service to our guests. This is most evident in the fact that we operate with more crew than guests, so the level of service is second to none. Of course, all of this must be done in a safe and legal manner.

Who has been your inspiration in the shipping world and why?
Recently, I've been reading biographies of pilots involved in aviation accidents, as well as the usual MARS, MAIB, CHIRP and AAIB reports. For me, the greatest driving force is knowing that I'm responsible as the OOW, and that everyone onboard is counting on me to make the right decisions.

How important are good communications on the bridge?
When a group of people work as a team to achieve a common goal, the main link has to be communication. I once undertook the onboard role of 'navigator' (normally the captain's) and the captain undertook the role of 'co-navigator'. The benefits to me were twofold; firstly I was able to experience first-hand the nuances of having the con during critical phases, and secondly, while undertaking the role of 'co-navigator', the captain was telling me exactly what information he wanted and when. I guess the key is knowing what information you need, knowing how best to ask for it and, for those being asked to give information, knowing how to present it.

THE KEY IS KNOWING WHAT INFORMATION YOU NEED, KNOWING HOW BEST TO ASK FOR IT, AND HOW TO PRESENT IT

WAYPOINT

Dr Andy Norris FRIN FNI

Making your voice heard wherever you are

Dr Andy Norris, an active Fellow of The Nautical Institute and the Royal Institute of Navigation, explores why we need to talk on the bridge – but communications outside the vessel can be better without words

For most transport sectors, safe navigation does not fundamentally rely on voice communications. We can navigate cars, lorries, trains and generally even ships without having to discuss our actions with those outside. Instead, we rely on all involved responding correctly to the observed scene and, just as importantly, on everybody's compliance with applicable laws, rules and practices. Visual information comes from sources like lights, signs, instrument panels and maps, as well as the direct view of other moving platforms and fixed potential hazards.

However, voice by radio plays an important secondary role. For instance, on the roads, broadcast systems tell us about delays and temporary hazards, enabling extra care or a detour to be made in good time. The equivalent digital information is generally communicated effectively to the driver by a synthesised voice system, as used on many in-car satnav systems. In the maritime world, voice communications can help in clarifying intentions between vessels, but are mainly used to exchange less immediate navigation-related information, such as meteorological reports, or agreeing transit and berthing instructions.

Voices in the air

Voice exchange dominates navigation in the civil aircraft world, however. Following the adoption of radar-facilitated air traffic control in the 1950s, reliable voice communications for navigation became an over-riding feature of safe air transport. Passenger aircraft movements became totally orchestrated from the ground, including landing and take-off, together with detailed track and altitude instructions for the crew to follow en-route, unless specific circumstances, such as

major air disturbances, prompted them to request changes.

To ensure complete understanding, detailed requirements have been developed around the words used by ground controllers and crew when exchanging information. The main language used can vary according to the area of control, but English must also be permitted as an international language. Box 1 (below) shows examples following the ICAO requirements, detailed for use in UK airspace.

Radio at sea

At sea, communications by radio have been around since the beginning of the 20th century. The sinking of the Titanic in 1912 showed the strengths and weaknesses of the then installed systems, leading to the introduction of more detailed requirements by major flag States. These were all for communications using Morse code but greatly increased the ability of ships to receive safety-related information

and to communicate when problematic situations had developed. The advent of GMDSS in the 1980s led to the decline of Morse code and to the domination of voice, even though Morse also apparently continued to be used by some at sea into the early 21st century!

IMO recognises the importance of marine voice communications in its document, "IMO Standard Marine Communication Phrases" in Resolution A.918(22). However, unlike ICAO's requirements, simplified English is used throughout in a attempt to get the best comprehension within a very international environment. IMO emphasises that, because the document is so extensive (more than 100 pages), it should be taught selectively according to users' specific needs. Importantly, it covers far more than just radio communications, recognising that crews can be very international in nature, and that effective voice communication onboard a vessel is always essential.

Civil aircraft
Voice communication examples consistent with UK CAA – CAP 413
BIGJET 347, reduce speed to Mach 0·7
BIGJET 347, descend Flight Level 150,level by South Cross
G-BJCD, for wake turbulence separation turn left heading 270
BIGJET 347, climb at 1,000 feet per minute or greater
GAUNTLET 25, begin descent now for a 3 degree glidepath

Marine vessels
Voice communication examples consistent with IMO A.918(22)
The tide is 2 metres below prediction
You will berth at 10:30 UTC
I am ready to get underway
According to my radar, your course does not comply with Rule 10 of the COLREGs
Large vessel is leaving the fairway – keep clear of the fairway approach

TAKE 10

This issue of *The Navigator* has looked at communications. Here are ten points to take away from this issue to bear in mind next time you're on duty on the bridge

1 Sharing
Communication is about sharing or exchanging information by any means. For Navigators, two of the most important means of communication are by talking (verbal) or by electronic exchange.

2 On target
Good communication and good information exchange is absolutely essential to good navigation. Navigators need to be sure that the information they communicate is both sent and received accurately.

3 Talking of disaster
Miscommunication or the use of poor information is a leading cause of accidents and costs us all dearly in terms of reputation, money and environmental impact.

4 Body talk
Bridge team communication can include body language, tone and verbal communication. All of these are essential for good bridge team management.

5 Plan to succeed
The awareness of risk, and the safe management of risk is far more effective when shared amongst all professionals on the bridge, including Navigators, Pilots and where appropriate Engineers. Consider 'planning' your important messages, particularly if you are not comfortable in the language being spoken.

6 Listen and look
Encourage all participants to 'speak their minds' to ensure that your message has been clearly understood. The speaker's duty does not end once the listener has repeated the message. To avoid accidents, the speaker must then observe and verify the action.

7 Overload
If too much data is displayed or it is presented in an inappropriate way, Navigators can be distracted, focus on the wrong things or waste valuable time.

8 Humans and machines
Navigators need to make sense of what computers are telling them. Most of all, they need to combine their human abilities and their technological strengths to develop effective communication using the strengths of both.

9 Does it make sense?
Information provided by electronics is not always useful or accurate. Navigators must always question what they see and use common sense and professional knowledge to evaluate it.

10 Silence can be golden
While good verbal communication is essential onboard in a bridge team, for collision avoidance the COLREGS have been designed to be a rule-based system, avoiding the risks inherent with voice communication.

MEET EDMUND...

Edmund Salmon
NAVIGATOR CHAMPION

Thank you to everyone who entered our Navigator competition – we have loved seeing all the photos of you reading *The Navigator*. Congratulations to our lucky winner Edmund Salmon. Edmund says:

"*The Navigator is an excellent read. Articles are very interesting and lessons can be learned from them.*

I'm currently a Third Officer onboard the car carrier Höegh Seoul. I've been with our company Höegh Autoliners for about three years now. Most of our ships are car carriers.

One of the good things about car carriers is that we get the chance to see in person some of the world's best cars. Usually our cargo operations take one day only thus giving us limited time in port."

Win an iPad

If you weren't lucky enough to win the iPad this time, don't worry, we will put your entries in for the next issue's competition. If you haven't entered yet – now's your chance! Just post a picture of you with your *Navigator* on Twitter, including the hashtag **#NAVsnap**, or tag us in your post on Facebook (www.facebook.com/thenauticalinstitute) and tell us the name of your ship or your college, if you have one. Or send us the information in an email! One reader per issue will win an iPad mini as a thank you.

#NAVsnap

THE NAVIGATOR

GOT ISSUES?

We want every navigator to have them

The Navigator champions the role of marine navigators wordwide and is a **FREE** resource for the industry. Issues we've already got include:

- The role of the navigator
- Avoiding collisions
- Passage planning
- Positioning
- ECDIS
- Radar
- Bridge Resource Management
- Communications

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