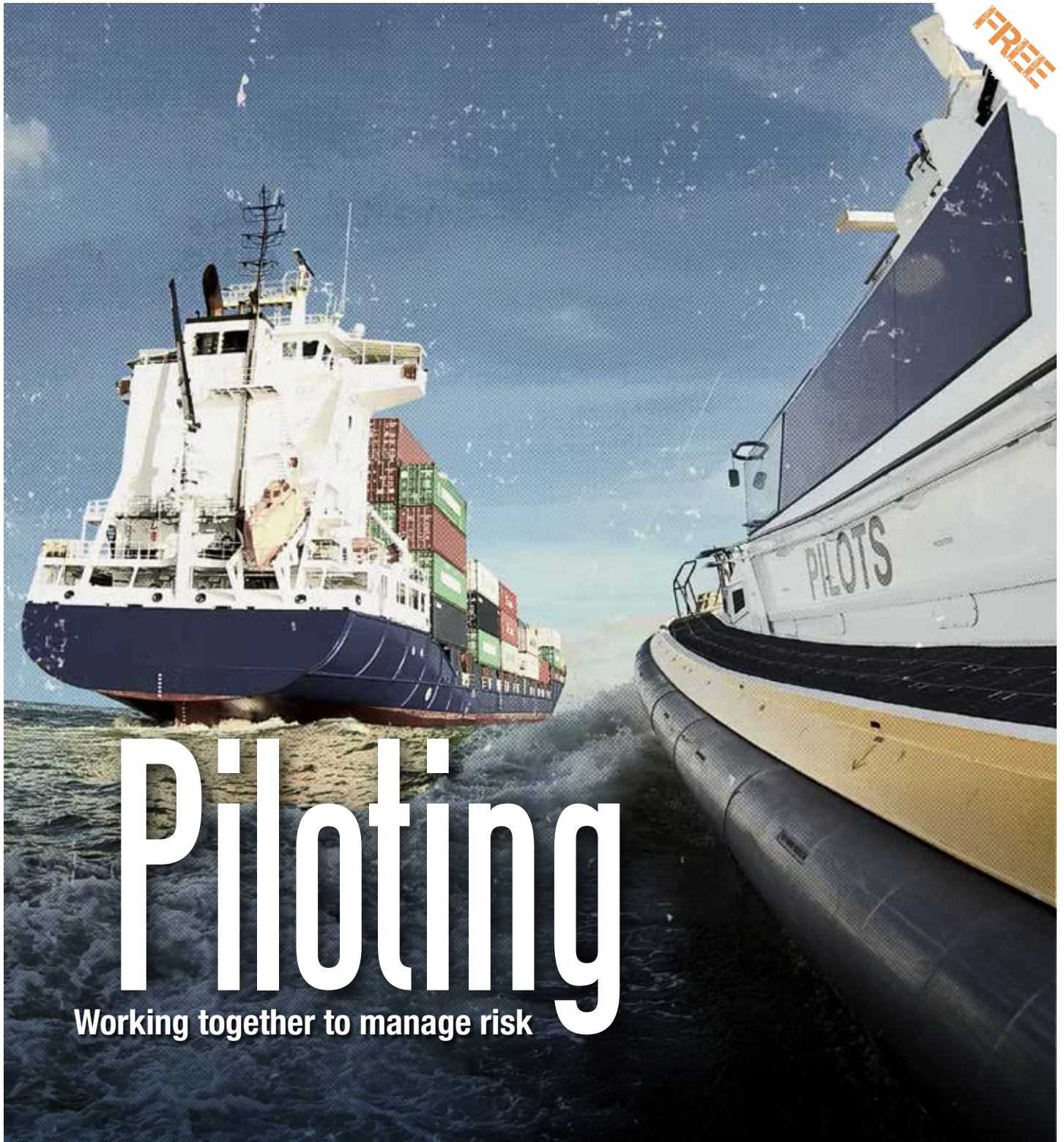


# NAVIGATOR

THE

Inspiring professionalism in marine navigators

FREE



# Piloting

Working together to manage risk



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



## The power of Pilots

Pilotage is a specialist navigation activity that utilises skills far beyond those required by an Officer of the Watch (OOW) as identified in the IMO STCW Convention. Pilots bring on board a huge depth of knowledge regarding their area, and the most up-to-date information available about everything from shifting sandbars and weather patterns to construction, port traffic, tug characteristics and much more. On top of this, they have shiphandling skills that have been learned through years of apprenticeship with senior Pilots, and the experience that comes from manoeuvring ships in the most demanding environments, day in and day out.

It is clear why having this level of expertise on the bridge of a ship is a legal requirement in most ports. However, Pilots are only human and, like every member of the bridge team, require a good level of communication and professionalism to work well with the team. Captain Simon Pelletier, President of the International Maritime Pilots' Association, outlines some best practices for making this relationship effective in his article on page four. He outlines the skills and services that a Pilot brings on board, but also explains the support and professional conduct they need from the onboard team to do their job properly.

Association, outlines some best practices for making this relationship effective in his article on page four. He outlines the skills and services that a Pilot brings on board, but also explains the support and professional conduct they need from the onboard team to do their job properly.

### PILOTING IS AN HONOURED CAREER PATH FOR NAVIGATION OFFICERS WHO MIGHT WANT TO REFINE THEIR SKILLS, WORK CLOSER TO HOME AND SERVE THEIR COMMUNITIES

Captain Ed Verbeek further reflects on page six some of the more specific skills that a Pilot needs, beyond those taught to an OOW. He looks in particular at skills relating to visual references and how to balance internal and external forces to ensure efficient and effective shiphandling.

Although pilotage skills are essential to Pilots, they are also extremely useful for OOWs to learn and practise as well. Observing pilotage in action is an excellent way for navigation officers to learn new skills, better identify hazards and hone their ability to control the movement of their vessel. While noting Captain Pelletier's advice on the role of the OOW while working with a Pilot, there will normally be plenty of opportunities during most pilotages to ask questions and learn further – just make sure the time is right!

Piloting is an honoured career path for navigation officers who might want to refine their skills, work closer to home and serve their communities by safeguarding navigation. Further information about piloting can be found at [www.impahq.org](http://www.impahq.org). In any case, good pilotage skills serve all officers, so please discuss the articles in this issue of *The Navigator* with your shipmates, always pay attention during pilotage and ask questions when it is safe to do so.

## INSIDE THIS ISSUE

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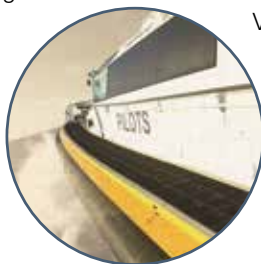
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### 03 ALL AT SEA

Contributions and comments from readers of *The Navigator*

### 04 - 05 BRIDGING THE GAP

IMPA President Captain Simon Pelletier explores the relationship between bridge team and Pilot



### 06 - 07 AN INSIDER'S GUIDE TO PILOTING

Working Pilot Ed Verbeek reveals some of the skills and techniques used by Pilots to guide ships safely into port

### 08 WATCH OUT

Accident report: How miscommunications between Master and Pilot caused three groundings in just 30 minutes

### 09 WHO'S NAVIGATING?

Thiago Serra talks about his life as a Pilot along the Amazon river and why he feels he can really make a difference

### 10 WAY POINT

Dr Andy Norris takes a look at the pros and cons of the Portable Pilot Unit and asks, is it the precursor to eNavigation?

### 11 TAKE TEN

Ten top tips about communicating and cooperating with Pilots



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We welcome your news, comments and opinions on the topics covered in *The Navigator*. We reserve the right to edit letters for space reasons if necessary. Views expressed by letter contributors do not necessarily reflect those held by The Nautical Institute

## S-Mode survey success

I am very pleased to inform you that we received replies from 601 participants in our S-Mode survey in issue 14. This pleasing response shows how much you care about the development of marine technology, and how passionate the navigation community is about being actively involved in the process.

Your feedback is important as it not only provides an overall picture of how mariners are currently operating navigation systems, but it also reveals performance issues



around existing systems and provides us with guidance on how to proceed with the S-Mode initiative.

So, thank you for taking part in the survey. We are committed to following through on S-Mode to improve the design of future marine navigation systems and ensure they are effective tools that assist you in performing your duties.

**Professor Margareta Lützhöft,  
Viet Dung Vu**

David Patraiko, Director of Projects at The Nautical Institute, recently attended the first ever eNavigation Underway Asia-Pacific conference. The event focused on eNavigation for non-SOLAS vessels and the introduction of SMART navigation.

After the main conference was over, David contributed to an IMO S-Mode Guidelines workshop, where the results from our S-Mode survey, introduced in issue 14 of *The Navigator*, were a key component. The survey's findings were of great interest to delegates and the subject of some worthwhile discussions.

I have learned a lot this month about S-Mode and it has made me realise that following standard procedures leads to better management and operations. This is exactly what my mentor has already told me. Following standard procedures is vital for seafarers to achieve a successful operation. I hope our vessel can keep on receiving your publication.

**Ruth Fauste, Deck Cadet,  
VROON-Fil Ship Management**

Mentoring is obviously very important for this business because new technology and globalisation are changing faster each year. We need willpower to encourage each other and share knowledge – in spite of complying with all the regulations during watchkeeping or even during rest time.

I'm a Peruvian Chief Mate working in the offshore business in Brazil, and a full DPO on an Anchor Handling Tug (AHTS) vessel. I try to teach English to the

Brazilian crew, (I speak Portuguese and my native language is Spanish.) Furthermore, I share knowledge with the officers and the Captain, and we establish discussion about different points like manoeuvres, the DP system, documents and so on.

Thank you, NI, for your contribution!  
**Victor Augusto Quiroz Blondet  
Chief Mate**

*The Navigator* is my mentor. I believe that mentoring is most effective when the mentee has faith in his or her mentor. I think that one practical way to encourage mentoring on board ship is to extend safety committee meetings so that the Master and Chief Engineer can have more time to guide the crew. In some ports, equipment makers could also come on board and teach officers about their equipment so that they can then pass on this knowledge to others.

**Mahendra Singh**

Find us on social media and let us know what you think **#NautInst**

# Bridging the gap:

## safeguarding the relationship between bridge team and Pilot

**Captain Simon Pelletier MNI** is IMPA President and President of the Canadian Marine Pilots' Association, as well as an active Pilot in the Lower St Lawrence District. Here, he explains how to ensure that relationship between the Pilot and the bridge team runs as smoothly as possible

Having been involved for more than 35 years in the navigation of ships, dealing with Pilots in my earlier years and with bridge teams in the latter ones, I believe I have a well-rounded perspective on this unique relationship. Pilots are expected to act, first and foremost, in the public interest and to maintain professional judgment independent of anything except what is needed for maritime safety.

The safe navigation of a ship obviously involves teamwork. This is especially true in waters where risks are such that compulsory pilotage is required. Pilots are therefore expected to develop a co-operative working relationship with the Master and bridge crew. The same, of course, is also true the other way round. It is through this joint professional relationship that all parties are best served.

IMO recognises this in Resolution A960, which states that: *Masters and Bridge Officers have a duty to support the Pilot and to ensure that his/her actions are monitored at all times* (A960, Annex 2, paragraph 2.3).

IMO formally encourages pilotage authorities to provide Pilots with appropriate training on bridge resource

management, in order to facilitate communication and information exchange with the Master and the bridge team and to foster an effective working relationship in both routine and emergency situations (A960, Annex 1, paragraphs 5.3 and 5.5.4).

Pilots support this approach. Bridge Resource Management training for Pilots, known as BRM-P, is specifically designed to take fully into account the key role that Pilots play on the bridge of a vessel. In a BRM-P course, emphasis is on adapting practices to the particular resources that a Pilot will find on each vessel. The majority of pilot groups are trained on BRM-P.

### The real world

Ideally, communication between the bridge team and the Pilot would look like the illustration above. Now, when the pilot is on board and takes over the conn, most of the tasks performed by the bridge team remain the same. This will support the pilot as prescribed in IMO resolution A960. Everybody has a clear understanding of their job and actually does it. Everybody monitors the work of others and offers relevant observations. Everybody shares the same 'mental model' of the voyage and is communicating clearly, expressing

any concern without being intimidated. Of course, we must strive to achieve this.

Unfortunately, in the real world, things don't always look like or act like this. Many ships are built with wide, open bridges where communication and monitoring is more of a challenge. For this reason, Pilots and bridge officers need to make more of an effort.

### Pursuing professionalism

When I leave home at 1am on a -25° C winter night to conduct a capesize bulker through fast-moving ice on the St Lawrence river, in a restricted channel and with virtually no floating aids to navigation, I do not necessarily know what I am going to find on the bridge. A Pilot's first impression of the professionalism awaiting them on board is often the boarding arrangements. Climbing up a pilot's ladder is a challenge at the best of times. However, doing so at night in rough weather and cold temperatures can put a Pilot's life at risk. Being greeted by a well-rigged ladder (in accordance with SOLAS Regulation V/23 & IMO Resolution A.1045(27) [www.impahq.org/downloads.php](http://www.impahq.org/downloads.php)) and an alert and helpful crew practising good seamanship will indicate a great respect for the Pilot's life that really helps to start a good relationship!



Image: IMPA

Of course, as we get underway and throughout my assignment, the interaction I have with the bridge team will revolve around the central notions: “What is it that I know that they need to know? And what is it that they know that I need to know?”

Sometimes, I am greeted by a Master and crew with no experience of such conditions and whose first language is not English. There may be issues of fatigue and communication and perhaps a temptation to ask me about where to go on shore leave. This is where professionalism becomes so important. We must all focus on ensuring good communications and place all our concentration on the task of safe navigation.

I don't expect the officer on watch to have the same knowledge that years of expert training and experience have given me about navigating the very specific body of water for which I am licensed as a Pilot. There is an obvious limit to how much they can effectively monitor my work and share the same mental model of the pilotage passage we are performing, even after a proper Master/Pilot exchange has taken place.

However, the ship does have the responsibility to have a passage plan, berth-to-berth. Officers have the responsibility to monitor this. So, they must have the core

competence of being able to maintain a safe watch even in pilotage waters, as per the best practice of good seamanship. The job must be done!

Key issues that are important to a good pilotage include:

- > Knowing the gyro error and having recently checked it
- > Knowing any radar heading issues
- > Knowing the theoretical speed through the water at various RPMs
- > Knowing water drafts, air draft and squat effect
- > Being able to properly manage the alarms and alerts on the bridge

Let me, however, share some examples of known weaknesses.

I have witnessed situations where no routes at all have been laid down on the paper charts or on the ECDIS for the passage to the berth, let alone the comprehensive passage plan required by regulation. Worse, I have seen one passage plan where only a single course was plotted from the pilot station to the berth, which turned out to be a single line, 120 NM long, passing over land, mountains and shoals.

Another problem; imagine an officer of the watch who is plotting a GPS position

on a four-metre depth area when I am piloting a panamax vessel with 13 metres draft – and who doesn't have the reflex to recheck its plotted position or use an alternative positioning method. The ship is still doing 13 knots and, just by looking out the window, the officer could see a set of leading lights confirming that the ship is in the centre of the channel – not on the track plotted.

### Operation Safe Navigation

It is essential that the environment on the bridge supports focused attention on safe navigation. Administrative tasks, and the use of phones for private matters, are frequent distractions. These issues should be addressed as part of regular bridge procedures. It is important, too, to have good communication between the officer of the watch and the Pilot, and for the OOW to clarify any concerns they may have about the passage plan or anticipated manoeuvres.

Ultimately, my message is all about competence and about doing everything that can be done to drive up levels of competence. This is the best and most effective way to ensure a harmonious relationship between a bridge crew and the Pilot arriving on board.

# An insider's guide to piloting

**Ed Verbeek**, a piloting consultant in the Netherlands, reveals some of the skills that Pilots must learn, as well as some of the tricks and techniques they employ to keep vessels of all sizes on track

**A**s an apprentice Pilot, the largest part of your education is 'tripping' with experienced Pilots. I found the first one very exciting and interesting, and I observed everything intently. As trips continued, they became less and less of a novelty, and somewhere around the fifteenth voyage I thought that I had seen it all... until the Pilot said to me: "How about you bring her in the lock...?"

I had been Chief Mate for five years, most of them with 'modern' Captains. I had been on the bridge during many arrivals and departures; I had anchored and picked up Pilots and I had seen and done some shiphandling. Nevertheless, as I was approaching that lock, I discovered I didn't know anywhere near enough about where to reduce speed, how much to reduce at each point, where to turn and how to assess drift.

It dawned on me that these skills could not be taught in books or classrooms, but instead had to be learned through practice on board. These were skills beyond those required by officers of the watch under STCW and they had to be taught by Pilots to apprentices. In those days, skills like these were based on visual observation. Today they are enhanced by modern tools, such as ECDIS/ECS, GPS, Radar and VHF, to improve situational awareness.

Even today, using visual clues when working within narrow waters with many marks works fantastically well on most ships. Only on very large vessels, or on tight stretches with just a few marks, does the emphasis shift to suitable equipment. In all cases it is important to calibrate your ideas by developing a scanning pattern: when the emphasis is on visuals, check on a systematic basis using instruments. When

the emphasis is instruments, check using visual means in an equally systematic way.

So, what do you look out for when navigating visually? The direction in which you are moving is obviously very important, especially as it might be different from the direction your bow is aimed. Moving at moderate to low speed, under the influence of wind and/or current, drift is an important issue. Don't forget to check the wake of any buoys or objects in the water to see if there is any current.

## EVEN TODAY, USING VISUAL CLUES WHEN WORKING WITHIN NARROW WATERS WITH MANY MARKS WORKS FANTASTICALLY WELL

### Leading question

To see where you will end up, you need to create your own 'leads': use lantern posts, trees, edges of buildings or anything that cannot move, and compare its movement relative to the background. For example: "This one is moving to the right and that one to the left, so I will end up in between." Once you have thoroughly familiarised yourself with the area, you will know what to look for and choose tracks with your private 'leads' in mind. Remember you are seeing your movement from your position on board the vessel: a ship is not small, so you need to work out how much of it is in front of you and how much is behind. The distance to bow and stern are vital numbers for a Pilot.

Fixing a heading on visual references is nice when you are not experiencing drift, but when a drift angle needs to be applied, you need to use a compass course. Taking the approach of the breakwater arriving in Amsterdam as an example, you check the movement of the green light against the dunes. The leads are only used by large vessels and/or vessels with deeper draft. Everyone else keeps to their own side, inbound South, outbound North of the leads, and uses the leads only for quick reference.

Using background bearings is only helpful when you are not turning. When the vessel has a noticeable Rate of Turn (RoT), you cannot really see precisely enough where you will end up. Making a successful turn depends on knowing the right position to start – whether from experience or from working it out. You can use marks to check if you are at the right position (e.g. "Start turning when the third lantern is in line with the red building") or look at 90° to see what the bridge is in line with.

If you have started in the right place, you can use marks to check your progress as you turn. For example, if the third rung from the bottom of the mast stays on the bank during the turn, you are doing fine. If the bank moves up, your distance is increasing and you are turning too fast. If the bank goes down, you are turning too slowly.

### Visual clues

Speed is very important in all kinds of shiphandling manoeuvres. If you want to check the longitudinal speed quickly, look at 90° and nowhere else. Pilots often use clearing marks, e.g. "When I see berth 23 in line, I know that I have 55m to go until the dolphin, so my stern will turn clear".

Visually, you can check your position in the channel very easily if you stand at the

centre bridge window looking down and compare the width of your vessel with the distance to the banks on both sides.

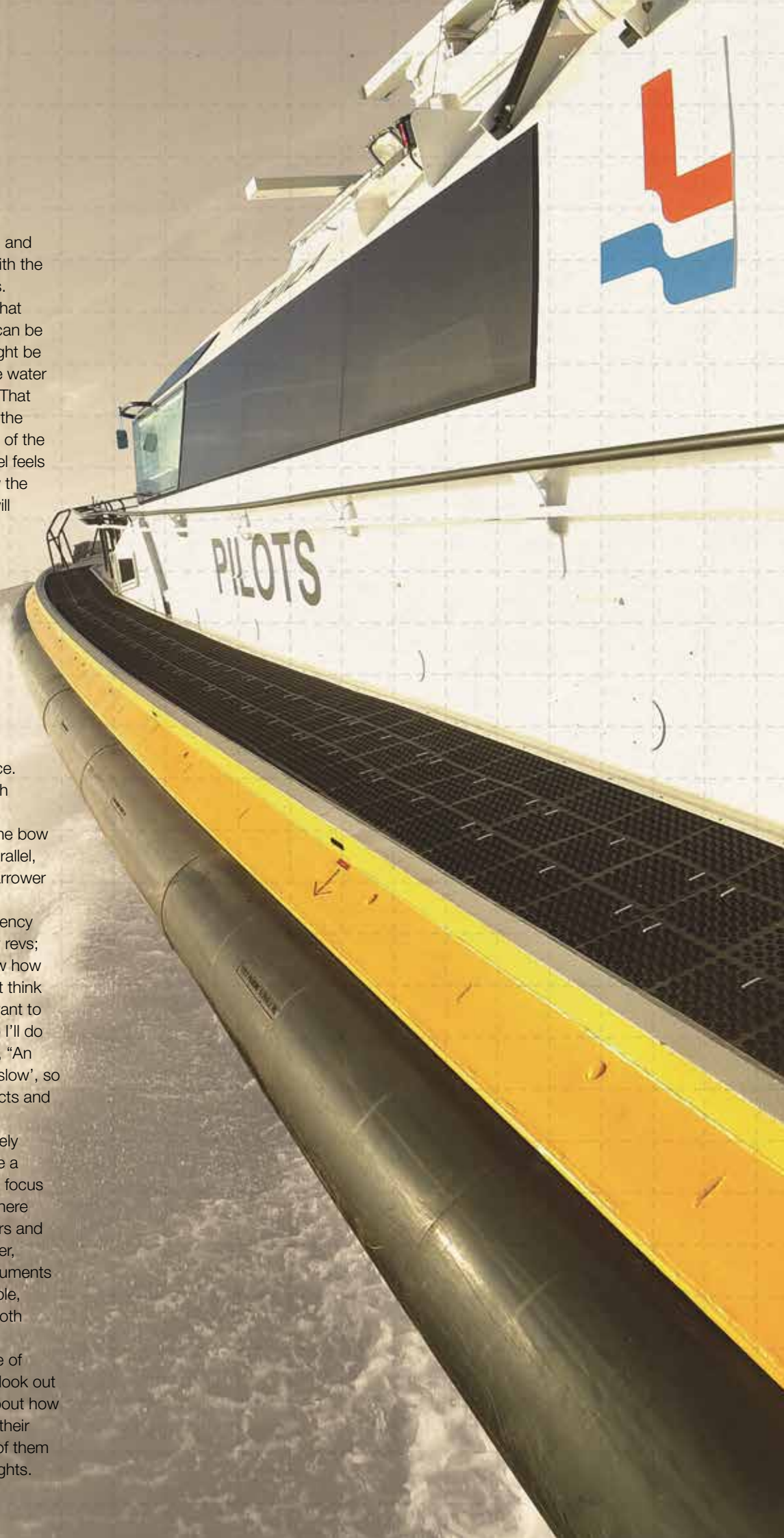
However, there are other things that you cannot see so easily, or which can be very misleading. Out at sea, you might be used to looking at the surface of the water to assess the direction of the wind. That does not work in port. The wind on the surface tends to follow the direction of the banks and the breeze that the vessel feels might be at quite an angle. To know the direction of the wind in a port you will have to go out to the bridge wing and feel it for yourself. On enclosed bridges, you must hope that your windmeter is correct...but flags on board can also tell you a lot.

Be careful watching smoke from chimneys etc. Perspective can have a large influence on how the smoke appears to move and can lead you to the wrong conclusion. Perspective also influences how you perceive distance. For instance, when you leave a berth and the distance off forward and aft looks the same, it is a fair bet that the bow is further out. When the vessel is parallel, the distance forward should look narrower (assuming the bridge is aft).

Ship's crews often have the tendency to think in settings: "I need so many revs; so much rudder." Pilots do not know how a vessel should react so they do not think in settings, but rather in results: "I want to achieve this speed and that RoT, so I'll do what is required to achieve this." Or, "An average vessel of this class needs 'slow', so I'll start at half and see how she reacts and give more or less as required."

Ship's crews also tend to be largely internally focussed, while Pilots have a more external outlook. This external focus extends further to take in "What is there around me, how do I influence others and how do they influence me?" However, even for Pilots, checking some instruments should be second nature: for example, checking rudder and rev indicator both before and after giving orders.

I hope I have given you a glimpse of some of the things that Pilots must look out for. I encourage you to ask Pilots about how they use visuals and instruments in their work. I know that the vast majority of them will be very willing to share their insights.



# WATCHOUT

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

## Three groundings – in 30 minutes

### What happened?

A ship was under pilotage up a river estuary in foggy conditions in the dark. The Master was at the helm and the Chief Officer was also on the bridge. The look-out on the bow saw a vessel looming out of the fog. He called the bridge and informed the Master, in their mutual language, what he had seen.

The vessel was at berth, but the Master did not know this and had not been told by the Pilot to expect it. The Master changed course away from the vessel and reduced speed, without telling the Pilot what action he was taking or why. The look-out then reported a second vessel and the Master again changed course, reducing speed further. By now, the ship was being swept along by the tide.

The Pilot noticed the course error and attempted to correct it, but the vessel grounded in the shallows near the bank. In attempting to get the vessel out of the shallows, the Master ignored the Pilot's advice, resulting in the vessel touching bottom twice more.

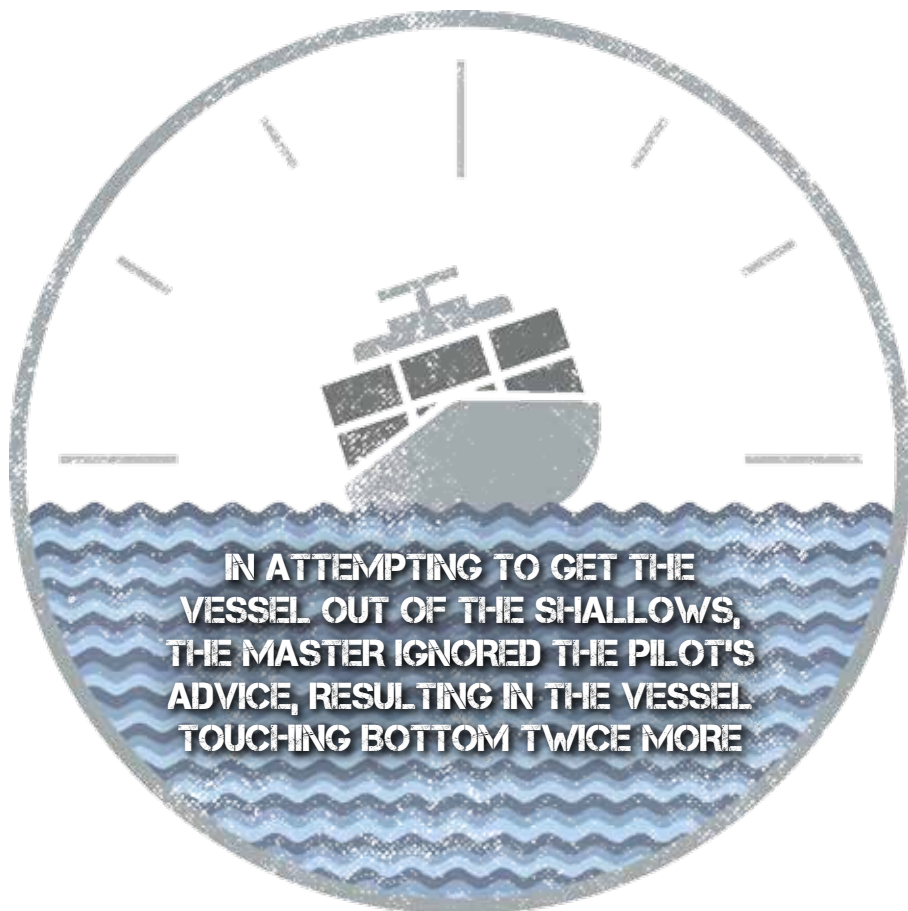
### Why did it happen?

- > The Master/Pilot Exchange was poor. The Pilot did not fully explain his passage plan or show the Master a large-scale chart
- > Subsequent communication between the Master and the Pilot was poor
- > The Master and crew communicated in a language the Pilot did not speak
- > The Pilot was not adequately supported by the bridge organisation
- > Neither the Master nor the Pilot identified the flaws in the set-up
- > The Master relied totally on the Pilot for the safe navigation of the vessel

### What changes have been made?

- > Port State Control has issued a flyer reminding Masters of the need for Pilots to be adequately supported by bridge teams
- > Visiting vessels have been surveyed to gather key information on their use of Pilots in port
- > The ship manager was given recommendations about improving passage planning and crewing

*This is a summary of the main points. Want to know more? You can download the complete report from the UK MAIB at <https://tinyurl.com/navigator16>*





## Piloting the Amazon river

Harbour/River Pilot, **Thiago Serra** relishes the challenge of guiding large vessels along his stretch of the Amazon river. He talks to *The Navigator* about why he chose to become a pilot and the skills he has had to pick up along the way

### What career path has led to your current position?

After graduating from the Brazilian Merchant Marine Academy, I became a junior cadet in 2002. I gained experience working on tankers and off-shore vessels. After that I worked as a Third Officer on an AHTS Maersk vessel, then as Third Mate and DPO at Noble Drilling before joining Transocean as a Second Officer and Senior DPO.

### Why are you interested in pilotage in particular?

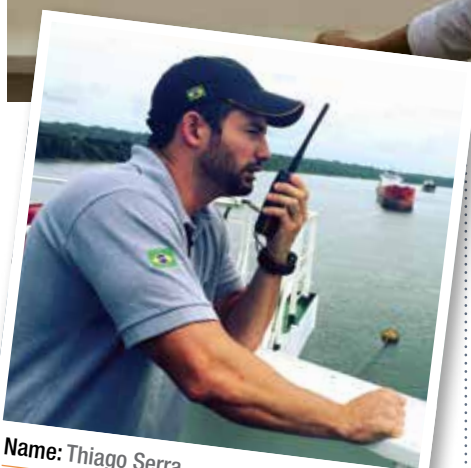
When I joined the merchant marine academy, I realised how fascinating being a Pilot is. I was driven by the challenge to take control of a merchant ship and manage it in the face of all the environmental variables. To imagine that something as powerful as a ship could be gently berthed with the assistance of just one person representing the interests of the state of Brazil thrilled me.

### What is different about pilotage as opposed to life at sea in other roles?

As a Pilot, I can really make a difference to navigational safety. During my training to become an officer, I learnt how to identify hazards and avoid them when operating under commercial pressure. In my pilot training, I found out how to deal with all the risks involved in negotiating shallow waters, confined spaces and heavy traffic, as well as how to achieve the safest result for the vessel and at the same time, enable efficient operation in our ports.

### What particular skills have you had to learn and what strengths have you had to call on in your work?

To be a Pilot on the Amazon river brings challenges every day. The river bottom



**Name:** Thiago Serra

**Current position:** Harbour/River Ship's Pilot at Bacia Amazonica Praticos, Brazil

**Training:** Brazilian Merchant Marine Academy, Rio de Janeiro, Brazil

changes often and our goal is to avoid any groundings. Manoeuvring a vessel demands a lot of training, but learning how to 'read' the river and

navigate along the 1.300 nautical miles of our pilotage area was an even more challenging issue that I had to deal with from the start. There is always heavy traffic to manage. Loaded barges, fishing boats and other small vessels force us to maintain an incredible situational awareness at all times.

### What do you think are the greatest challenges facing Pilots right now?

Crime prevention is a huge issue right now, together with constant surveillance to ensure everyone's safety. Especially when we are dealing with tankers and ultra large container ships. Just one of these types of vessels grounding could interrupt main ports all over the world. Today, a billion dollar loss scenario is already predictable and it would take about two years to remove all the containers from a vessel this size.



# WAYPOINT

Dr Andy Norris FRIN FNI

## Portable Pilot Units

Dr Andy Norris, an active Fellow of The Nautical Institute and the Royal Institute of Navigation, takes a closer look at Portable Pilot Units

It is now very common for Pilots to come on board with a Portable Pilot Unit (PPU). This is a compact system that gives them easy access to relevant navigational information, including charted data. The huge advantage to Pilots is that they are completely familiar with setting up and using the equipment. Their particular PPU may also give them ready access to local real-time data that may not be available to the ship's regular systems.

PPUs generally have access to the data transmitted and received by the vessel's own AIS, via the connection on the bridge known as the Pilot Plug. The Pilot may also bring on board an additional unit that is generally mounted in an external position, close to the bridge. This second unit collects relevant navigational data, communicating it wirelessly to the main PPU. Data can include the vessel's position and motion, as well as independently collected AIS data and local real-time data transmissions.

This is all great for Pilots, not to mention the overall safety of the vessel, provided it does not isolate them from the bridge team. PPU displays are small and designed for single-person use. Aspects of the displayed information are likely to be only familiar to the Pilot. Use of a PPU effectively allows the Pilot to put a reduced emphasis on viewing the ship's own systems, although a primary interest in the vessel's radar displays in particular must always be maintained.

### Problems and perks

Importantly, Pilots and bridge teams must be aware of the benefits and potential problems in the use of PPU's. Ideally, their use increases communication between the Pilot and the bridge staff, but it takes positive action from all parties to make this happen. For instance, the PPU can be a useful aid for making checks on the ship's own navigational equipment – are all readings from both systems consistent? Equally, such checks can also highlight potential problems with the information displayed on the PPU.

It should always be borne in mind that the international standard (IEC 61162-2) used for the vessel's AIS Pilot Port states: "Since there is no provision for guaranteed delivery of messages and only limited error-

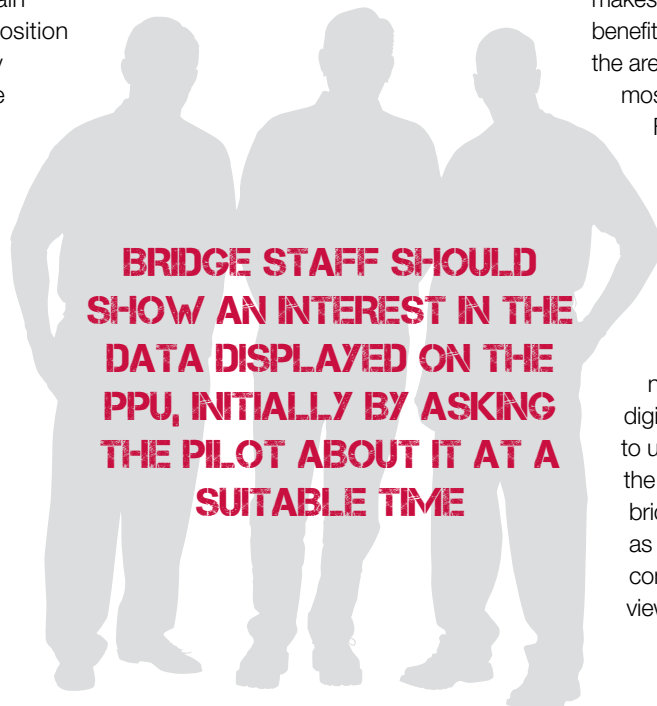
checking capability, this standard should be used with caution in all safety applications." The Pilot's specific knowledge is required to know whether the source of any information displayed on the PPU is the vessel itself via the Pilot Port, or the equipment that the Pilot has brought on board.

Bridge staff should therefore show an interest in the data displayed on the PPU, initially by asking the Pilot about it at a suitable time. After that, an occasional glance over the Pilot's shoulder to view the PPU screen could assist the Pilot in detecting any anomalies and therefore should generally be acceptable.

Unlike most navigation-related bridge equipment, PPU's are not covered by any specific IMO requirements for their design and performance. Although this potentially makes them all very different, it also has the benefit that they can readily evolve to meet the area's specific requirements and use the most modern technology and concepts.

Fortunately, since the main users are such experts, especially in knowledge of the area in which they are used, any performance issues would be readily noticed and reported.

In some ways, modern advanced PPU's are the precursors of IMO eNavigation, integrating navigation sensor information with digitally received data in a way that is easy to understand. Will they perhaps lead to the regular use of hand-held displays by bridge staff to aid safe navigation, such as when walking around the bridge, comparing the optical and electronic views in detail?



**BRIDGE STAFF SHOULD SHOW AN INTEREST IN THE DATA DISPLAYED ON THE PPU, INITIALLY BY ASKING THE PILOT ABOUT IT AT A SUITABLE TIME**

# TAKE 10

This issue of *The Navigator* explores what is involved in being – and working with – a Pilot

## 1

### Risk assessment

Most pilotage areas have an increased risk of groundings and collisions, which is why having a Pilot on board is mandatory. This is the time to be especially vigilant.

## 2

### Teamwork

A Pilot does not replace a bridge team. In fact, they add to it. Don't relax just because a Pilot is on board. Work with them and monitor what they do to improve safety together. Masters and bridge officers have a duty to support the Pilot and to ensure that their actions are monitored at all times (IMO Resolution A960, Annex 2, paragraph 2.3).

## 3

### Shared understanding

Working with a Pilot will only be effective if you both have a shared understanding of the passage plan. As a Master or OOW, you should always know the intention of the next manoeuvre. If you don't – ask.

## 4

### Always aware

When you are in pilotage waters use all available means to be aware of traffic. As well as communicating with the Pilot, listen to the VHF and VTS exchanges taking place with your own vessel and others.

## 5

### Visual clues

Pilots primarily use visual references for their situational awareness, both looking out the window and using Radar. These are good techniques for anyone to learn and practise.

## 6

### Good seamanship

Pilots respect and rely on the crew practising good seamanship. This starts with the safe rigging of the Pilot ladder and continues with good watchkeeping practices.

## 7

### Know your ship

Pilots rely on the ship's crew to be constantly aware of their own vessel's details and communicate them to the Pilot. This includes compass error, heading error, speed for RPMs, navigation system functionality, alarm management and Pilot Plug details.

## 8

### Keep focused and carry on

It is tempting while under pilotage to become distracted by paperwork, commercial issues, personal issues, mobile phones or just being sociable. Stay focused; your safety relies on it.

## 9

### Perfect PPU practice

Portable Pilot Units can be used to great effect, however they should be a tool to improve communication and check against the ship's own equipment. Always show an interest and ask if anything is unclear.

## 10

### Mentoring

As long as you don't distract from the practice of safe navigation, watching and learning from Pilots is a great way of improving your own skills in navigation and shiphandling. Pilots can be a valuable information resource, so don't be afraid to ask them to share what they know.

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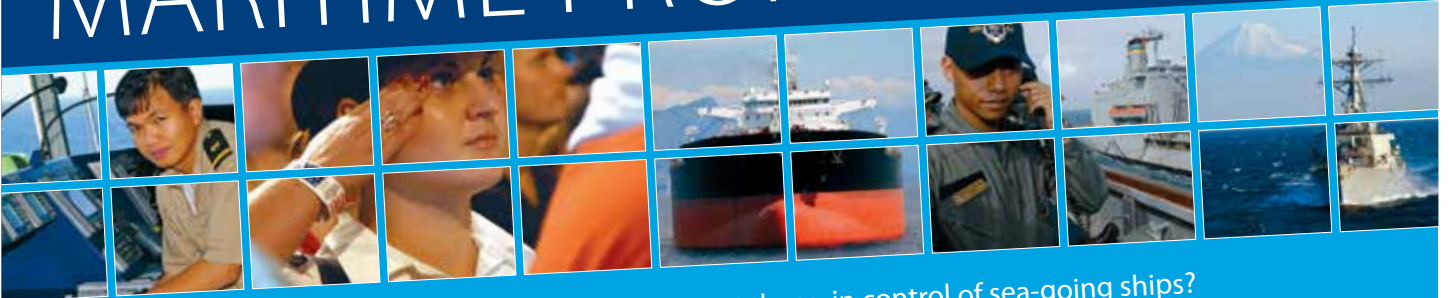
## AND THE WINNER THIS ISSUE IS...

Congratulations to Alexander Ott, winner of our Issue 16 NavSnap competition!

*Good day everyone. My name is Alexander Ott and I am 24 years old, living in Germany and currently working as a Nautical Officer Assistant onboard the M/V "KALAMATA TRADER". I started my maritime career two years ago as a trainee on container vessels, working most of the time on deck to gain experience. This voyage is my last contract as a Nautical Officer Assistant before I will be promoted as a Third Officer next year. In the future I would like to see myself as a junior officer on a cruise vessel, gaining experience for my captain's licence.*



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