A Message from the President

Fellow Pilots,

“Everything is changing and change occurs at an ever-increasing pace.” This statement, or some version of it, is made so often and in so many different contexts that it is surely in danger of becoming the cliché of our generation. And yet, there are so many examples of important change that can be cited to substantiate the statement that it would be foolish to make light of it.

These changes include many that are bound to have an impact on pilotage. A good case in point is the dramatic change in recent months in the international price of oil, which had declined from something around US$100 a barrel to less than $50. While the price has recovered somewhat since then, certain forecasters, notably Goldman Sachs, are predicting that $55-a-barrel oil will still be the norm five years from now.

Oil is a very significant commodity in terms of the global economy and this change in its market value affects not only employment, investment and public revenue, but also world trade and, consequently, marine traffic.

There are other big changes underway. The continued growth in the importance of Asian economies, and the negotiation of major new trade agreements affecting both the Pacific and the Atlantic regions, are having a fundamental impact on world trade.

Climate change affects everyone, and will certainly have an impact on virtually every aspect of human behaviour. Just as fundamental, are the changes occurring in how people communicate and manage information in the digital age.

With so much change happening, and with the certainty that all of this change will, one way or another, affect how we live, it is easy to understand why we sometimes lose sight of another truth that is just as important as the “doctrine of change”.

The fact remains, no matter how much change there is, and no matter how fast that change occurs, some basic things hardly change at all, nor should they. Pilotage is a case in point. Certainly, shipping volumes can fluctuate dramatically, as can shipping patterns and shipping technology. Similarly, demographic change, political developments, and the emergence of new social behaviours can all lead to different government and policy approaches that will affect the maritime sector as well as everyone else.

But, pilotage itself is always all about safety. Pilots’ raison d’être is to ensure the safe and efficient transit of maritime vessels in designated waters; we have been doing this for hundreds of years and it is something people can count on that we will continue to do, no matter the amount or velocity of change around us.

In a world of change, I think it is a good thing that there are certain values and practices that transcend change and are enduring. No matter what the circumstances, we want to be sure that such things as health, security and safety are upheld to the highest standards. In our own way, and in our own sector, marine pilots are doing just that.

Simon Pelletier
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Message from the
Secretary General...

Dear Colleagues,

IMPA’s Executive met a few weeks ago ahead of IMO MSC in a slightly different format than previously, and managed as a result, to get through a substantial workload. We had productive sessions on Safety, Governance and Navigation Technology. One of the outcomes of this effort is the impact we can have in debates within IMO and with our sister bodies like IALA, and with other parties such as insurers. This is very positive, as IMPA is seen much more these days by others as a valuable and relevant body within our industry.

Because a lot of our work looks broadly at Navigation issues today and in the future, we are not often viewed so much as a self-interested body protecting the status quo. That is not to say there are no problems for us. There are plenty. We continue to have those who know little of the sea decide that there are better operational/financial models to be followed in the world of Pilotage, ignoring the experiences, not just of us, but of other chastened meddlers who have discovered that after their intervention their country’s pilotage system is not only less effective but ironically, much more expensive.

Nick Cutmore

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When a vessel moving forward is pushed sideways, the direction of travel, referred to as Course Over Ground, will be different from the heading. This difference of the Course Over Ground from the heading is the drift angle, often referred to as set or leeway.

When following a straight track, allowing for the drift angle is accommodated by steering a course different from the planned track by the drift angle. When following a turn, accommodating the sideways push is more complicated.

If the push force is along the turn bisector, the drift angle will be on the same side throughout the turn, changing slightly with the maximum drift angle being near the middle of the turn. See figure 1 & 2, showing the water track in blue and the ground track in brown.

As the drift angle at the start and the end of the turn are the same, the change in heading is the same as the change in course. The turn centre of the track followed is offset from the beam by an angle equal to the drift angle and the water track turn has a radius equal to the ground track radius. The vessel’s headings throughout the turn will be different from the planned headings, the rate of turn required will be as planned.

If the push force is perpendicular to the turn bisector, the drift angle will change sides through the turn, with no drift angle half way through the turn. See figure 3 & 4. With such turns, the change in heading will be different from the change in course and the resulting water track turn will have a different radius from the planned ground track turn. The change in radius is equal to the change in course divided by the change in heading.

Push forces from any other direction will have a combination of the turn’s centre displaced from the beam by the average drift angle experienced through the turn and the turn radius adjusted by the change in course divided by the change in heading.

Planning and monitoring turns generally involves pre-determining, then comparing the vessel’s actual heading at positions along the turn. It can be seen that in the presence of large drift angles, the vessel’s heading can not be relied upon to monitor a vessel’s progress through the turn.

Concentric Indexing is a radar technique that continuously monitors a turn using the path of a reference point along an offset range ring. Detailed information on this technique can be found at: http://www.niqld.net/ni_presentations_planned_turns.html.

If the drift angle at the end of the turn can be estimated, the concentric indexing settings can be adjusted to provide a monitoring tool during the turn.
Conclusion

If the drift angle on the next course is known or well estimated, concentric indexing can be used to monitor the turn. The monitoring may not have the still water accuracy but will give a good indication for track keeping and should be combined with a parallel index line for the next track. The combination of these radar techniques should help achieve the goal of a steady rate of turn to bring the vessel onto the next track.

If using a rate of turn indicator, the required turn rate needs to be adjusted if the change in heading will be different from the change in course.

These adjustments to monitoring the turn are based on the expected drift angle on the next course. The drift angle experienced on the next course may not be as expected.

With set in the direction of the turn, it is very important to establish the greater than expected turn rate at the start. If the required turn rate is not established at the beginning of the turn, a much higher turn rate will be needed at the end.

Acknowledgement

I thank the Corporation of the Lower St Lawrence Pilots for not only bringing to my attention that large drift angles frustrate concentric indexing, but also the opportunity to use their simulator at Maritime Simulation and Resource Centre: (www.sim-pilot.com) to explore a remedy.

I would particularly like to thank Captain Alain Victor, author of the recently published “Parallel Index Techniques in Confined Waters”, for his interest and patience in helping develop a usable remedy to monitoring turns with large drift angles.

This is an abridged version, for the full version go to the IMPA website, http://www.impahq.org/admin/resources/monitoringturnlarge driftangles.pdf.”

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IMPA members are entitled to receive a 15% discount on the cost of Registration and the Gala Dinner.


Captain Phillips

Paul Chapman (right) who wrote the article on monitoring turns, see Page 4 and Captain (Richard) Phillips, played by Tom Hanks in the film of the same name.

A cold day at the office

Not much visibility when the screen is frozen from the inside!
Corpus Christi Pilots board Bigfoot by hoist and crane

Chevron’s Bigfoot - Photographs by Corpus Christi Pilots

A team of Aransas-Corpus Christi Pilots successfully guided Chevron’s massive production platform “Bigfoot” from the Keveit yard in Ingleside, Texas through Port Aransas to the Gulf of Mexico on March 13.

Corpus Christi Pilots Jay Rivera, Jim Dooley, Bobby Grumbles and Bob Lippold trained for two years in preparation for the passage that required sixteen hours to accomplish using a total of eight tugs. Transiting the narrow LaQuinta channel with a maximum of seven feet on either side and three feet under keel, the passage went according to plan and benefitted from picture perfect weather and sea conditions.

Pictured l-r: Aboard Bigfoot - Captains Rivera, Dooley, Grumbles and Lippold
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Coping with bigger measures

By Michael Grey

First published in Lloyd’s List 9 March 2015 and appears with kind permission of the Editor.

How do you get a quart into a pint pot? Of course you can’t unless you are in the shipping industry and you wish to take your enormous ship into a port that probably won’t accommodate it. You will then threaten the port authority that if they won’t let your ship in because of some specious excuse about its size, then you will take all your custom elsewhere.

The port authority, seeing financial ruin fast approaching with the loss of such a customer, will announce a programme of dredging, producing predictable shrieks from the local greens, who announce that they will fight this environmental catastrophe in the highest court available. The port authority, who realise the programme will take years to accomplish against such opposition, then lean heavily on the harbourmaster and the pilots, suggesting that with just a little extra effort and expertise, helped perhaps by the tide and the tugs, it will be perfectly safe to accommodate the bigger ship.

Modern ships, it will be pointed out, are so very manoeuvrable, with their thrusters and clever rudders, that they can spin around with a couple of feet clearance at bow or stern. The harbourmaster will run the survey boat over the channel if the ship is fully laden. The bottom is mostly soft mud, isn’t it? Put like this, it is not really an issue.

None of this is entirely a figment of my imagination, as such a situation is likely to accompany the “cascading” of containerships displaced from their initial trade by the arrival of bigger ships. It is already a problem of spilt oil, or boxes floating in the tideway, if the margins are rather tighter than they first appeared.

Of course, one would like to think that no port management would be so stupid as to allow the entry of ships that were too large for safety. But as always, it is a matter of degree and definition and what we mean by a “safe” margin. Who decides what is “safe” anyway? Is it the harbourmaster? Surely the pilots, who are the people who handle the ships every day, should have an important say in the matter? Or should the final word be given to the masters of the ships, who must remain responsible for their safety? What about the port manager, or even the responsible government agency, which probably retains some sort of handle on what is meant by marine safety within its jurisdiction?

Realists will probably suggest that this has been going on for ever, and the current problems of the cascading containerships just the latest manifestation. Boundaries and port limits are there to be pushed, as they always have been. I am old enough to recall the earnest debates in professional circles when VLCCs first appeared, when clever oil company executives suggested that it was perfectly safe to bring one of these babies up a 20 mile channel on the top of the tide, to sit in a dredged hole alongside the berth. The fact that it was done, mostly without incident, has probably given encouragement to port and shipping people to this day. We thought that medals should have been struck for the masters and pilots of these monstrous ships, but a letter of thanks would have probably been their only reward, if they were very fortunate.

These days we have brilliant simulators, where pilots can rehearse their manoeuvres before the new giant customers heave over the horizon. But it is still a tribute to pilots that they can seemingly extrapolate their skills to operate with bigger and bigger “envelopes” and with smaller and smaller margins for error.

At a time when this is all happening and our dependence on pilots’ skills to keep these big ships safe seems to be becoming greater, you wouldn’t think that certain ports were attempting to suggest that they could get away with less experienced pilots, presumably because they were cheaper. But this, alas, seems to be the case in a number of UK ports, which have been encouraged by a lack of government oversight to cut corners in the way that they authorise qualified marine pilots.

Many ports would not dream of seeking anything other than the very highest pilotage standards, but according to Birkenhead lawyer Barrie Youde, the fact that the Department of Transport maintains a hands-off attitude to the provisions of the 1987 Pilotage Act, leaves the harbour authorities very much in the driving seat. Mr Youde, a former pilot himself, has been for years campaigning indefatigably for the maintenance of highest standards, pointing out that common law prescribes these, particularly where pilotage is imposed in a compulsory fashion.

His assertion is strongly backed up by the Transport Select Committee which reported on the matter two years ago, but without any subsequent action by the Secretary of State for Transport. It is, he suggests, a conflict in which the state, which appears to wish to remain aloof, is ranged against the judiciary, which in the case of the Sea Empress disaster of 1996, ruled unequivocally, that where pilotage is compulsory, the highest standards are required.

The argument has been going on for so long that one is tempted to suggest that it has become almost philosophic, but nothing could be further from the truth as the matter is both intensely practical and very topical. It is about competence and experience and the very real risks that arise when ships are handled with increasingly tight margins. The “cascade” of containerships should not be at risk of becoming a cascade of spilt oil, or boxes floating in the tideway, if the margins are rather tighter than they first appeared.

Save the Date - 23rd IMPA Congress
Seoul, Republic of South Korea, 26 - 30 September 2016
Michael Card, Deputy Secretary General of IALA/IAISM, Simon Pelletier, IMPA President, Johannes Sivertsen, President of the Norwegian Pilots, IMPA Secretary General Nick Cutmore and Paul Kirchner, Executive Director and General Counsel of the American Pilots Association, at the International e-Navigation Underway Conference in January 2015

Simon Pelletier addresses the EMPA Conference in Lisbon in April 2015

International e-Navigation Underway Conference in January 2015

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Failure to follow SMS procedures was cited as a cause of the collision between the UK flagged general cargoship Paula C and the Hong Kong flagged bulk carrier Darya Gayatri in the Channel in December 2013.

Two serious shipping accidents occurred in the Dover Straits TSS within the space of just four months in 2013, both resulting in full UK Marine Accident Investigation Branch (MAIB) investigations.

On 18 September the tanker Ovit ran aground on the Varne Bank and on 11 December a collision occurred between the UK flagged general cargoship Paula C and the bulk carrier Darya Gayatri. These incidents not only shared geographical similarities but also both prompted the MAIB reports to highlight the fact that breaches of Safety Management Systems (SMSs) had been major causal factors in allowing the accidents to occur.

In July 2002 the implementation of the International Safety Management (ISM) Code was completed for all SOLAS vessel of over 500gt. The reason for the Code was to improve safety standards, with the aim of bringing about a reduction in accidents at sea and the injuries and pollution which may be caused as a result.

Although all SOLAS vessels are required by the Code to have a working SMS onboard — which is subject to internal and external audit, including audit and verification by flag state — there continues to be a considerable number of avoidable shipping accidents and incidents.

Despite the implementation of the Code (and its amendments) many recent investigation reports highlight the fact that although SMSs are in place, they are routinely ignored. In the case of Paula C, the highlighted major failure was the use of a sole lookout during the hours of darkness. For the Ovit, the major failing was deemed to be a lack of familiarity with the ECDIS equipment, which was the primary source of navigation onboard. It may be possible to interpret that there is an attitude of there being a difference between doing what should be done and doing what you can get away with.

When attempting to answer the rhetorical question ‘Where did it all go wrong?’ in relation to ISM, it is important to be aware not only why the Code was implemented but also how it developed.

Historically, the international shipping industry is generally guilty of acting only in a reactive way — with legislation and guidelines only developed following a major catastrophe. The SOLAS convention was a direct result of the sinking of the RMS Titanic and the resultant tragic loss of life. The MARPOL convention followed the environmental disaster caused by the grounding of the tanker Torrey Canyon. And a major catalyst for the ISM Code was the report by Lord Justice Sheen into the sinking of the Herald of Free Enterprise.

Although the direct cause of the accident, with the resultant loss of 193 lives, was the ro-ro ferry sailing with her bow door open, within his summing up Lord Sheen made reference to ‘the poor workplace communication and stand-off relationship between ship operators and shore-based managers which was the root cause of the sinking’.

The Code itself is only a very slim volume which, through its various sections, lays out the basic requirements for a SMS. It does this in very general terms, and does not within itself explain how the SMS must be written. It is important to appreciate that the Code does not specify that reams of paper have to be churned out for each onboard task.

Failure to follow SMS procedures was cited as a cause of the collision between the UK flagged general cargoship Paula C and the Hong Kong flagged bulk carrier Darya Gayatri in the Channel in December 2013.

One fundamental objective of the ISM Code is the requirement to make available to all seafarers a senior person in the company hierarchy who has access to the highest levels of management. This ‘Designated Person’ has wide-ranging duties and obligations to implement and monitor all aspects of shipboard operations.

A basic mantra churned out during the gestation period of the Code was ‘Say what you do, do what you say and record it’. What this is taken to mean in practice is that for each shipboard operation it is necessary to lay down a procedure or method of doing the task, and when the task is completed a record is kept, which can be audited or verified. This is commonly done by the use of checklists where each task is recorded by use of a tick box.

The attitude adopted by some authorities (in line with ISO requirements) was that it was necessary for procedures to enable someone to walk off the street and be able to carry out a task purely by following the procedure. Obviously they had forgotten the fact that all persons doing the job onboard were trained and independently certificated (certificates of competency), so this level of procedure was not really required.

When ticking the right boxes is not enough

This article first appeared in ‘Nautilus Magazine’ and appears with their kind permission. Why is the International Safety Management Code failing to deliver improved standards, asks deepsea pilot KEVIN VALLANCE...
It may seem strange to seafarers who have been at sea for less than 20 years, but in the not too distant past the use of vast quantities of checklists and work procedures was not common on most vessels.

My own personal introduction to checklists took place in 1976. As a final trip deck cadet, the vessel I was on — although only around 600ft in length — had a crew in excess of 50 persons. In addition to having sufficient crew numbers, we also normally had fairly long port stays and everyone was fully aware of what their allocated jobs were — work fatigue was not usually a concern.

However, on one occasion the vessel called at Curacao for bunkers and had only a relatively short stay in port. Due to other unforeseen factors, the normal working pattern of the vessel and her crew was disrupted and watchkeeping schedules were altered. Around 30 minutes after sailing, and after disembarking the pilot, it was discovered that the gyro repeaters had not been checked for alignment prior to departure. Captain Bland, the vessel’s master, developed a Pre-Sailing Checklist, which fitted onto one side of A4 paper and included tick boxes. This rudimental checklist was intended to act as an aide memoire and was well received by all onboard. This acceptance was because everyone was aware that the previous omission had occurred and appreciated the need to prevent it recurring in the future.

With the expansion of global trade during the 1980s, many manufacturing companies who traded worldwide started to appreciate the need for consistent supply standards and the need for such quality assurance to be acknowledged and strived towards. Many shipping lines, who by this juncture in time had been absorbed into transport companies, were subject to these regimes and the subsequent need to comply with ISO9000 certification requirements.

Prior to the introduction of the Code, it is probably true to say that the level of understanding of management systems was not as good as it could have been.

The use of checklists and the resultant tick boxes for supply systems originated from the military and were relatively easily adapted for use within civilian transportation and supply systems to form the basis of many Quality Management Systems. Unfortunately, the quality management teams tasked with implementing and auditing the needs of the ISM Code often tried to use the same methods already employed within the procedures used for ISO.

Some specialists/consultants saw the opportunity to make a quick buck by providing off-the-shelf generic SMSs which, in hindsight, were often not fit for purpose. However, they provided sufficient to allow the unenlightened to get through an audit.

Where shipping companies were complying with the ISO standards (or working towards them), there was often an attempt to try and tie in the needs of ISO with the requirements of the ISM Code. With hindsight, this can generally be considered to be a fundamental mistake because any attempts to find a common interface are often only spurious in nature.

Many shipping companies did not employ specialist quality management personnel but carried out in-house recruitment. Often this would lead to the person appointed carrying out the new tasks in addition to their primary job, which they were initially employed to fulfil.

It was also necessary for companies to identify seagoing personnel who bought into the philosophy of the ISM Code. This enabled a thorough evaluation of what was required for compliance with the Code and also allowed workable systems to be developed and adopted.

Some enlightened mariners quickly appreciated that the ISM Code offered a great way forward and a way of raising safety standards. But, unfortunately, a majority of seagoing personnel did not see the advantages and found compliance with the Code to be just another distraction from getting the job done in the time-honoured way. This was in many ways symbolic of the resistance to change often observed amongst many seafarers.

Another problem which developed was that because on occasions the SMS was seen to be a bolt-on to the quality management system, they very rapidly became very physically large documents with a number of files taking up a large space, often on the bridge or in the ship’s office.

Dutch accident investigators found an ‘unworkable’ SMS onboard the general cargoship Azorenborg when they examined an incident in which a crew member died in February 2013.

My own early experience with ISM took place during the late 1990s prior to mandatory compliance. Our company tried to be forward-thinking and spent large amounts of money attempting to train ship’s staff to be fully switched into the required safety culture. Unfortunately, because the system had not been fully developed or implemented, many people found the constant amendments to the system to be very time-consuming and frustrating.

Having had it well explained to me how correct use of the spirit of the ISM Code could and should be of benefit to sea staff, I put myself forward for training and integration into the company quality and safety department. During my normal working rota I continued to be a serving ship master, but during leave and additional work time I was seconded to assist with developing the company systems.

The proliferation of everexpanding filing systems full of procedures and the almost obligatory use of checklists and tick boxes continued unabated. Initially it was considered that our ISM certification would be done through class — in our case by Lloyd’s Register. The company systems and vessels were all inspected and audited to LR standard well before the mandatory required date. However, this proved to be incorrect and at the last minute — literally in the final week before implementation — the whole system had to be reexamined, this time by the flag state (the MCA for the UK).

Having reached the required standard, vessels are still subject to internal audit and the entire system has to be seen to be a living dynamic entity. Because of the simplicity and lack of explicit guidance from the ISM Code, there is no right and wrong way of carrying out its requirements. It is the responsibility of the company to identify the needs and to lay down a suitable structure to allow compliance.

One of the problems experienced is that once a procedure has been incorporated into the SMS there is a reluctance to remove it. In a very short time the sheer volume and size of the filing systems will expand rapidly. In our own situation the only practical way we managed to
reduce the files physically was by printing on both sides of the paper and by using a smaller font size.

The use of checklists and tick boxes also continues to expand and it is now not unusual to see checklists employed to record that all relevant checklists have been completed!

Properly constructed checklists which are vessel and task specific can be invaluable when used as aide memoires and to help record that all procedures have been correctly completed. Most readers will be aware that checklists are very common in the airline industry; less well known may be the research into their use within medical surgery. During a year-long study conducted by the World Health Organisation, in eight locations across the globe, a simple single page surgical checklist used during major surgery was proven to cut deaths by over 40% and complications by more than one third.

All too often at sea it can be observed that incorrectly developed or incorrectly completed checklists have an adverse effect. This has developed into a so-called ‘tick box mentality’.

Recently I queried an OOW on a car carrier about the predeparture checklist he had just completed. All the tick boxes for this PCC had been completed, including the one ‘check water content meter (for bulk carriers only)’. When I pointed this out to the third officer he replied that if he didn’t tick the box he would get into trouble. Use of ‘generic forms’, either for vessels or across a company, is often a cause of such idiosyncrasies.

This continuing proliferation of new paperwork onboard vessels which is often blamed on the ISM has led to some (often the master), feeling they are little more than a floating secretary. It may be argued by some that the need to complete all the paperwork required is negatively impacting on the ability of the master to fulfil the myriad of other tasks traditionally associated with the rank.

One traditional set of onboard guidelines was the Master’s Standing Orders. These were written up by the master and were specific to a particular vessel, her working patterns and the crew. They were regularly reviewed by the master and signed and acknowledged by the bridge watchkeepers.

However, it is now common to see a set of generic Master’s Standing Orders sent from the office to the vessel.

It must be appreciated that the SMS consists of much more than just a set of operational procedures and associated checklists. Ovit did not run aground because of not completing a checklist, it ran aground primarily because of a lack of familiarity with onboard ECDIS equipment which led to poor passage planning techniques and monitoring. Although all the bridge officers had completed typespecific training for the ECDIS equipment carried, they were not able to correctly use it. Paula C was not involved in a collision because of not completing a checklist, but because of a failure to keep a proper lookout. Both of these incidents would have been avoided if the observance of traditional good seamanship practices had been followed.

One possible explanation for the failure to follow the practices of good seamanship and for widespread misuse or even flogging of tick boxes on checklists aboard ship may be the fact that the vessels are generally physically out of sight and away from continual auditable control where there is a feeling of limited supervisory control.

There remains a feeling by many seafarers that it is important to just get the job done, despite regulatory guidelines which may have been put into place. An obvious example of this is the continuing tragic and unnecessary loss of life associated with entry into enclosed spaces. Re-education needs to take place to stress the importance of always acting in a safe manner, not just acting to comply with regulations.

It is unfortunate that it is the ISM Code which is seen by some crews as the cause (or even curse) of the shipping industry’s safety problems. There needs to be an acceptance that it is usually an incorrect interpretation of the Code which needs to be addressed.

There may need to be a return to basic principles in which the Code is used to develop best industry practices where correct procedures are produced which can then be properly logged and accurately recorded.

The failure by seafarers to identify shortcomings of the SMS during onboard reviews must be rectified. Everyone involved, either shore-based or shipboard, must truly understand and appreciate that the SMS is a dynamic entity and it will continually evolve. It must truly reflect how vessels can safely operate.
In April this year, Grand Port Maritime de La Rochelle was visited by a delegation of France’s most Senior government officials, Mr François HOLLANDE, President of the Republic and Ségolène ROYAL, Madam Minister for Ecology, Sustainable Development and Energy. President of La Rochelle pilots Thierry WARION and pilot Jean-Pierre HEMON, made a presentation to about the activity and infrastructure of GPMLR. On board the Pilot Boat “ARMERIA 2007”, between La Rochelle and Fouras, M. HOLLANDE took the helm for some 15 minutes.

The delegation boarded L’Hermione, a replica of the 18th century 12-pounder Concorde class frigate of the French Navy that became famous when she ferried General Lafayette to the United States in 1780. She was to set sail across the Atlantic on a voyage following the same sea route as La Fayette, with stops in US and Canadian harbours like Baltimore, NYC and Halifax.
Lose the Baggage

By Hugh O’Neill, NZMPA Pilot

Some years ago, a pilot on leave from Brisbane asked to observe our operations. He was somewhat alarmed that some of our pilots wore back-packs whilst on the pilot ladder, he pointed out several reasons why such habits were not Best Practice.

Arguments against carrying baggage:
1. The pilot is unbalanced and over-burdened. Any extra reaching/holding may be impaired. (Straws can break camels’ backs)
2. If said pilot should fall into the water, then the inflation of his PFD may be impaired. Is it likely that PFD makers would approve of such impairment? (Common Sense and delicate logic suggest tiptoeing around this particular can of worms).
3. If the PFD is not used as intended by its makers, then accident insurance might become an issue. (Another can of worms!)
4. Additional buoyancy from a back-pack has had the effect of turning an immersed pilot onto his face - with near-fatal consequences.

What is the alternative?
Heaving lines have become standard operating procedure here in Otago: bag-transfer precedes pilot, both up & down - no matter the weather. Climbing free of baggage is much easier since one is more nimble, agile and strong. Other than habit, there is no real argument for non-use of heaving lines. Any extra boat-alongside time is insignificant.

It will never happen to me:
Pilots – though never curmudgeons – can be creatures of habit and since no ill has come to us doing what we’ve always done, why change? I well recall the novelty of manropes in NZ, having no use for them in London for 8 years. It took me a little while to get used to the idea. If I were to go back to London now, I’d be horrified that they didn’t use them. The point is that no-one has a monopoly of good ideas and we ought to be open to testing our prejudices.

Who else uses Heaving Lines?
In an effort to answer this question, I asked the captain of CMA CGM Puget. He said that most pilots use heaving lines, and that very few wear their luggage on the ladder. Hardly a scientific survey, but what if it were true? Having read of several cases of pilots falling from ladders whilst thus encumbered, does it not behove us to at least trial heaving lines? It’s time to lose the baggage.

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IMPA Ladder Safety Survey 2015

Captain John Pearn, IMPA Vice President - The full horror of non-compliant ladders.......

Still too many pilots suffer career, and life threatening injuries, due to defective or non-compliant boarding arrangements. Tragically some have even lost their lives.

Here in the IMPA office we receive many examples of non-compliant ladders, and here is a selection from the many recently received outrageous examples of ladders offered to IMPA members. I hope this will encourage IMPA pilots around the world to fully support the next IMPA Ladder Safety Campaign, which will take place for two weeks, 1-14 October (inclusive) this year.

This survey will be entirely web-based and the application will be smartphone/tablet compatible. The application has been designed to be simple and quick to use, and initial trials have been very successful. You will receive instructions from your Country Association in due course.

If internet connection is available on the vessel submissions may be made whilst on board, and if there is no internet a paper form can be used to note details until the data can be input online, when you return ashore.

Welcome to the 2015 IMPA Safety Campaign!

Safety, the most secure system of boarding a vessel.

This “Bulwark Ladder” was encountered on the ‘Sanmar Paragon’, an Indian bulker discharging at Redcar on the River Tees, UK. The picture was taken by the IMPA Secretary General himself on a visit to the sharp end hosted by Tees Bay Pilots.

Submitted by Captain Alex Amos, Australia

The crew of the tanker ‘Dilong Spirit’ expected their pilot to also have mountaineering skills in order to save the expense of a shore gangway! Submitted by Captain Jon-Martin Cobeaga, Spain

An interesting design the vessel was the Chinese ‘Yong Tong’ at Bilbao approaches, Spain

Valetta pilot Albert Gambina encountered this ladder

Dutch-flagged vessel ‘Suzanne’ offered this novel arrangement to Jon Martin Cobeaga, Spain, recently

IMPA Safety Campaign 2015 website page
Pilot Ladders ... Shouldn’t be a ‘Leap of Faith’

Reproduced from the MAIB Safety Digest

Vessel 1:
Favourable weather conditions were present for a late evening pilot disembarkation from a small outward bound general cargo vessel in ballast. The light sea and wind should have meant an uneventful transfer; however this routine operation nearly turned into disaster for the disembarking pilot.

The ship’s crew had rigged the pilot ladder, which was reportedly in ‘clean and good condition’, on the vessel’s starboard side. When the crew confirmed the ladder was ready, the pilot made his way down to the deck in preparation for disembarkation and waited a short time while the vessel turned to make a lee for the transfer.

With the turn completed the pilot launch came alongside and the pilot stepped onto the ladder. At some point shortly after committing his full weight to the ladder, it gave way and the pilot fell approximately 1-1.5 metres onto the waiting pilot boat. Amazingly, the pilot suffered only a sprained ankle and was able to return to work soon after the accident.

The managers of the vessel confirmed that the pilot ladder had been issued with a Certificate of Conformance 4 years prior to the accident, and was therefore valid.

Vessel 2
With equally favourable conditions present and about 3 hours later, a survey vessel was attempting to embark a pilot. After initially preparing the pilot ladder on the vessel’s port side, the crew shifted it over to the starboard side at the request of the port VTS.

Once ‘apparently’ ready, the pilot launch approached and the pilot stepped onto the ladder, causing the side rope to immediately fail in the area adjacent to the securing point. Fortunately the pilot had not begun to climb the ladder and was therefore able to step back onto the launch, suffering no injury.

The transfer operation was then aborted until a second ladder had been rigged and tested. The pilot was able to board without further incident.

The Lessons

Although both ladders suffered failures in differing sections, the similarities between the two accidents are all too obvious. Both failed due to inadequate pilot ladder maintenance. Failure to properly test them prior to the pilot stepping on, meant that defects with the ladder went unnoticed until it was too late.

1. Having a valid Certificate of Conformance does not deem the ladder as ‘fit for purpose’. Such certificates confirm only that the ladder has been manufactured to the appropriate requirements. Pilot ladders must be thoroughly inspected frequently as part of a regular planned maintenance special attention to areas which have high potential for wear, for instance the part of the ladder which meets the sheer strake and lashing points.

2. Ladders should not be modified, and mariners are particularly cautioned against using electrical tape, or similar, on them.

Although well intentioned, the tape applied to the ladder in the second accident masked the condition of the rope underneath, and hampered proper inspection of its condition. The tape also trapped moisture within the line and prevented it from drying once it became wet, providing ideal conditions for it to rot - unnoticed.

3. After use, ladders should ideally be hung up clear of the deck and stored wherever possible in a clean, dry environment. They must also be protected from oil, chemicals, paint, or any other source of contamination that could affect their strength.

4. Once rigged, the ladder should be tested to confirm its strength. Any such test must be conducted in such a way that does not place the individual carrying out the test in unnecessary danger should the ladder fail, but that does provide confidence in the ladder’s strength and suitability for the transfer.
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Piloting the Mighty Amazon River  
By Captain George Livingstone

Greatest river port in the world, that’s quite a boast. Starting in the Andes Mountains of South America, this river runs almost the entire width of a continent. It’s name changes several times, starting in its headwaters in Peru where it is named the Apurimac, becoming the Ucayali and finally the name we all know. From its source to the mouth of the Atlantic Ocean it extends 6,518 km; Of course we are talking about the mighty Amazon River and it may have no match in the world. Not a single bridge crosses this river along its entire length, not a single one. The river and It’s one thousand tributaries (seven over 1,000 km long themselves) flow through six South American countries before empting into the Atlantic Ocean. More fresh water is pumped into the oceans from the Amazon than any other river in the world; so much so that the fresh water floods over 100 miles into the Atlantic Ocean literally pushing the salt water away. It is navigable from sea to nearly its headwaters with Brazilian and Peruvian pilots taking ships up and down its great length. Early explorers referred to it as the “river-sea” as, at places, it is both the deepest and widest of rivers in the world. There are islands in the entrance to the Amazon that are as large as small countries. Up until the 1950’s civilization had barely made a dent along its interior, there are still vast tracks of virgin forest untouched by any but local tribal people. I am told that there are 25,000 different species of plants, 3,000 species of bird, 2,000 different kinds of fish and 15,000 species of insects in and near this river.

Most travel between cites or movement of vital supplies will be done by water and it is remarkable just how vital water transport is. Thousands of tug & barges, river ferries and ocean ships transit the Amazon keeping the river communities supplied and thriving. To witness the loading and unloading of cargo and passengers along the waterfronts of the small ports is to go back to in time with bustling small docks filled with trucks and passengers coming and going in the jungle heat. There are only a handful of cities along the entire river; Macapa (pop. 500,000) near the river’s north entrance, Belem (pop. 1.6 million) near the rivers south entrance, Santarem (pop. 300,000) about 500Km upriver, Parintins (pop. 75,000), Manaos (pop. 1.8 million) about 1600 km upriver and farthest inland at the Brazilian border the city of Tabatinga (pop. 60,000). There are a handful of smaller cities and a host of communities as well but the major population centers are few. The listed cities above all have airports but that still means only 6 airports along the length of the Brazilian section of the Amazon River.

The Amazon River and its Pilotage  
The Amazon River is navigable for seagoing vessels from its entrance to the port of iguitos in Peru, a distance of 1858 nm. In Brazilian waters the river is divided into two compulsory pilotage zones, the first (ZP1) covers the first 600 miles of the river from Macapa to the city of Itacoatiara about 100 nm downstream from Manaos (Biggest city on the Amazon River). The second pilotage ground (ZP2) covers 982 nm from Itacoatiara to the Brazilian border at the city of Tabatinga and includes two pilotages with two pilots on each ship working in shifts of six hours on, six hours off and will mean pilots can be on ships for days.

ZP2 includes Praticagem dos Rios Occidentais da Amazonia (PROA) and the Manaos Pilots by direction of Brazil’s “Ports and Coasts (DPC). The two companies together have 36 pilots and work on a compulsory unified roster, avoiding competition. PROA has a staff of 30 employees working in administration and operations. The pilot stations include two watchtowers in strategic points with overviews of the points of embarkation and disembarkation of pilots. Operations occur 24 hours a day, 365 days a year. Pilots in ZP2 are also responsible for navigation in all tributaries in that stretch of the Amazon region; the rivers Madeira, Negro, Branco, Purus, Acre, Japurua and Ica despite being rarely sailed also need survey and chart update before the passage of ships.

The main ports of ZP2 are Itacoatiara and Manaos. Manaos being about 102 nm upriver from Itacoatiara and actually located on the left bank of the Negro River. Manaos is the capital of the vast state of Amazonas with a history closely tied to the rubber. In the late 19th century this city burst onto the scene as the center of a worldwide rubber boom. Vast Brazilian fortunes were made before the British finally smugled a rubber tree out of Brazil thereby changing the worldwide rubber market until the advent of synthetic rubber early in the 20th century. The Englishman, Henry Wickham, was knighted in Britain and known by the Brazilian planters as the ‘Amazon’s Executioner’

ZP2 has to be considered the more remote pilotage for the obvious reason that it covers the upper part of the Amazon leading to the Peruvian border with only one of the major urban areas within its route (Manaos). There are almost no navigational aids for the pilots and the Brazilian government cannot effectively update official charts along the 982 nm pilotage. Thus the pilots in ZP2 generate their own electronic charts (unofficial) since the Official charts cannot keep up with the rapid changes of the river.

There are only two seasons on the Amazon River, the wet season and the dry season. Extreme is the best descriptor as the river can rise 16M from the bottom of the dry season to the top of the flood season. This makes for very challenging piloting especially during the six month dry season when the river level continuously drops.

About 30 ships a month call to the Manaos area (maximum draft 11.5m). For the upriver trip to the border of Peru, however, there is only about one ship per month making it very difficult to stay on top of the frequent and dynamic changes (movements) of banks, channels and margins. As pilots, our primary strength is local knowledge but that is nigh impossible to attain in an incredible dynamic and remote marine transportation highway like the upper stretches of the Amazon River. Of great concern is the possibility of a grounding, especially during the dry season. Try to imagine the difficulty of piloting/navigating a remote stretch of the river 400 nm upriver of Manaos during the dry season when the last ship piloted was one month previous. Not only have sandbanks, channels and margins changed so has water level fallen as it will continuously do until the arrival of the wet season. If a ship goes aground in the aforementioned situation it may be months before said ship can be extracted. What to do about tug assistance? Probably days away at which time water level has dropped even more effectively removing any chance of floating her. So no reason to ask for tug assistance. What about the cargo? Is it a total loss? The ship’s crew? Stores? Fuel? Security? Is the ship a loss? What about the remote upriver community awaiting delivery of essential cargoes? One thing is certain, the Amazon River pilots have no intention of allowing a ship to go aground, however big the challenge is. In point of fact, grounds have greatly decreased in the last 10 years and that is a very good thing given what is at stake for all concerned. There are few ports in the world where all rests solely on the shoulders of the pilot, the mighty Amazon River is one of those few. I would like to thank the President of the Amazon River pilots, Capt. Joao Gilberto Pires Coelho and Capt. Max Barreto Silva for their hospitality and assistance in putting this article together but especially for hosting us to a great lunch of BBQ Pirarucu and Tambai fish along the Igarape (a tributary of the Rio Negro).
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Portable Pilot Units: Improving Safety and Efficiency

When it comes to technology that can help to increase safety and efficiency in ports, one of the most significant areas to focus is ship movements inside ports.

Though some models existed earlier, modern Portable Pilot Units (PPUs) have come on in leaps and bounds since the turn of the century. In that time there have been significant advancements in size, portability and functionality. While speed of setup is an important factor, an even more critical aspect that is often overlooked is the quality of the data being fed to the display.

In the same way that pilots provide high-quality independent advice, there is also a strong argument that their personal equipment be independent of ship’s data. After all, if everyone bases their judgements on the same source data, then safety (and efficiency) has the potential to be compromised if it’s wrong.

High Quality Data
In order to accurately represent a scale image of a vessel on a computer screen, so that the image is a true reflection of reality, the most critical piece of data to be calculated is the heading of the vessel. Even if the PPU’s GPS antenna shows in the correct location (more or less accurately) on the screen, if heading data is absent or incorrect, then the ship’s orientation on screen will be random. This, of course, is useless to the pilot.

A high-end PPU can be classified as a portable heading system which is 1) independent of ship systems, 2) includes a rate of turn (ROT) gyro tuned to give excellent stability at zero/low ROT, as well as high sensitivity to rapidly detect the start of a turn. When combined with accurate DGPS or RTK positioning data, the position and movement of all parts of the ship can be shown accurately using suitable software.

A PPU provides maritime pilots with familiar equipment over which they have total operational control – on every ship, and a wide range of software functionality depending on the display software in use. For example:

- A real-time scale ship-image overlaid on the chart, based on the high quality data from the sensor
- Height of tide correction
- An invaluable aid to ship safety in poor visibility
- Curved path prediction around bends
- Docking assistance (to near laser-docking performance) at all berths
- AIS target display with CPA functionality
- Full recording and replay capability.

British Standards endorse PPUs
British Standards have recently acknowledged the changes to mooring and fendering in ports, stating that “Since 2000 many things have changed relating to mooring and fendering, including vessel shape and size, self-propelled docking, and commercial pressures on facility location. Both vessel sizes and berth construction have increased significantly.”

With the rapid pace at which container vessels are growing and the increasing pressure being placed on ports, British Standards have updated BS63449-4:2014 (Maritime Structures: Code of practice for design or fendering and mooring systems) by saying:

“a means of significant risk reduction is the installation of equipment on board the ship or on the berth to monitor the vessel’s berthing velocities, both normal to the berth and rotational, as well as berthing angles, to ensure that they are maintained within permissible operating limits. Such equipment could be either fixed jetty-based systems with display units visible from the ship’s bridge, or portable piloting units carried by the pilot.”

PPUs versus Laser Docking
As mentioned above, there are significant advantages to using high-end PPUs as an alternative to laser docking systems in ports and terminals. For example, a PPU is available throughout the entire approach, not just in the last 50 or 100 metres, giving full navigational support to the pilot throughout the approaches. Additionally, during any swing a PPU will give clearing distance ahead and astern, and clear graphical imagery on where the vessel is predicted to be in the next minutes.

Safety and efficiency bring commercial benefits
The benefits of using a high-end PPU can not only increase efficiency and safety of pilotage, but also provide commercial benefits to ports as highlighted in the following case studies:

Case Studies
Safety. While piloting a Panamax bulk carrier into the Port of Weipa (Northern Queensland, Australia), and fully committed because of the narrow channel, a pilot was hit by a severe rain squall which lasted for over an hour. He had near-zero visibility for the rest of the passage and couldn’t see the tugs or the beacons until they were abreast of the berth. Using the PPU in conjunction with the radar, he was able to complete the inbound passage safely, catching the first glimpse of the berth when he was parallel and about 100 m off. As he reported to his fellow pilots: “... these new PPU’s are fantastic...”

Efficiency. At Cape Cuvier in Western Australia, salt and gypsum are loaded onto bulk carriers lying just off the head of the loading jetty (which is not stressed for ship-contact) moored to six mooring buoys. The site is exposed to strong onshore winds during the day which often preclude berthing. Nights are generally much calmer, but the area is poorly lit. A PPU was acquired to enable night movements and once experience had been gained by the pilots, the benefits began to flow almost immediately. Operations could begin in the late afternoon as the wind began to die, without having to worry that darkness might fall before completion. Additionally, the operation was much quicker, saving nearly an hour on each operation. Well before the planned night operations were attempted, the equipment had paid for itself from savings in demurrage.
Increasing port safety and efficiency worldwide for over a decade. Our PPU’s have been tried and tested by marine pilots around the globe, and are currently used in over 20 countries worldwide.

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**ChannelPilot**
Is ideal for navigating narrow channels and some restricted manoeuvres. It’s small, lightweight and cost effective.

**GyroPilot**
Wirelessly retransmits AIS data, smoothes heading and adds ROT. When AIS fails, it can supply position and COG for emergency usage.

“**It’s not that without it there would be no manoeuvre. The idea is to further increase the safety in those cases where the complexity is higher, where we need positioning and distance.**”

- Bruno Tavares, Senior Pilot, Port of Santos

“I consider Navicom PPU’s to be an extremely valuable aid in achieving consistent positioning.”

- Josh Osborne, Bluff Pilots

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Initially it was hinted at us that the Queen Mary 2 (QM2) would stay alongside whilst the Queen Elizabeth (QE) and Queen Victoria (QV) would come into the river, turn around and then the QM2 would simply sail away. We wanted to think outside the box and thought we could make it much more interesting and exciting, more of a spectacle to show the ships off and our skills in the narrowest part of the river where we could be seen by as many people as possible from ashore.

So we planned that the QM2 would leave the berth just before low water and get on to the approach channel so all three liners could form a convoy into the river. At low water we turned through 180° with only 2m UKC. As we turned I realised all our eighteen months of planning, all our agonizing over the weather forecasts, relentless meetings and practicing the manoeuvres on our in house simulators was finally coming to fruition. The other two liners were committed to the channel now, I could see them getting closer, this was it! As we turned in our approach channel it was unfamiliar to be executing such a manoeuvre in such a strange position, only the practicing on our simulator gave me some comfort. We had never envisaged so many people would come out to see the event and certainly we had not envisaged that people would put on their wellies and be right at the waters edge in the Crosby Channel, they seemed so close ahead of us as we turned. No one knows how many people came to see the event as it was impossible to count them, the City estimated over 1.3 million people were in the areas down town but there was also so many people standing on the beaches like ants.

The secret of success had to be in the planning, we had everything detailed right down to the minute. As we have our own twin bridge BMT Rembrandt simulators we were fortunate we could not only show the Cunard Commodore, Captains and shore staff what we were proposing but we could also practice the manoeuvres and time them so that we could build them into the plan. We felt comfort in the fact if the manoeuvres took a little longer we could just run over a few minutes and no one would be the wiser! Then we found out five days before that the Red Arrows would be doing a fly past over a few minutes and no one would be the wiser! Then we found out five days before that the Red Arrows would be doing a fly past at exactly 1351hrs, the time when we were to be all abreast, 130m apart, stemming the flood tide off the Cunard Building, which is one of the Three Graces in the narrowest part of the river, down town. No pressure then.

The final part of the planning was for the three lead Pilots, to join their respective ships a few days before. Simon Wood joined the QV in Guernsey, James Smart joined the QE in Kirkwall and myself joined the QM2 in Greenock. This time on board was great as we could take out our latest local hydrographic survey charts and work with the bridge teams to get our proposed tracks, turning circles etc onto their own electronic charts so we would all be on the same page on the day. As communication was going to be so important we asked for second pilots so Jamie Curry joined QM2, Andy Wentel for QE and Paul Stephenson for QV.

Once we were turned in the approach channel, QE and QV passed us and then we joined the convoy 4 cables apart at 6 knots picking our way through the deepest water towards the event area. In the river, there a lot of craft of all shapes and sizes which were great to see and they all kept nicely clear of us with the help of the Royal Navy reminding them of our exclusion zones. We also had tugs spraying their water cannons ahead and astern of us.

As we closed to the down town event area, we reduced the distance apart to 400m and stopped over our planned turning spots. The wind was around 20knots and due to our windage we were very close to us having to increase our spacing later as per our contingency plans.

All three liners commenced a synchronized turn to starboard through 180° at exactly 15° per minute until we were all heading 345°, that was quite difficult but it looked great. We then held that position against the fresh wind and incoming tide for the press to get photos. There were four helicopters in the air buzzing around also filming. We blew 175 on the whistle during the turn. The QM2 has a great sounding whistle.

The next stage was to form an arrowhead so that the QM2 was opposite the Cunard Building, on our beautiful waterfront right by the Cruise Terminal, QE and QV moved up to slightly overlap QM2. We held that formation for the planned time as the wind was still right on the cusp of calling in the contingency formation. As lead ship we kept having to stem the wind more all the time informing the other two liners so they could match our heading.

Despite the wind we were just able to keep to the plan, QE and QV moved abreast of QM2, 130m apart. As we waited for the Red Arrows to fly over us with their red, white and blue smoke, the clouds cleared and the sun shone brightly. The Red Arrows came right on time and we knew then we had pulled it off! It was an amazing feeling for all on the bridge. It was a privilege to work with such a professional and competent bridge team: After a further time holding position for the photos it was finally time for QM2 to break formation and head out to sea. QE went alongside and QV to an anchor just mid river off the Three Graces.

The media seemed to be in a frenzy, social media was going mad with us trending number one in the world, aerial footage was on the internet in no time. News channels were doing live feeds. We were front page on the Times the next day. We were getting congratulatory
messages from all over the world, but the most touching was from other Pilotage districts. To be recognized by your own cloth is a good feeling.

We broke the record for the highest number of people and greatest gross tonnage afloat on the river Mersey at the same time.

The event was quite a success for Cunard and for Liverpool, we hope that the attention will help increase the number of cruise ships and liners calling at Liverpool. Not many cruise ports have their terminal in such a superb down town location as in Liverpool where passengers and crew can simply walk ashore into the city centre.
Peter Hinchcliffe, Secretary General of the London-based International Chamber of Shipping, suggests “there will be a time when there will be a mix of manned and unmanned ships in coastal areas” around the globe.

This will require major revisions in collision regulations, Mr. Hinchcliffe said while commenting on global technological changes at an annual conference [May 20-22] in Ottawa, Ontario of the Canadian Shipowners Association and the Lake Carriers Association of the United States.

Mr. Hinchcliffe acknowledged: “I would not personally like to be on the bridge of a manned ship waiting to know if the unmanned ship on my port bow will in fact give (right of) way.”

He indicated that he was aware of at least one limited voyage undertaken by an unmanned prototype. While he does not see a firm trend towards all ocean ships operating without crews, he sees “an evolution toward unmanned or minimally manned ships on local voyages.”

According to Mr. Hinchcliffe, “navigation and collision avoidance problems are generally straightforward” - but he questioned how unmanned ships could be navigated in bad weather conditions “when so often ship safety and prudence are communicated through the soles of the watchkeeper’s feet, leading to speed and course changes to ease the pressure on the ship’s structure.”

The international shipping figure said he has asked the proponents of unmanned ships to discuss bringing such vessels into pilotage waters, and all agreed that a pilotage team should be required on board. “In bad weather, how will the ship be safely held off the coast if the pilotage team cannot be brought on board due to the conditions?”

### ‘Unmanned’ ships in coastal areas? By Leo Ryan

Extract from First Watch column in Maritime Magazine # 77 – Summer 2015 www.maritimemag.com

Automatic pilotage operations have long existed in passenger airplanes. In today’s fast-changing world, self-driving trucks now exist under autonomous technology along with prototypes of self-driving cars. What about ships on the oceans?
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